



Ignitable Liquid Identification Test No. 18-536 Summary Report

Each sample set consisted of: one nylon bag that contained a piece of cardboard to which an ignitable liquid had been added (Item 1), one nylon bag that contained a piece of cardboard to which an ignitable liquid had been added (Item 2), and one nylon bag that contained a sample of the cardboard substrate (Item 3). Data were returned from 302 participants and are compiled into the following tables:

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This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample set consisted of three items: two nylon bags that contained a piece of cardboard to which an ignitable liquid had been added and one nylon bag that contained a sample of the cardboard substrate. Participants were requested to identify and indicate the ASTM class for any ignitable liquid(s) detected in the submitted items.

SUBSTRATE PREPARATION: The cardboard was prepared by cutting it into 2" x 2" squares, avoiding sections that contained printing and/or adhesive.

ITEMS 1 and 2 (SAMPLE PREPARATION): The ignitable liquid used for Item 1 was a product labeled as Klean Strip Strip-X Stripper. The ignitable liquid used for Item 2 was a product labeled as ZEP Heavy Duty Citrus Degreaser. They were purchased from a home improvement store in May 2018. After adding 50 μ l of the ignitable liquid to the substrate, it was immediately double heat-sealed in a 5" x 10" nylon bag. This bag was then placed in a pre-labeled 6" x 12" nylon bag and double heat-sealed across the top. After sealing, each bag was inspected to determine if it contained an adequate amount of air space. Each item was prepared separately and stored in different locations until the complete sample sets were packaged.

ITEM 3 (NEGATIVE CONTROL): The sample was packaged in the same way as described for Items 1 and 2, but no ignitable liquid was added.

SAMPLE SET ASSEMBLY: Once verification was completed, all sample sets were prepared. Prior to packing items into sample pack boxes, each item was again inspected to ensure it contained an adequate amount of air space. For each sample set, an Item 1, 2, and 3 were each placed into a pre-labeled sample pack box. This process was repeated until all of the sample sets were prepared.

VERIFICATION: Laboratories that conducted predistribution analysis of the items classified the ignitable liquid in Item 1 as Aromatic Products class containing toluene and xylenes. One lab reported that Item 1 also contained acetone. The Safety Data sheet for the product used for Item 1 indicates that it does contain acetone at concentrations of less than 10%. Following a review of the above information, it was determined that this test was suitable for release. Item 2 was identified as Other-Miscellaneous class. The liquid was classified using the ASTM classification scheme.

**Source: ASTM E 1618-11, Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry, Table 1.*

Summary Comments

This test was designed to allow participants to assess their ability in the extraction and identification of ignitable liquids on pieces of cardboard packaged in nylon bags. Participants were provided with three items: two nylon bags that each contained a piece of corrugated cardboard to which an ignitable liquid had been added, and one nylon bag that contained a sample of the cardboard substrate. The piece of cardboard in the Item 1 bag contained a product labeled as Klean Strip Strip-X Stripper. The piece of cardboard in the Item 2 bag contained a product labeled as ZEP Heavy Duty Citrus Degreaser. (Refer to the Manufacturer's Information for preparation details.)

For the classification of Item 1, 302 participants reported results. There were 102 participants (33.7%) that classified the ignitable liquid as belonging to only the Aromatic Products classification. There were 85 participants (28.1%) that classified the ignitable liquid as belonging to only the Oxygenated Solvents classification. Thirty-two participants classified the ignitable liquid for Item 1 as belonging to both the Aromatic Products and the Oxygenated Solvents classifications. Fifty-eight participants (19.2%) classified the ignitable liquid in Item 1 as belonging to only the Others-Miscellaneous classification. The majority of participants reported the subclass to be Light or Light to Medium for all of these reported classifications. Twenty-one participants classified the ignitable liquid for Item 1 as belonging to three different classifications. While the specific classifications varied, all of the participants included the Aromatic Products classification in their reported results with the majority of these participants reporting the liquid also belonging to the Oxygenated Solvents and the Petroleum Distillates classifications. There were an additional two participants who reported both the Aromatic Products and the Petroleum Distillates as their classification and another two participants that reported other single component classifications. The results received for this Item did not achieve a clear consensus. An evaluation of these results, participants written conclusions, and additional comments found that the presence of Acetone in the sample was a contributing factor to the inability to reach a consensus. Laboratories appear to have different policies and procedures for the detection and reporting of acetone. It was also noted that many participants discussed the presence of additional identifiable substance(s) belonging to an ILRC classification other than what they reported in their conclusions.

For the classification of Item 2, 300 participants reported results. There were 266 (88.6%) participants that classified the ignitable liquid as belonging to only the Others-Miscellaneous classification. The majority of these participants reported the subclass to be Medium, with many participants listing Limonene as a subclass. Of the remaining 34 participant responses, 14 classified it as belonging to only the Oxygenated Solvents classification, two participants classified it as belonging to both the Oxygenated Solvents and Others-Miscellaneous classifications, and one participant classified it as belonging to both the Oxygenated Solvents and Aromatic Products classifications. There were 17 participants who reported "no ignitable liquid(s) detected."

The most common extraction technique utilized was heated passive headspace concentration with carbon/charcoal adsorbent and solvent desorption. The most common identification technique utilized was GC/MS.

Ignitable Liquid Identification

Indicate the ASTM E 1618-14 class or classes for any ignitable substances detected in the submitted items.

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
248JEZ	Aromatic Products	medium
268CJZ	Aromatic Products	Light Aromatic Product
27VKBV	Oxygenated Solvents	light
2ADFEM	Aromatic Products	Light
	Oxygenated Solvents	Light
2BBRXA	Aromatic Products	Light
2HTVTV	Aromatic Products	
2HUE4D	Others - Miscellaneous	Acetone and light aromatic product
2MZRNC	Aromatic Products	Light
2PPN2P	Aromatic Products	Light to medium (~C5 to C13)
	Oxygenated Solvents	Light to medium (~C5 to C13)
2Q3Z2F	Oxygenated Solvents	Light
2VHJAN	Oxygenated Solvents	Light-Acetone
2YBUW9	Others - Miscellaneous	Light
2YXZHT	Aromatic Products	Light
	Oxygenated Solvents	Light
36GYAD	Oxygenated Solvents	light
3AVGPA	Oxygenated Solvents	Light
3GDWA7	Aromatic Products	Light
3JDZ2T	Aromatic Products	Light Aromatic
3JGFKK	Others - Miscellaneous	Light
3NTZAZ	Oxygenated Solvents	Light
3T778D	Oxygenated Solvents	Light
3UGEMR	Oxygenated Solvents	Light
3YB6FH	Others - Miscellaneous	C4-C20+
42D28J	Oxygenated Solvents	Light to Medium range
46VM8X	Aromatic Products	Light
47LV9M	Aromatic Products	Light
	Oxygenated Solvents	Light
49BUDR	Aromatic Products	Light
4AN22U	Oxygenated Solvents	Light
4CAFC3	Aromatic Products	LIGHT
4CUNFJ	Oxygenated Solvents	Light
4GRQDD	Oxygenated Solvents	Light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
4K79TA	Oxygenated Solvents	Light
4P2XDM	Oxygenated Solvents	Light
4RAMLK	Oxygenated Solvents	Light - medium
4UFVKA	Aromatic Products	Light Range
4Z6AAG	Others - Miscellaneous	
66CZA2	Aromatic Products	Light
68HJBH	Others - Miscellaneous	Light
6BH9LJ	Others - Miscellaneous	Medium
6CRQRM	Aromatic Products	light
	Oxygenated Solvents	light to medium (C4-C12)
6DK7T6	Oxygenated Solvents	Light
6G27W6	Aromatic Products	Light
6G42VX	Aromatic Products	
	Oxygenated Solvents	
6J8WFZ	Aromatic Products	Light
6R3HFD	Aromatic Products	Light
6TCAA9	Aromatic Products	Light (C4-C9)
6UT4C4	Aromatic Products	light
6XU84Q	Aromatic Products	Light
6YLNBY	Aromatic Products	light
	Oxygenated Solvents	Acetone
73FJFY	Oxygenated Solvents	Light
74E8RN	Aromatic Products	light
	Oxygenated Solvents	light
	Petroleum Distillates (including De-Aromatized)	medium
7BEJZD	Others - Miscellaneous	Light
7BVJ8A	Oxygenated Solvents	Light
7DZQFN	Aromatic Products	light
7ER GAL	Aromatic Products	Light
7EVU2N	Aromatic Products	Light range
7MNEWN	Others - Miscellaneous	light to medium
7R4NAT	Others - Miscellaneous	C5 - C12
7U7MHZ	Aromatic Products	light
7WE6VX	Aromatic Products	Light
7ZCH3Z	Others - Miscellaneous	Light
7ZTC6V	Others - Miscellaneous	C6-C9
83EGDT	Others - Miscellaneous	

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
86J4QW	Aromatic Products	Light
88A6VK	Aromatic Products	Light
	Oxygenated Solvents	Acetone
	Petroleum Distillates (including De-Aromatized)	medium
8EPYVN	Aromatic Products	Light
	Oxygenated Solvents	Light
8FJ878	Aromatic Products	light (C4-C9)
8JFHQQ	Oxygenated Solvents	Light
8QL6NL	Aromatic Products	Light
	Others - Miscellaneous	Light
	Oxygenated Solvents	Light
8RYKG2	Others - Miscellaneous	light
8WV4KL	Aromatic Products	Light
	Oxygenated Solvents	Acetone
	Petroleum Distillates (including De-Aromatized)	Medium
8XLGWC	Aromatic Products	Light
	Others - Miscellaneous	Light
	Oxygenated Solvents	Light
8ZBXYX	Aromatic Products	light
	Oxygenated Solvents	acetone
92HD8N	Oxygenated Solvents	light to medium (C4 - C13)
938GJP	Aromatic Products	light
	Oxygenated Solvents	light (acetone)
	Petroleum Distillates (including De-Aromatized)	medium
979KBC	Aromatic Products	light
9FFYEY	Oxygenated Solvents	light
9FJ8ER	Oxygenated Solvents	
9FYBB4	Oxygenated Solvents	
9FZ8DM	Others - Miscellaneous	Light to Medium
9KAJB9	Oxygenated Solvents	light
9L48U4	Aromatic Products	Medium
9P7MA2	Oxygenated Solvents	Light
9PLEAQ	Others - Miscellaneous	
9Q2QXN	Oxygenated Solvents	Light
9QWD7K	Oxygenated Solvents	Light
A2CJ2N	Oxygenated Solvents	Light
A37DDX	Oxygenated Solvents	Light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
A3PP8K	Aromatic Products	light
ALZJZQ	Aromatic Products	Light
	Normal Alkanes Products	Heavy
	Petroleum Distillates (including De-Aromatized)	Medium
AR4VZA	Aromatic Products	light
	Oxygenated Solvents	light
ATLALL	Others - Miscellaneous	medium
AY9UDK	Others - Miscellaneous	light to medium
AYR76L	Oxygenated Solvents	light
B37QKR	Aromatic Products	Light
BCUWMK	Aromatic Products	Light
BDMB6N	Others - Miscellaneous	Light
BK6TDP	Oxygenated Solvents	Light
BN8MFZ	Aromatic Products	Light
	Others - Miscellaneous	Dichloromethane
	Petroleum Distillates (including De-Aromatized)	Medium
BPXKCT	Aromatic Products	Light
BT3ENX	Aromatic Products	Light
CAH63M	Aromatic Products	light
	Oxygenated Solvents	light
CB9ACL	Oxygenated Solvents	Light
CBT7MZ	Aromatic Products	light
CCPKCE	Oxygenated Solvents	light
CECDFN	Aromatic Products	Light
	Normal Alkanes Products	Heavy
	Petroleum Distillates (including De-Aromatized)	Medium distillates
CGH2TT	Aromatic Products	Light
CKHAYN	Aromatic Products	Light Range
CM6EM8	Aromatic Products	Light
CQPB8Q	Aromatic Products	light
CUPDHL	Others - Miscellaneous	light
CZU92L	Others - Miscellaneous	Light
DC64UQ	Aromatic Products	Light Aromatic
DCJP6D	Aromatic Products	Light
DCLUPB	Aromatic Products	Light
DCZTP8	Oxygenated Solvents	light
DDWYHK	Aromatic Products	light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
DDWYHK	Oxygenated Solvents	light
	Petroleum Distillates (including De-Aromatized)	medium
DL9D32	Oxygenated Solvents	Light
DXKZGM	Others - Miscellaneous	Light-Medium
E4J4JQ	Others - Miscellaneous	Mix of aromatic product and medium pet, dist.
EJXAVP	Aromatic Products	Light (C4-C9)
EK9AT6	Oxygenated Solvents	Light
ENUG9D	Aromatic Products	Light
	Oxygenated Solvents	Acetone
	Petroleum Distillates (including De-Aromatized)	Medium
EP8UBN	Aromatic Products	Light
EVCQWA	Others - Miscellaneous	light
EYB4HE	Aromatic Products	Light Range
	Oxygenated Solvents	Light Range
F2W6Z8	Aromatic Products	Medium
F3ARNM	Oxygenated Solvents	LIGHT
F6WJLB	Oxygenated Solvents	Light
F9UX92	Others - Miscellaneous	C4-C13
FCER72	Oxygenated Solvents	light
FD9FNW	Oxygenated Solvents	nC5-nC12 (Light to Medium)
FFWYLN	Aromatic Products	light Aromatics
FHG6KB	Others - Miscellaneous	Heavy
FN8Q3T	Aromatic Products	light
	Oxygenated Solvents	light
	Petroleum Distillates (including De-Aromatized)	medium
FUF938	Aromatic Products	
FY6ACD	Aromatic Products	light
	Oxygenated Solvents	acetone
G333YG	Aromatic Products	Light
	Oxygenated Solvents	Light
	Petroleum Distillates (including De-Aromatized)	Medium
G4HA96	Others - Miscellaneous	
G4HT2T	Others - Miscellaneous	Light to Medium
GG89Y8	Aromatic Products	light aromatic products
	Oxygenated Solvents	Acetone
GLEG6W	Aromatic Products	Light (C4-C9)
GN47MA	Aromatic Products	Light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
GQA8DU	Aromatic Products	Light
GQV3B4	Others - Miscellaneous	
GRKK4N	Aromatic Products	light to medium
	Oxygenated Solvents	light
GURXNB	Aromatic Products	light
	Oxygenated Solvents	light
H62WVN	Others - Miscellaneous	light+medium
HGHJ6P	Aromatic Products	Xylenes (light)
	Oxygenated Solvents	Acetone (light)
HLANZE	Oxygenated Solvents	Light
HLTQQN	Oxygenated Solvents	light
HQQ6FY	Others - Miscellaneous	C4-C13
HWWH64	Petroleum Distillates (including De-Aromatized)	Medium
HYVQ9D	Aromatic Products	Light
HZCFGD	Oxygenated Solvents	light
J7KUAA	Aromatic Products	Light
	Oxygenated Solvents	Acetone
J9K63N	Aromatic Products	light
JDHLDX	Oxygenated Solvents	light
JF3HXG	Aromatic Products	light-mid range
JMXAWH	Aromatic Products	light (C4 - C9)
JNUP8T	Aromatic Products	Light (C4-C9)
JP8WVW	Gasoline	
JTCM2B	Aromatic Products	Light
JWWZYY	Oxygenated Solvents	Light
JZBVDB	Aromatic Products	light
	Oxygenated Solvents	light
	Petroleum Distillates (including De-Aromatized)	medium
K2GKDX	Aromatic Products	
K7CD68	Aromatic Products	Light
KAEAWN	Aromatic Products	Light
KCW4FN	Aromatic Products	Light
	Normal Alkanes Products	Heavy
	Petroleum Distillates (including De-Aromatized)	Medium
KDD3XT	Aromatic Products	Light to medium
KE6K8L	Aromatic Products	light
KJ4XUB	Aromatic Products	medium

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
KJ4XUB	Oxygenated Solvents	light
KJYK39	Aromatic Products	Light
	Oxygenated Solvents	Light
KKBFQL	Aromatic Products	Light
KLLU3G	Aromatic Products	Light
KQZX6X	Aromatic Products	Light
KTJUNG	Oxygenated Solvents	light
KW6R2E	Others - Miscellaneous	
L44GJ4	Aromatic Products	Light
L6TUVU	Oxygenated Solvents	Light
L8GVUA	Others - Miscellaneous	Light
LMFA2C	Oxygenated Solvents	Light
LNNV2T	Aromatic Products	Light
LTHJ4X	Others - Miscellaneous	light
LUTUCH	Aromatic Products	Light
M2QZ9W	Oxygenated Solvents	Light
M762K9	Aromatic Products	Medium
	Oxygenated Solvents	Light
	Petroleum Distillates (including De-Aromatized)	Medium
M7PHZB	Oxygenated Solvents	Light
M9A4FY	Aromatic Products	
MJR8E	Others - Miscellaneous	Light to Medium (C4-C12)
MQAY9Q	Aromatic Products	Light (C4-C9)
MRKX6K	Oxygenated Solvents	Light
MYLDT8	Aromatic Products	
MZZ629	Aromatic Products	With Acetone
N7ZFFZ	Aromatic Products	light
NHFVDD	Others - Miscellaneous	Light to medium
NJ74E2	Aromatic Products	light
NLCUWX	Others - Miscellaneous	Light to medium
NLRF6D	Aromatic Products	
NTB6X2	Oxygenated Solvents	Light-Acetone
NW93DE	Aromatic Products	Light
NZC7CA	Oxygenated Solvents	Light
P3GLC8	Aromatic Products	Light(C4-C9)
P3UXPN	Aromatic Products	light range
P7DVDE	Aromatic Products	light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
P92EB6	Oxygenated Solvents	Light
PDB2YM	Aromatic Products	Light
PDV7PU	Oxygenated Solvents	Light
PENTPJ	Others - Miscellaneous	light to medium
PGC6QA	Aromatic Products	Light
PH7GGN	Oxygenated Solvents	Light
PH9L2L	Aromatic Products	light
	Oxygenated Solvents	light
PKCGMA	Aromatic Products	Light
PRGFDK	Oxygenated Solvents	C4-C13
PTP8BM	Oxygenated Solvents	Light
PU2HAR	Oxygenated Solvents	Light
PVHMUB	Others - Miscellaneous	Light
PVW94D	Aromatic Products	Light
PYWJZD	Aromatic Products	light
Q2E4HL	Others - Miscellaneous	
Q488H4	Aromatic Products	
Q9WGDE	Others - Miscellaneous	Major peaks (C4-C9) Toluene and di-substituted benzenes with trace level alkanes/MPD (C8-C13)
QDRDF8	Oxygenated Solvents	light
QFWN62	Oxygenated Solvents	Light (C5-C9)
QMDA37	Oxygenated Solvents	Light
QPMA9D	Aromatic Products	Light
	Oxygenated Solvents	Acetone
QRBT66	Oxygenated Solvents	light
QZNCFB	Aromatic Products	Light
	Oxygenated Solvents	Light
R8ZQZR	Aromatic Products	light
	Petroleum Distillates (including De-Aromatized)	medium
RAMYU7	Others - Miscellaneous	
RBNP92	Aromatic Products	Light
	Others - Miscellaneous	Light
	Oxygenated Solvents	Light
RH3KZP	Oxygenated Solvents	Light
RRKP2G	Aromatic Products	
	Oxygenated Solvents	Acetone
	Petroleum Distillates (including De-Aromatized)	medium petroleum distillate

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
RTZCRN	Aromatic Products	Light to medium (C6 to C9)
RVL7KH	Others - Miscellaneous	Light
T3K6JB	Aromatic Products	light
	Oxygenated Solvents	acetone
T6QMFL	Aromatic Products	Light
	Oxygenated Solvents	Acetone
TBVYJT	Aromatic Products	
TCATED	Aromatic Products	Light
TGKJM9	Aromatic Products	Light
	Oxygenated Solvents	Light
TN632M	Oxygenated Solvents	Light
TTHKGJ	Aromatic Products	light
	Others - Miscellaneous	methylene chloride
	Petroleum Distillates (including De-Aromatized)	medium
TW2XYL	Others - Miscellaneous	Light (aromatic) + light oxygenate (acetone)
TWED78	Oxygenated Solvents	Light (acetone, toluene, xylene and ethyl benzene)
TYLRWL	Aromatic Products	Light
U7KQNM	Oxygenated Solvents	Light
U8C4FZ	Aromatic Products	light
	Oxygenated Solvents	light
U9MF6A	Aromatic Products	Light
UAGW8E	Aromatic Products	
	Petroleum Distillates (including De-Aromatized)	Medium
UAY94J	Oxygenated Solvents	Light
UCLY6M	Oxygenated Solvents	Light oxygenated
UM37W6	Others - Miscellaneous	light
UMPE79	Aromatic Products	Light
	Oxygenated Solvents	Light
UQMY98	Aromatic Products	Light
UVZX3D	Oxygenated Solvents	light
UXKQEF	Others - Miscellaneous	MPD
V49TYQ	Aromatic Products	
VC39V3	Oxygenated Solvents	light
VDJHTB	Oxygenated Solvents	Light
VJJBTC	Aromatic Products	
VM4NPE	Aromatic Products	Light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
VQL9A9	Aromatic Products	Light
	Oxygenated Solvents	Acetone
VTAK9E	Oxygenated Solvents	Light
VTPJ9C	Aromatic Products	
	Oxygenated Solvents	Acetone
	Petroleum Distillates (including De-Aromatized)	medium
VVUE29	Aromatic Products	Light
VYVDKD	Aromatic Products	light
W2Y383	Oxygenated Solvents	Light
W6JUJ6	Others - Miscellaneous	light
W7EX8Q	Aromatic Products	light
WB79F4	Others - Miscellaneous	Light
WDAATL	Aromatic Products	light
WJGPNP	Others - Miscellaneous	C6-C12
WV8Z2G	Aromatic Products	Light
WZNVTT	Others - Miscellaneous	LIGHT (LIGHT AROMATIC PRODUCT, OXYGENATED COMPOUNDS AND DICHLOROMETHANE)
X4H2V2	Oxygenated Solvents	Light
X6YXLF	Oxygenated Solvents	Light
X9DB94	Aromatic Products	light
XEEM3F	Aromatic Products	Light
XMGZH4	Others - Miscellaneous	Light
XNTYDC	Aromatic Products	Light
XXD4MX	Oxygenated Solvents	Light Range
XXG86A	Oxygenated Solvents	light to medium
XYRRL4	Others - Miscellaneous	Light to medium
XZHZMR	Others - Miscellaneous	Light
Y4FBAY	Oxygenated Solvents	Light
Y4H9R3	Oxygenated Solvents	Acetone and aromatics (Toluene and xylenes)
Y6BRJA	Others - Miscellaneous	light to heavy
Y8Y4K2	Oxygenated Solvents	Light in the range of C4 -C9
Y9N6B3	Others - Miscellaneous	C6-C9
YEZ4TM	Others - Miscellaneous	light
YHVAEY	Aromatic Products	light
	Oxygenated Solvents	acetone (light)
	Petroleum Distillates (including De-Aromatized)	medium (trace - much less than those above)
YMQNWZ	Others - Miscellaneous	Light

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
YNHU7Y	Aromatic Products	Light
	Oxygenated Solvents	Light
Z24VFX	Oxygenated Solvents	Light
Z7KJ9N	Others - Miscellaneous	light to medium, C5 -C12
ZGXQYW	Oxygenated Solvents	Light
ZKE9ZD	Aromatic Products	Light
ZRE6T6	Aromatic Products	Light
	Oxygenated Solvents	Acetone
ZTT6YT	Aromatic Products	Light
ZU8LZD	Oxygenated Solvents	light
ZV2KLL	Aromatic Products	Light
ZZUCM9	Aromatic Products	light
	Oxygenated Solvents	light
ZZWG77	Oxygenated Solvents	Light

Response Summary		Total Participants: 302
Item 1*: Class		
Aromatic Products	157 (52.0%)	Totals may add up to more than the total number of participants because participants can report multiple ignitable substance classes detected.
Oxygenated Solvents	133 (44.0%)	
Others - Miscellaneous	63 (20.9%)	
Petroleum Distillates (including De-Aromatized)	21 (7.0%)	
Normal Alkanes Products	3 (1.0%)	
Gasoline	1 (0.3%)	

*A consensus was not reached for Item 1, therefore inconsistent results were neither determined nor highlighted

Ignitable Liquid Identification

Indicate the ASTM E 1618-14 class or classes for any ignitable substances detected in the submitted items.

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
248JEZ	Others - Miscellaneous	medium
268CJZ	Others - Miscellaneous	
27VKBV	Others - Miscellaneous	medium
2ADFEM	Others - Miscellaneous	medium
2BBRXA	Others - Miscellaneous	Light aromatic + oxygenated solvent
2HTVTV	Others - Miscellaneous	
2HUE4D	Others - Miscellaneous	limonene
2MZRNC	Others - Miscellaneous	Medium
2PPN2P	Others - Miscellaneous	Medium
2Q3Z2F	Others - Miscellaneous	Medium
2VHJAN	Others - Miscellaneous	Medium
2YBUW9	Others - Miscellaneous	Medium
2YXZHT	Others - Miscellaneous	
36GYAD	Others - Miscellaneous	medium
3AVGPA	Others - Miscellaneous	Medium
3GDWA7	Others - Miscellaneous	Limonene detected
3JDZ2T	No Ignitable Liquid(s) Detected	
3JGFKK	Others - Miscellaneous	Medium
3NTZAZ	Others - Miscellaneous	Medium
3T778D	Others - Miscellaneous	Medium
3UGEMR	Others - Miscellaneous	Medium
3YB6FH	Others - Miscellaneous	Medium
42D28J	Oxygenated Solvents	Medium range
46VM8X	Others - Miscellaneous	Medium
47LV9M	Others - Miscellaneous	Medium
49BUDR	Others - Miscellaneous	Medium
4AN22U	Others - Miscellaneous	Medium
4CAFC3	Others - Miscellaneous	MEDIUM
4CUNFJ	Oxygenated Solvents	Medium - Heavy
4GRQDD	Others - Miscellaneous	Medium
4K79TA	Others - Miscellaneous	Heavy
4RAMLK	Oxygenated Solvents	medium
4UFVKA	Others - Miscellaneous	Medium Range
4Z6AAG	Others - Miscellaneous	
66CZA2	Oxygenated Solvents	Medium
68HJBH	Others - Miscellaneous	Medium
6BH9LJ	Oxygenated Solvents	Medium
6CRQRM	Others - Miscellaneous	medium

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
6DK7T6	Others - Miscellaneous	Medium
6G27W6	Others - Miscellaneous	Medium
6G42VX	Others - Miscellaneous	
6J8WFZ	Others - Miscellaneous	Limonene
6R3HFD	No Ignitable Liquid(s) Detected	
6TCAA9	Others - Miscellaneous	Medium (C8-C13)
6UT4C4	No Ignitable Liquid(s) Detected	
6XU84Q	Others - Miscellaneous	Light
6YLNBY	Others - Miscellaneous	Limonene
73FJFY	No Ignitable Liquid(s) Detected	
74E8RN	Others - Miscellaneous	medium
7BEJZD	Others - Miscellaneous	Medium
7BVJ8A	Others - Miscellaneous	Medium
7DZQFN	Others - Miscellaneous	medium
7ERGAL	No Ignitable Liquid(s) Detected	
7EVU2N	Others - Miscellaneous	Medium range
7MNEWN	Others - Miscellaneous	medium
7R4NAT	Others - Miscellaneous	Medium
7U7MHZ	Others - Miscellaneous	medium
7WE6VX	Others - Miscellaneous	Medium
7ZCH3Z	Others - Miscellaneous	Medium
7ZTC6V	Oxygenated Solvents	C10-C13
83EGDT	Others - Miscellaneous	
86J4QW	Others - Miscellaneous	Medium
88A6VK	Others - Miscellaneous	Medium
8EPYVN	Others - Miscellaneous	Terpenes
8FJ878	Others - Miscellaneous	medium (C8-C13)
8JFHQQ	Others - Miscellaneous	Medium
8QL6NL	Others - Miscellaneous	Medium
8RYKG2	Others - Miscellaneous	d-Limonene identified (medium)
8WV4KL	Others - Miscellaneous	Limonene
8XLGWC	Others - Miscellaneous	Medium
8ZBXYX	Others - Miscellaneous	limonene
92HD8N	Others - Miscellaneous	medium
938GJP	Others - Miscellaneous	Limonene
979KBC	Oxygenated Solvents	light
9FFYEY	Others - Miscellaneous	medium
9FJ8ER	Others - Miscellaneous	
9FYBB4	Others - Miscellaneous	Medium
9FZ8DM	Others - Miscellaneous	Medium
9KAJB9	Others - Miscellaneous	medium
9L48U4	Others - Miscellaneous	Medium

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
9P7MA2	Others - Miscellaneous	Medium
9PLEAQ	Others - Miscellaneous	
9Q2QXN	Others - Miscellaneous	Medium
9QWD7K	Others - Miscellaneous	Medium
A2CJ2N	Others - Miscellaneous	Medium
A37DDX	Oxygenated Solvents	Medium
A3PP8K	Others - Miscellaneous	medium
ALZJZQ	Others - Miscellaneous	Medium
AR4VZA	Others - Miscellaneous	medium
	Oxygenated Solvents	medium
ATLALL	Others - Miscellaneous	medium
AY9UDK	Others - Miscellaneous	medium
AYR76L	Others - Miscellaneous	medium
B37QKR	Others - Miscellaneous	Medium
BCUWMK	Others - Miscellaneous	Medium
BDMB6N	Others - Miscellaneous	Medium
BK6TDP	Others - Miscellaneous	Medium
BN8MFZ	Others - Miscellaneous	Terpenes
BPXKCT	Others - Miscellaneous	Terpenes
BT3ENX	Others - Miscellaneous	Medium
CAH63M	Others - Miscellaneous	medium (C10-C11)
CB9ACL	Others - Miscellaneous	Medium
CBT7MZ	Others - Miscellaneous	medium
CECDFN	Others - Miscellaneous	Turpentines
CGH2TT	Others - Miscellaneous	Limonene
CKHAYN	Others - Miscellaneous	Medium Range Terpenes
CM6EM8	Others - Miscellaneous	Limonene
CQPB8Q	No Ignitable Liquid(s) Detected	
CUPDHL	Others - Miscellaneous	medium
CZU92L	Others - Miscellaneous	Medium
DC64UQ	Others - Miscellaneous	Limonene
DCJP6D	Others - Miscellaneous	Medium (See Additional Comments)
DCLUPB	Others - Miscellaneous	Medium
DCZTP8	Others - Miscellaneous	medium
DDWYHK	Others - Miscellaneous	medium
DL9D32	Others - Miscellaneous	Medium
DXKZGM	Others - Miscellaneous	Medium
E4J4JQ	No Ignitable Liquid(s) Detected	
EJXAVP	Others - Miscellaneous	Medium (C8-C13)
EK9AT6	Others - Miscellaneous	Medium
ENUG9D	Others - Miscellaneous	Limonene
EP8UBN	Others - Miscellaneous	Medium

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
EVCQWA	Others - Miscellaneous	medium
EYB4HE	Others - Miscellaneous	
F2W6Z8	Others - Miscellaneous	Medium
F3ARNM	Others - Miscellaneous	MEDIUM
F6WJLB	Others - Miscellaneous	Medium
F9UX92	Others - Miscellaneous	medium
FCER72	Others - Miscellaneous	medium
FD9FNW	Others - Miscellaneous	Medium
FFWYLN	Others - Miscellaneous	Light
FHG6KB	Others - Miscellaneous	Heavy
FN8Q3T	No Ignitable Liquid(s) Detected	
FUF938	Others - Miscellaneous	
FY6ACD	Others - Miscellaneous	limonene
G333YG	Others - Miscellaneous	Medium
G4HA96	Others - Miscellaneous	medium
G4HT2T	Others - Miscellaneous	Medium
GG89Y8	Others - Miscellaneous	Limonene
GLEG6W	Others - Miscellaneous	Medium (C8-C13)
GN47MA	Others - Miscellaneous	Medium
GQA8DU	Others - Miscellaneous	Medium
GQV3B4	Others - Miscellaneous	
GRKK4N	No Ignitable Liquid(s) Detected	
GURXNB	Others - Miscellaneous	limonene
H62WVN	Others - Miscellaneous	medium
HGHJ6P	Others - Miscellaneous	Limonene (medium)
HLANZE	Others - Miscellaneous	
HLTQQN	Others - Miscellaneous	medium
HQQ6FY	Others - Miscellaneous	medium
HWVH64	Others - Miscellaneous	Medium
HYVQ9D	Others - Miscellaneous	Medium
HZCFGD	Others - Miscellaneous	medium
J7KUAA	Others - Miscellaneous	Limonene
J9K63N	Others - Miscellaneous	medium
JDHLDX	Others - Miscellaneous	medium
JF3HXG	No Ignitable Liquid(s) Detected	
JMXAWH	Others - Miscellaneous	Turpentine Oil, medium (C8 - C13)
JNUP8T	Others - Miscellaneous	Medium (C8-C13)
JP8WVW	Others - Miscellaneous	Light to Medium (C9 - C12)
JTCM2B	Others - Miscellaneous	Medium
JWWZYY	Others - Miscellaneous	Medium
JZBVDB	Others - Miscellaneous	medium
K2GKDX	Others - Miscellaneous	

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
K7CD68	Others - Miscellaneous	Medium
KAEAWN	Others - Miscellaneous	Medium
KCW4FN	Others - Miscellaneous	Medium
KDD3XT	Others - Miscellaneous	Medium
KE6K8L	Others - Miscellaneous	medium
KJ4XUB	Others - Miscellaneous	medium
KJYK39	Others - Miscellaneous	
KKBFQL	Oxygenated Solvents	Medium
KLLU3G	Others - Miscellaneous	Medium
KQZX6X	Others - Miscellaneous	Medium
KTJUNG	Others - Miscellaneous	medium
KW6R2E	Others - Miscellaneous	
L44GJ4	Others - Miscellaneous	Medium
L6TUVU	Others - Miscellaneous	medium
L8GVUA	Others - Miscellaneous	Medium
LMFA2C	Others - Miscellaneous	Medium
LNNV2T	Others - Miscellaneous	Medium
LTHJ4X	Others - Miscellaneous	medium
LUTUCH	Others - Miscellaneous	Medium
M2QZ9W	Others - Miscellaneous	
M762K9	Others - Miscellaneous	Medium
M7PHZB	Others - Miscellaneous	Medium
M9A4FY	Others - Miscellaneous	
MJRB8E	Others - Miscellaneous	Medium
MQAY9Q	Others - Miscellaneous	Pinene, Limonene
MRKX6K	Others - Miscellaneous	Medium
MYLDT8	Others - Miscellaneous	d-limonene
MZZ629	Others - Miscellaneous	Terpenes (Limonene)
N7ZFFZ	Others - Miscellaneous	medium
NHFVDD	Others - Miscellaneous	Medium
NJ74E2	Oxygenated Solvents	medium
NLCUWX	Others - Miscellaneous	Medium
NLRF6D	No Ignitable Liquid(s) Detected	
NTB6X2	Others - Miscellaneous	Medium
NW93DE	Others - Miscellaneous	Medium
NZC7CA	Others - Miscellaneous	Medium
P3GLC8	Oxygenated Solvents	Light(C4-C9)
P3UXPN	Others - Miscellaneous	medium range
P7DVDE	Others - Miscellaneous	Limonene
P92EB6	Others - Miscellaneous	Medium
PDB2YM	Others - Miscellaneous	Medium
PDV7PU	Others - Miscellaneous	Medium

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
PENTPJ	Others - Miscellaneous	medium
PGC6QA	Others - Miscellaneous	Medium
PH7GGN	Others - Miscellaneous	Medium
PH9L2L	Aromatic Products	light
	Oxygenated Solvents	medium
PKCGMA	Others - Miscellaneous	Medium
PRGFDK	Others - Miscellaneous	Medium
PTP8BM	Others - Miscellaneous	Medium
PU2HAR	Others - Miscellaneous	Medium
PVHMUB	Others - Miscellaneous	Medium
PVW94D	Others - Miscellaneous	Medium
PYWJZD	Others - Miscellaneous	limonene
Q2E4HL	Others - Miscellaneous	
Q488H4	Others - Miscellaneous	
Q9WGDE	Others - Miscellaneous	Limonene with trace B-pinene
QDRDF8	Others - Miscellaneous	medium
QFWN62	Others - Miscellaneous	Medium (C8-C13)
QMDA37	Others - Miscellaneous	Medium
QPMA9D	Others - Miscellaneous	Limonene
QRBT66	Others - Miscellaneous	medium
QZNCFB	Others - Miscellaneous	Medium
R8ZQZR	Others - Miscellaneous	
RAMYU7	Others - Miscellaneous	
RBNP92	Others - Miscellaneous	Medium
RH3KZP	Others - Miscellaneous	Medium
RRKP2G	No Ignitable Liquid(s) Detected	
RTZCRN	Others - Miscellaneous	Limonene
RVL7KH	Others - Miscellaneous	Medium
T3K6JB	Others - Miscellaneous	limonene
T6QMFL	Others - Miscellaneous	Limonene
TBVYJT	Others - Miscellaneous	
TCATED	Oxygenated Solvents	Medium
TGKJM9	Others - Miscellaneous	Medium
TN632M	Others - Miscellaneous	Medium C8-C14
TTHKGJ	Others - Miscellaneous	terpene-based product
TW2XYL	Others - Miscellaneous	Medium - Limonene
TWED78	Others - Miscellaneous	Medium (Limonene)
TYLRWL	Others - Miscellaneous	Medium
U7KQNM	Others - Miscellaneous	Medium
U8C4FZ	Others - Miscellaneous	medium
	Oxygenated Solvents	medium
U9MF6A	Others - Miscellaneous	Medium

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
UAGW8E	No Ignitable Liquid(s) Detected	
UAY94J	Others - Miscellaneous	Medium
UCLY6M	Others - Miscellaneous	D-Limonene
UM37W6	Others - Miscellaneous	medium to heavy (C8-C15)
UMPE79	Others - Miscellaneous	Medium
UQMY98	Oxygenated Solvents	Medium
UVZX3D	Others - Miscellaneous	medium
UXKQEF	Others - Miscellaneous	
V49TYQ	Others - Miscellaneous	
VC39V3	Others - Miscellaneous	medium
VDJHTB	Others - Miscellaneous	Medium
VJBTC	No Ignitable Liquid(s) Detected	
VM4NPE	Others - Miscellaneous	Limonene
VQL9A9	Others - Miscellaneous	Limonene
VTAK9E	Others - Miscellaneous	Medium
VTPJ9C	No Ignitable Liquid(s) Detected	
WUE29	Others - Miscellaneous	Light
YYVDKD	Others - Miscellaneous	medium
W2Y383	Others - Miscellaneous	Medium
W6JUJ6	No Ignitable Liquid(s) Detected	
W7EX8Q	Others - Miscellaneous	Medium
WB79F4	Others - Miscellaneous	Medium
WDAATL	Others - Miscellaneous	light
WJGPNP	Others - Miscellaneous	Medium
WV8Z2G	Others - Miscellaneous	Medium
WZNVTT	Others - Miscellaneous	MEDIUM (TURPENTINE PRODUCT)
X4H2V2	Others - Miscellaneous	
X6YXLF	Others - Miscellaneous	Medium
X9DB94	No Ignitable Liquid(s) Detected	
XEEM3F	Others - Miscellaneous	Medium
XMGZH4	Others - Miscellaneous	Medium
XNTYDC	Others - Miscellaneous	Medium
XXD4MX	Others - Miscellaneous	Medium Range
XXG86A	Others - Miscellaneous	medium
XYRRL4	Others - Miscellaneous	Medium
XZHZMR	Others - Miscellaneous	Medium
Y4FBAY	Others - Miscellaneous	Medium
Y4H9R3	Others - Miscellaneous	Limonene
Y6BRJA	Others - Miscellaneous	medium
Y8Y4K2	Others - Miscellaneous	Medium in the range of C8-C13
Y9N6B3	Oxygenated Solvents	C10-C13
YEZ4TM	Others - Miscellaneous	medium

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
YHVAEY	Others - Miscellaneous	limonene (medium-range terpene)
YMQNWZ	Others - Miscellaneous	
YNHU7Y	Others - Miscellaneous	Medium
Z24VFX	Others - Miscellaneous	medium
Z7KJ9N	Others - Miscellaneous	heavy
ZGXQYW	Others - Miscellaneous	
ZKE9ZD	Others - Miscellaneous	Medium
ZRE6T6	Others - Miscellaneous	Limonene
ZTT6YT	Others - Miscellaneous	Medium
ZU8LZD	Others - Miscellaneous	medium
ZV2KLL	Others - Miscellaneous	Medium
ZZUCM9	Others - Miscellaneous	medium
ZZWG77	Others - Miscellaneous	Medium

Response Summary

Total Participants: 300

Item 2: Class

Others - Miscellaneous	268 (89.3%)	Totals may add up to more than the total number of participants because participants can report multiple ignitable substance classes detected.
No Ignitable Liquid(s) Detected	17 (5.7%)	
Oxygenated Solvents	17 (5.7%)	
Aromatic Products	1 (0.3%)	

Recovery Techniques

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated (°C)			
248JEZ	✓			80	8H	Carbon/Charcoal	DCM /Butanol
268CJZ	✓			✓ 70	16 hours	Carbon/Charcoal	carbon disulfide
27VKBV	✓			✓ 90	1 hour	Tenax TA	Thermal
2ADFEM	✓			✓ 70	3 hours	Carbon/Charcoal	
Other Recovery Technique: Heated headspace							
2BBRXA		✓		✓ 100	N/A	TENAX TA	Thermal
2HTVTV	✓			✓ 80	2 hr	Carbon/Charcoal	cs2
2HUE4D	✓			✓ 70	16 hours	Carbon/Charcoal	CS2
2MZRNC		✓		✓ 100	1 hour	Tenax	Pentane
2PPN2P	✓	✓		✓ 70	30 min, 10 min, 1 hr, and 16 hrs	Carbon/Charcoal	CS2
2Q3Z2F	✓			✓ 80	Overnight	Carbon/Charcoal	Carbon Disulfide
2VHJAN	✓			✓ 65	16 hours	Carbon/Charcoal	Carbon Disulfide
2YBUW9	✓			✓ 60	16 hours	Carbon/Charcoal	carbon disulfide
2YXZHT	✓			✓ 66	16 hr	Carbon/Charcoal	CS2
36GYAD	✓			✓ 62	16 hr	Carbon/Charcoal	CS2
3AVGPA	✓		✓		Overnight	Carbon/Charcoal	DCM & Water
3GDWA7	✓			✓ 60	16:00:00 hours	Carbon/Charcoal	Carbon Disulfide
3JDZ2T	✓			✓ 65	16 hours	Carbon/Charcoal	Carbon Disulfide
3JGFKK	✓			✓ 65	16 Hours	Carbon/Charcoal	Carbon Disulfide
3NTZAZ	✓			✓ 76	18.5 hrs	Carbon/Charcoal	CS2
Other Recovery Technique: Headspace							
3T778D	✓			✓ 78	3 hours	Carbon/Charcoal	carbon disulfide
3UGEMR	✓			✓ 71	2.5 Hours	Carbon/Charcoal	Carbon Disulfide
3YB6FH	✓			✓ ~90	~16 hours	Carbon/Charcoal	Carbon Disulfide (CS2)
Other Recovery Technique: direct headspace (heated ~5 minutes at ~90 degrees Celsius)							
42D28J	✓			✓ 80	2 hours	Carbon/Charcoal	Carbon Disulfide
46VM8X	✓			✓ 70	16.5 hrs	Carbon/Charcoal	TCE/Ether
47LV9M	✓			✓ 80		Carbon/Charcoal	
49BUDR							
Other Recovery Technique: Direct Headspace (heated at 90 C)							
4AN22U	✓			✓ 74		Carbon/Charcoal	Carbon Disulfide
4CAFC3				✓ 90			HEXANE

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption	
	Passive	Dynamic	Rm Temp	Heated (°C)				
4CUNFJ	✓			✓	60	~16 Hours	Carbon/Charcoal	CS2 & Toluene
4GRQDD	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
4K79TA	✓		✓	✓	60	3 hrs, 6 hrs & 16 hrs	Tenax TA	Thermal
4P2XDM	✓			✓	65	16 Hours	Carbon/Charcoal	Carbon Disulfide
4RAMLK	✓			✓	63	17 hours	Carbon/Charcoal	Carbon disulfide
4UFVKA	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
4Z6AAG		✓		✓	~95	25 minutes	Carbon/Charcoal	Carbon disulfide [CS2]
66CZA2	✓			✓	70	12-16 hours	Carbon/Charcoal	Carbon Disulfide
68HJBH	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
6BH9LJ	✓			✓	64	15 hours	Carbon/Charcoal	Pentane and Toluene
6CRQRM	✓			✓	75	16 hours	Carbon/Charcoal	Carbon Disulfide
6DK7T6	✓			✓	70	17 hours	Carbon/Charcoal	CS2
6G27W6	✓			✓	80	16 hours	Carbon/Charcoal	CS2
6G42VX	✓			✓	90	16H	Carbon/Charcoal	CS2
6J8WFZ	✓			✓	66	16 hours	Carbon/Charcoal	Carbon Disulfide
6R3HFD	✓			✓	65	16 hrs	Carbon/Charcoal	CS2
6TCAA9				✓	90			n-Hexane
6UT4C4	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
6XU84Q	✓			✓	90	5 hours	Carbon/Charcoal	Carbon Disulfide
6YLNBY	✓			✓	65	~16 hours	Carbon/Charcoal	carbon disulfide
73FJFY	✓			✓	66	16	Carbon/Charcoal	Carbon disulfide
74E8RN	✓			✓	80	2 hours	Carbon/Charcoal	carbon disulfide
7BEJZD	✓			✓	75	5 hours	Carbon/Charcoal	CS2
7BVJ8A	✓			✓	78	2 hours	Carbon/Charcoal	Carbon disulfide
7DZQFN	✓			✓	80	12-16 h	Carbon/Charcoal	CS2
7ERGAL	✓			✓	80	17 hours	Carbon/Charcoal	carbon disulfide
Other Recovery Technique: Solid Phase Micro Extraction								
7EVU2N	✓		✓	✓	60	2 hours, 16 hours overnight	Carbon/Charcoal	Toluene, CS2
7MNEWN	✓			✓	90	20 min	SPME	Thermal
Other Recovery Technique: solvent extraction (dichloromethane)								
7R4NAT	✓			✓	80	16 Hours	Carbon/Charcoal	Carbon Disulfide

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated (°C)			
7U7MHZ	✓			✓ 75	8 hr	Carbon/Charcoal	diethyl ether
7WE6VX	✓			✓ 73	~16 hours	Carbon/Charcoal	CS2
7ZCH3Z	✓			✓ 110	45 minutes		
Other Recovery Technique: liquid extraction with n-pentan							
7ZTC6V	✓			✓ 70	16 hours	Carbon/Charcoal	carbon disulfide
83EGDT		✓		✓ 85	20 min	Carbon/Charcoal	CS2
Other Recovery Technique: Heated headspace							
86J4QW	✓			✓ 70	20 Hours	Carbon/Charcoal	Carbon Disulfide
88A6VK	✓			✓ 69	17.5 hours	Carbon/Charcoal	Carbon Disulfide
8EPYVN	✓			✓ 76		Carbon/Charcoal	CS2
8FJ878	✓			✓ 90	10 minutes		n-pentane
8JFHQQ	✓			✓ ~80	~16 hours	Carbon/Charcoal	Carbon Disulfide (CS2)
8QL6NL	✓			✓ 65	16 Hours	Carbon/Charcoal	Carbon Disulfide
8RYKG2	✓			✓ 80	2 hours	Carbon/Charcoal	CS2
8WV4KL	✓			✓ 65	16 hours	Carbon/Charcoal	CS2
8XLGWC	✓			✓ 70	24 hours	Carbon/Charcoal	Carbon Disulfide
8ZBXYX	✓			✓ 65	16 hours	Carbon/Charcoal	carbon disulfide
92HD8N	✓			✓ 70	10 hours	Carbon/Charcoal	ethyl ether
Other Recovery Technique: Static headspace analysis							
938GJP	✓			✓ 60	16 hours	Carbon/Charcoal	carbon disulfide
979KBC	✓			✓ 80	8 hours	Carbon/Charcoal	Acetone
9FFYEY	✓			✓ ~ 60	~16 hrs.	Carbon/Charcoal	Carbon Disulfide
9FJ8ER	✓			✓ 73	4 hrs	Carbon/Charcoal	Carbon disulfide
9FYBB4	✓			✓ 80	Approximately 12 Hours		Carbon disulphide
9FZ8DM	✓		✓	✓ 70	15 min.	SPME	Thermal
Other Recovery Technique: Solvent extraction							
9KAJB9	✓			✓ 70	5.5 hours	Carbon/Charcoal	carbon disulfide
9L48U4	✓		✓		approximately 24 hours	Carbon/Charcoal	Dichloromethane
Other Recovery Technique: SPME and solvent extraction							
9P7MA2	✓			✓ 67	17 hours	Carbon/Charcoal	Carbon Disulfide
9PLEAQ		✓		✓ 90	20 minutes	Carbon/Charcoal	carbon disulfide
Other Recovery Technique: Heated headspace							
9Q2QXN	✓			✓ 70	10 hours	Carbon/Charcoal	Diethyl Ether
Other Recovery Technique: Static Headspace							

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption	
	Passive	Dynamic	Rm Temp	Heated (°C)				
9QWD7K	✓			✓	70	14.5 Hrs	Carbon/Charcoal	Carbon Disulfide
A2CJ2N	✓			✓	60	16 hours	Carbon/Charcoal	CS2
A37DDX	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
A3PP8K				✓	90	10 minute		
ALZJZQ	✓		✓	✓	80		SPME	n-hexane
AR4VZA	✓			✓	77	4.25 hrs	Carbon/Charcoal	CS2
ATLALL	✓			✓	90	15 min	CAR/PDMS	Thermal
Other Recovery Technique: SPME								
AY9UDK	✓			✓	60	1 min	SPME, BLACK	Thermal
AYR76L	✓			✓	80	15H	Carbon/Charcoal	PENTANE/CS2
B37QKR	✓			✓	70	16.5 hours	Carbon/Charcoal	Ethyl Ether
BCUWMK	✓		✓	✓	60	16 hrs	Carbon/Charcoal	CS2
BDMB6N	✓			✓	75	16 hours	Carbon/Charcoal	CS2
BK6TDP	✓			✓	69	16 hrs	Carbon/Charcoal	CS2
BN8MFZ		✓	✓	✓	130		Tenax	Thermal
BPXKCT	✓			✓	60	16 hours	Carbon/Charcoal	Pentane
BT3ENX	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
Other Recovery Technique: Headspace								
CAH63M	✓			✓	80	2 hours	Carbon/Charcoal	CS2
CB9ACL	✓			✓	80	19 hours	Carbon/Charcoal	Carbon Disulfide
CBT7MZ	✓			✓	60	16 hours	Carbon/Charcoal	dichloromethane
CCPKCE	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
CECDFN				✓	50-80		SPME	N-HEXAN, Thermal
CGH2TT	✓			✓	66	16 hrs	Carbon/Charcoal	CS2
CKHAYN								
Other Recovery Technique: Solvent Extraction using n-Pentane								
CM6EM8	✓			✓	70	2 hours and 15 hours	Carbon/Charcoal	Carbon Disulfide
CQP88Q	✓			✓	80	8 hours	Carbon/Charcoal	
CUPDHL	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
CZU92L	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon Disulfide
DC64UQ		✓		✓	80	13 mins	Carbon/Charcoal	pentane
DCJP6D	✓			✓	70	16 Hours	Carbon/Charcoal	Methylene Chloride

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption	
	Passive	Dynamic	Rm Temp	Heated (°C)				
DCLUPB	✓			✓	80	16 hours	Carbon/Charcoal	CS2
Other Recovery Technique: Headspace								
DCZTP8	✓			✓	70	17 hrs	Carbon/Charcoal	CS2
DDWYHK	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
DL9D32	✓			✓	75	3 hours	Carbon/Charcoal	Carbon Disulfide
DXKZGM	✓			✓	70		Carbon/Charcoal	Carbon Disulfide
E4J4JQ	✓			✓	66	16hrs	Carbon/Charcoal	Carbon disulfide
EJXAVP				✓	90	10 minutes		Hexane
EK9AT6	✓			✓	80	3 hrs	Carbon/Charcoal	
Other Recovery Technique: Static Headspace Sampling								
ENUG9D	✓			✓	65	4 hours, overnight	Carbon/Charcoal	CS2
EP8UBN	✓			✓	70	16.5 hrs	Carbon/Charcoal	Ethyl Ether:TCE
EVCQWA	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon disulfide
EYB4HE	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
F2W6Z8	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
F3ARNM	✓			✓	80	8 h	Carbon/Charcoal	Dichloromethan + Butan-1-ol
F6WJLB	✓			✓	60	17 hours	Carbon/Charcoal	
F9UX92	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
FCER72	✓			✓	70	3 Hours	Carbon/Charcoal	carbon disulfide
FD9FNW	✓		✓			20-22 hrs	Carbon/Charcoal	DCM
FFWYLN	✓			✓	59	16 hours	Carbon/Charcoal	CS2
FHG6KB	✓			✓	70	15 minutes		
Other Recovery Technique: SPME PDMS 100 µm fiber								
FN8Q3T	✓			✓	65	16 hours	Carbon/Charcoal	CS2
FUF938	✓				80		Carbon/Charcoal	Dichloromethane
FY6ACD	✓			✓	65	~ 16 hours	Carbon/Charcoal	carbon disulfide
G333YG	✓			✓	85			
G4HA96	✓			✓	130	15 min	SPME	Thermal
G4HT2T	✓			✓	50	30minutes	SPME	Thermal
GG89Y8	✓			✓	110	30 mins	Tenax	Thermal
GLEG6W				✓	90	10 minute	Headspace	
GN47MA	✓			✓	70	16hrs	Carbon/Charcoal	DCM
GQA8DU	✓			✓	79	16 hours	Carbon/Charcoal	CS2

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption	
	Passive	Dynamic	Rm Temp	Heated (°C)				
GQV3B4		✓		✓	90	20 minutes	Carbon/Charcoal	Carbon disulfide
GRKK4N								pentane
GURXNB	✓		✓	✓	80	heated 30 and 120 min, room temp 1 hr and overnight	Carbon/Charcoal	CS2
H62WVN	✓		✓	✓	20	10min	SPME	Thermal
Other Recovery Technique: static head space 90°C								
HGHJ6P	✓			✓	80	2 hours	Carbon/Charcoal	Pentane, Carbon Disulfide
Other Recovery Technique: 2 c-strips placed with each item; one sequence run in pentane, the other in CS2								
HLANZE	✓			✓	67	17 hours	Carbon/Charcoal	CS2
HLTQQN	✓			✓	85	approximately 15 hours	Carbon/Charcoal	cs2
HQQ6FY	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
HVVH64	✓			✓	80	15'	SPME (PDMS)	Thermal
HYVQ9D	✓			✓	90	10 Minutes		
HZCFGD	✓		✓			approximately 24 hours	Carbon/Charcoal	CS2
J7KUAA	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
J9K63N	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
Other Recovery Technique: Headspace								
JDHLDX	✓		✓			8 days	Carbon/Charcoal	Carbon disulfide
JF3HXG	✓			✓	60	less than 24 hours	Carbon/Charcoal	carbon disulfide
JMXAWH								
JNUP8T	✓			✓	50	30 min	SPME	Thermal
JP8WVW	✓			✓	90	15minutes		
JTCM2B	✓		✓			16 hrs	Carbon/Charcoal	CS2
JWWZYY	✓			✓	60	16 hours	Carbon/Charcoal	Carbon disulfide
JZBVDB	✓			✓	80	2 hours	Carbon/Charcoal	Carbon Disulfide
K2GKDX	✓			✓	85	4hrs	Carbon/Charcoal	CS2/C5 1:1
K7CD68	✓			✓	50	4-8 hours	Carbon/Charcoal	CS2
KAEAWN	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
Other Recovery Technique: Headspace								
KCW4FN	✓		✓	✓	80		SPME	
KDD3XT				✓	100	30 mins	Tenax	Pentane
KE6K8L	✓			✓	70	16 hours	Carbon/Charcoal	Carbon Disulfide
KJ4XUB	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated (°C)			
KJYK39	✓			✓ 66	16 hours	Carbon/Charcoal	CS2
KKBFQL	✓			✓ 70	12-16 hours	Carbon/Charcoal	Carbon Disulfide
KLLU3G				✓ 90	10 minutes		Hexane
KQZX6X	✓			✓ 60	~16.5 hours	Carbon/Charcoal	
KTJUNG	✓			✓ 75	4h	Tenax TA	Thermal
KW6R2E		✓		90	20 mins.	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Headspace							
L44GJ4	✓			✓ 70	15 hours	Carbon/Charcoal	Carbon Disulfide
L6TUVU	✓			✓ 80	overnight	Carbon/Charcoal	CS2C26
L8GVUA	✓		✓		1 min	SPME	Thermal
LMFA2C	✓			✓ 80	16 hours	Carbon/Charcoal	Carbon disulfide
LNNV2T				✓ 90			
LTHJ4X	✓			✓ 65	16.5 hours	Carbon/Charcoal	CS2
LUTUCH				✓ 90		Tenax	Thermal
M2QZ9W	✓			✓ 80	17 hours	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Headspace Analysis (no Adsorption)							
M762K9	✓			✓ 60	16 hours	Carbon/Charcoal	carbon disulfide
M7PHZB	✓			✓ 70	16 hours	Carbon/Charcoal	CS2
M9A4FY	✓			✓ 80		Carbon/Charcoal	Dichloromethane
MJRB8E	✓			✓ 70	~16 hrs	Carbon/Charcoal	CS2
Other Recovery Technique: Simple Heated Headspace (~15 minutes @ 70C)							
MQAY9Q	✓		✓		30 s	SPME DCP	Thermal
MRKX6K	✓			✓ 67	17.5 hours	Carbon/Charcoal	Carbon Disulfide
MYLDT8	✓			✓ 80		Carbon/Charcoal	
MZZ629	✓			✓ 76	17 h	Carbon/Charcoal	CS2
N7ZFFZ	✓			✓ 60	17 hours	Carbon/Charcoal	pentane
NHVVDD	✓			✓ 70	16 hours	Carbon/Charcoal	CS2
Other Recovery Technique: Simple headspace heated at 70C for 5 minutes							
NJ74E2	✓			✓ 90		Carbon/Charcoal	pentane and carbon sulphide
NLCUWX	✓			✓ 60	16 hours	Carbon/Charcoal	
NLRF6D	✓			✓ 95	24 hours	Carbon/Charcoal	Dichloromethane
NTB6X2	✓			✓ 65	16 Hours	Carbon/Charcoal	Carbon Disulfide
NW93DE	✓			✓ 70	~18 hours	Carbon/Charcoal	CS2

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated (°C)			
NZC7CA	✓			✓	83	17 hours (overnight)	Carbon/Charcoal carbon disulfide
P3GLC8	✓			✓	90	16 HOURS	Carbon/Charcoal CARBON DI-SULFIDE(CS2)
P3UXPN	✓			✓	65	~16 hrs	Carbon/Charcoal carbon disulfide
P7DVDE	✓			✓	62	~17.5hrs	Carbon/Charcoal CS2
P92EB6	✓			✓	70	12 Hours	Carbon/Charcoal Carbon Disulfide
PDB2YM		✓		✓	100	1 hr	Tenax Pentane
PDV7PU	✓			✓	65	18 hrs	Carbon/Charcoal Carbon disulfide
PENTPJ	✓			✓	65	15 min	SPME Thermal
Other Recovery Technique: Direct Solvent Extraction(diethyl ether)							
PGC6QA	✓			✓	80	16 hours	Carbon/Charcoal CS2
PH7GGN	✓			✓	70	48 Hours	Carbon/Charcoal Diethyl Ether
PH9L2L	✓			✓	74	16 hours	Carbon/Charcoal Carbon disulfide
PKCGMA	✓			✓	80	16 hours	Carbon/Charcoal CS2
Other Recovery Technique: Headspace							
PRGFDK	✓			✓	60	16 hours	Carbon/Charcoal CS2
PTP8BM	✓			✓	78	16 hours	Carbon/Charcoal Carbon Disulfide
PU2HAR	✓			✓	~80	16 hours	Carbon/Charcoal carbon disulfide
PVHMUB	✓		✓			16 hours	Carbon/Charcoal carbon disulfide
Other Recovery Technique: Head space at room temperature							
PVW94D	✓			✓	70	16.5 hrs	Carbon/Charcoal Diethyl Ether
PYWJZD	✓		✓			16hrs	Carbon/Charcoal CS2
Q2E4HL		✓	✓				Markes International C3-AXXX-5304 (C4-C32) Thermal
Q488H4	✓			✓	65	15 hours	Carbon/Charcoal Carbon Disulfidied
Q9WGDE		✓		✓	100	Heated for 10 min	Tenax
QDRDF8	✓			✓	80	15 hours	Carbon/Charcoal pentane, Thermal
Other Recovery Technique: pyrolyzer							
QFWN62	✓			✓	60	16 Hours	Carbon/Charcoal CS2
QMDA37	✓			✓	80	16 hours	Carbon/Charcoal Carbon Disulfide
QPMA9D	✓			✓	65	16 hours	Carbon/Charcoal carbon disulfide
QRBT66	✓		✓			~ 24 hours	Carbon/Charcoal CS2
QZNCFB	✓			✓	~80	~16 hours	Carbon/Charcoal Carbon disulfide

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated (°C)			
R8ZQZR	✓			80	4.5 hours and 17 hrs	Carbon/Charcoal	carbon disulfide
RAMYU7		✓		✓ 85	20 min	Carbon/Charcoal	Carbon DiSulfide
RBNP92	✓			✓ 65	16	Carbon/Charcoal	Carbon Disulfide
RH3KZP	✓			✓ ~80	Overnight	Carbon/Charcoal	CS2/C26
RRKP2G	✓			✓ 60	17.6 hrs	Carbon/Charcoal	CS2
RTZCRN	✓			✓ 63	~ 24 hours	Carbon/Charcoal	carbon disulfide
RVL7KH	✓			✓ 80	16 hours	Carbon/Charcoal	Carbon disulfide
T3K6JB	✓			✓ 65	16 hours	Carbon/Charcoal	CS2
T6QMFL	✓			✓ 60	15 hrs	Carbon/Charcoal	CS2
Other Recovery Technique: Heated Headspace							
TBVYJT	✓			✓ 80		Carbon/Charcoal	Dichloromethane
TCATED	✓			✓ 70	12-16 hours	Carbon/Charcoal	Carbon Disulfide
TGKJM9	✓			✓ ~80	~16 hours	Carbon/Charcoal	Carbon disulfide
TN632M	✓			✓ 65	16 hours	Carbon/Charcoal	Carbon Disulfide
TTHKGJ		✓				Tenax TA	Thermal
TW2XYL	✓			✓ 70	14 Hours	Carbon/Charcoal	CS2
TWED78	✓			✓ 90	5 h	Carbon/Charcoal	CS2
TYLRWL	✓			✓ 80	2 hours	Carbon/Charcoal	Pentane (and toluene for light volatiles)
U7KQNM	✓			✓ 60		Carbon/Charcoal	Carbon disulfide
U8C4FZ	✓		✓				
U9MF6A	✓			✓ 60	16 Hours	Carbon/Charcoal	Carbon Disulfide
UAGW8E	✓			✓ 65	16 hours (minimum)	Carbon/Charcoal	carbon disulfide
UAY94J	✓		✓	✓ 60	3 and 16 hours	Tenax TA	Thermal
UCLY6M	✓			✓ 70	15 hours	Carbon/Charcoal	Carbon disulfide
UM37W6	✓			✓ 80	10 minutes	SPME (Carbozen-PDMS)	Thermal
UMPE79	✓			✓ ~80	~16 hours	Carbon/Charcoal	Carbon disulfide
UQMY98	✓			✓ 80		Carbon/Charcoal	CS2
UVZX3D	✓			✓ 60	16 hours	Carbon/Charcoal	
UXKQEF	✓		✓	✓ 90		Carbon/Charcoal	hexane
V49TYQ	✓			✓ 80		Carbon/Charcoal	Dichloromethane

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption	
	Passive	Dynamic	Rm Temp	Heated (°C)				
VC39V3	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
VDJHTB	✓			✓	90	16 hours	Carbon/Charcoal	carbon disulfide
VJJBTC		✓		✓	90			Thermal
Other Recovery Technique: SPME								
VM4NPE	✓			✓	70	2 hours and 15 hours	Carbon/Charcoal	Carbon Disulfide
VQL9A9	✓			✓	65		Carbon/Charcoal	CS2
VTAK9E		✓	✓				Tenax TA	Thermal
VTPJ9C	✓						Carbon/Charcoal	Carbon disulfide
WVUE29	✓			✓	59	16 hours	Carbon/Charcoal	carbon disulfide
VYVDKD	✓			✓	80	2.5 hours	Carbon/Charcoal	CS2
W2Y383	✓			✓	60	16 hours	Carbon/Charcoal	Carbon disulfide
W6JUJ6	✓			✓	40	10 min	SPME (DVB/CAR/PDMS)	Thermal
W7EX8Q	✓			✓	60		Carbon/Charcoal	Carbon Disulfide
WB79F4	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Heated Head-space, 65 degrees Celsius, 5 minute duration								
WDAATL								
Other Recovery Technique: HEADSPACE-GC-MS								
WJGPNP	✓			✓	~67	~3.5hrs	Carbon/Charcoal	Pentane & Carbon disulfide (separately)
WV8Z2G								Extraction using n-Hexane
WZNVTT	✓		✓	✓	80	1 HOUR AND 15 MINUTES	SPME CARBOX PDMS	Thermal
X4H2V2	✓			✓	73	4 hours	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Performed a second PAE for item 1.1, adsorption duration 2 hours.								
X6YXLF	✓			✓	70	2.5 days	Carbon/Charcoal	Diethyl ether
X9DB94	✓		✓	✓	80	15 min	SPME Carboxene/PDMS and 100um PDMS	Thermal
Other Recovery Technique: additional solvent extraction with Isooctane								
XEEM3F								n-pentane
XMGZH4	✓		✓			16 hrs	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Heated Headspace								
XNTYDC	✓		✓	✓	80		Tenax	
XXD4MX	✓		✓	✓	60	2 hours and 16 hours	Carbon/Charcoal	Toluene and CS2
XXG86A	✓			✓	60	16 hours	Carbon/Charcoal	Pentane
Other Recovery Technique: Heated Headspace								

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated (°C)			
XYRRL4	✓			✓ 70	16 hours	Carbon/Charcoal	CS2
Other Recovery Technique: simple heated headspace (70C fo 10 minutes)							
XZHZMR	✓			✓ 80	4 h	Carbon/Charcoal	Carbondisulfide
Other Recovery Technique: direct headspace, ATD, SPME							
Y4FBAY	✓			✓ 74	17 hours	Carbon/Charcoal	Carbon Disulfide
Y4H9R3	✓			✓ 90	5 hrs	Carbon/Charcoal	CS2
Y6BRJA	✓	✓	✓		1 day	Carbon/Charcoal	MC
Y8Y4K2	✓			✓ 80 / 95	15 min	SPME fiber: 65 μm DVB/PDMS	Thermal
Y9N6B3	✓			✓ 70	16 hours	Carbon/Charcoal	CS2
YEZ4TM	✓			~66	4 hours	Carbon/Charcoal	carbon disulfide
YHVAEY	✓		✓	✓ 60	16 hrs	Carbon/Charcoal	CS2
YMQNWZ		✓		✓ 90	20 minutes	Carbon/Charcoal	CS2
Other Recovery Technique: Heated Headspace							
YNHU7Y	✓			✓ 80	16 Hours	Carbon/Charcoal	Carbon Disulfide
Z24VFX	✓			✓ 74	18 hours	Carbon/Charcoal	Carbon disulfide
Z7KJ9N	✓			✓ 80			
Other Recovery Technique: liquid extraction, heptane							
ZGXQYW	✓			✓ 60	16 hours	Carbon/Charcoal	CS2
ZKE9ZD	✓			✓ 80	2 hours	Carbon/Charcoal	Pentane
ZRE6T6	✓			✓ 74	3.5 Hours	Carbon/Charcoal	Carbon Disulfide
ZTT6YT	✓			✓ 60		Carbon/Charcoal	Carbon Disulfide
ZU8LZD	✓			✓ 70	24 hrs	Carbon/Charcoal	diethyl ether
ZV2KLL	✓			✓ 65	16 hours	Carbon/Charcoal	Dichloromethane
ZZUCM9	✓			✓ 80	10 hours	Charcoal Strip	CS2
ZZWG77	✓			✓ 80	12hr	Carbon/Charcoal	CS2

Response Summary								
Participants	Adsorption Headspace		Adsorption Temp		Adsorbent		Desorption	
	Passive	Dynamic	Rm Temp	Heated	Carbon/Charcoal	Other	Thermal	Solvent
302	268	19	32	272	241	38	31	247

Identification Techniques

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
248JEZ	✓	✓		4RAMLK		✓		8EPYVN		✓	
268CJZ		✓		4UFVKA		✓		8FJ878		✓	
27VKBV		✓		4Z6AAG		✓		8JFHQQ		✓	
2ADFEM		✓		66CZA2	✓	✓		8QL6NL		✓	
2BBRXA		✓		68HJBH	✓	✓		8RYKG2		✓	
2HTVTV		✓		6BH9LJ		✓		8WV4KL		✓	
2HUE4D		✓		6CRQRM	✓	✓		8XLGWC		✓	
2MZRNC	✓	✓		6DK7T6		✓		8ZBXYX		✓	
2PPN2P		✓	GC/FID	6G27W6		✓	GC-FID	92HD8N		✓	
2Q3Z2F		✓		6G42VX		✓		938GJP		✓	
2VHJAN		✓		6J8WFZ		✓		979KBC		✓	
2YBUW9		✓		6R3HFD		✓		9FFYEY		✓	
2YXZHT		✓		6TCAA9		✓		9FJ8ER		✓	
36GYAD		✓		6UT4C4		✓		9FYBB4		✓	
3AVGPA		✓		6XU84Q		✓		9FZ8DM		✓	
3GDWA7		✓		6YLNBY		✓		9KAJB9		✓	
3JDZ2T		✓		73FJFY		✓		9L48U4		✓	
3JGFKK	✓	✓		74E8RN		✓		9P7MA2		✓	
3NTZAZ		✓		7BEJZD		✓		9PLEAQ		✓	
3T778D		✓		7BVJ8A		✓		9Q2QXN		✓	
3UGEMR		✓		7DZQFN		✓		9QWD7K		✓	
3YB6FH		✓		7ERGAL		✓		A2CJ2N		✓	
42D28J		✓		7EVU2N		✓		A37DDX		✓	
46VM8X		✓		7MNEWN		✓		A3PP8K		✓	
47LV9M	✓	✓		7R4NAT		✓		ALZJZQ	✓	✓	
49BUDR		✓		7U7MHZ		✓		AR4VZA		✓	
4AN22U		✓		7WE6VX		✓		ATLALL			
4CAFC3		✓		7ZCH3Z	✓	✓		AY9UDK		✓	
4CUNFJ		✓		7ZTC6V		✓		AYR76L		✓	
4GRQDD		✓		83EGDT		✓		B37QKR		✓	
4K79TA		✓		86J4QW		✓		BCUWMK		✓	
4P2XDM		✓		88A6VK		✓		BDMB6N	✓	✓	Odor Assessment

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
BK6TDP		✓		FCER72		✓		JWWZYY		✓	
BN8MFZ		✓		FD9FNW		✓		JZBVDB		✓	
BPXKCT		✓		FFWYLN		✓		K2GKDX		✓	
BT3ENX		✓		FHG6KB		✓		K7CD68		✓	
CAH63M		✓		FN8Q3T		✓		KAEAWN		✓	
CB9ACL		✓		FUF938		✓		KCW4FN	✓	✓	
CBT7MZ		✓		FY6ACD		✓		KDD3XT	✓	✓	
CCPKCE		✓		G333YG		✓		KE6K8L		✓	
CECDFN	✓	✓		G4HA96	✓	✓		KJ4XUB	✓	✓	
CGH2TT		✓		G4HT2T		✓		KJYK39		✓	
CKHAYN		✓		GG89Y8		✓		KKBFQL	✓	✓	
CM6EM8		✓		GLEG6W		✓		KLLU3G		✓	
CQPB8Q		✓		GN47MA		✓		KQZX6X		✓	
CUPDHL	✓	✓		GQA8DU		✓		KTJUNG		✓	
CZU92L		✓	odor assessment	GQV3B4		✓		KW6R2E		✓	
DC64UQ		✓		GRKK4N		✓		L44GJ4		✓	
DCJP6D		✓		GURXNB		✓		L6TUVU		✓	
DCLUPB		✓		H62WVN		✓		L8GVUA		✓	
DCZTP8		✓		HGHJ6P		✓		LMFA2C		✓	
DDWYHK		✓		HLANZE		✓		LNNV2T		✓	
DL9D32		✓		HLTQQN		✓		LTHJ4X		✓	
DXKZGM		✓		HQQ6FY	✓	✓		LUTUCH		✓	GC/MS-TD
E4J4JQ		✓		HWWH64		✓		M2QZ9W		✓	
EJXAVP		✓		HYVQ9D		✓		M762K9	✓	✓	
EK9AT6		✓		HZCFGD		✓		M7PHZB		✓	
ENUG9D		✓		J7KUAA		✓		M9A4FY		✓	
EP8UBN		✓		J9K63N		✓		MJRB8E		✓	
EVCQWA		✓	odor assessment	JDHLDX		✓		MQAY9Q		✓	
EYB4HE		✓		JF3HXG		✓		MRKX6K		✓	
F2W6Z8		✓		JMXAWH			Passive headspace GCMS	MYLDT8		✓	
F3ARNM		✓		JNUP8T		✓		MZZ629		✓	
F6WJLB		✓		JP8WVV		✓		N7ZFFZ		✓	
F9UX92	✓	✓		JTCM2B		✓		NHFVDD		✓	
								NJ74E2	✓	✓	

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
NLCUWX		✓		RBNP92		✓		VVUE29		✓	
NLRF6D		✓		RH3KZP		✓		VYVDKD		✓	
NTB6X2		✓		RRKP2G		✓		W2Y383		✓	
NW93DE		✓		RTZCRN		✓		W6JUJ6		✓	
NZC7CA		✓		RVL7KH		✓	GC-FID	W7EX8Q		✓	
P3GLC8		✓		T3K6JB		✓		WB79F4		✓	
P3UXPN		✓		T6QMFL		✓		WDAATL		✓	
P7DVDE		✓		TBVYJT		✓		WJGPNP		✓	
P92EB6		✓		TCATED	✓	✓		WV8Z2G		✓	
PDB2YM	✓	✓		TGKJM9		✓		WZNVTT		✓	
PDV7PU		✓		TN632M		✓		X4H2V2		✓	
PENTPJ	✓	✓		TTHKGJ		✓		X6YXLF		✓	
PGC6QA		✓		TW2XYL		✓		X9DB94		✓	
PH7GGN		✓		TWED78		✓		XEEM3F		✓	
PH9L2L		✓		TYLRWL		✓	GC/FID	XMGZH4		✓	
PKCGMA		✓		U7KQNM		✓		XNTYDC	✓	✓	
PRGFDK		✓		U8C4FZ		✓		XXD4MX		✓	
PTP8BM		✓		U9MF6A		✓		XXG86A		✓	
PU2HAR		✓		UAGW8E		✓		XYRRL4		✓	
PVHMUB		✓		UAY94J		✓		XZHZMR	✓	✓	
PVW94D		✓		UCLY6M		✓		Y4FBAY		✓	
PYWJZD		✓		UM37W6		✓		Y4H9R3		✓	
Q2E4HL		✓		UMPE79		✓		Y6BRJA		✓	
Q488H4		✓		UQMY98		✓		Y8Y4K2	✓	✓	
Q9WGDE		✓		UVZX3D		✓		Y9N6B3		✓	
QDRDF8		✓		UXKQEF		✓		YEZ4TM		✓	
QFWN62		✓		V49TYQ		✓		YHVAEY		✓	
QMDA37		✓		VC39V3		✓		YMQNWZ		✓	
QPMA9D		✓		VDJHTB	✓	✓		YNHU7Y		✓	
QRBT66		✓		VJJBTC		✓		Z24VFX		✓	
QZNCFB		✓		VM4NPE		✓		Z7KJ9N	✓	✓	
R8ZQZR		✓		VQL9A9		✓		ZGXQYW		✓	
RAMYU7		✓		VTAK9E		✓		ZKE9ZD			GC/MS-FID
				VTPJ9C		✓					

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
ZRE6T6	✓	✓									
ZTT6YT		✓									
ZU8LZD		✓									
ZV2KLL		✓									
ZZUCM9		✓									
ZZWG77		✓									

Response Summary		
Participants	GC	GC/MS
302	30	299

Conclusions

TABLE 4

WebCode	Conclusions
248JEZ	ITEM1 : aromatic products (subclass medium). Example products of this class are some automotive parts cleaners, specialty cleaning solvents, synthetic thinner, fuel additives. ITEM2 : others/miscellaneous (subclass medium) with limonene predominant (and glycol ether (2 propanol 1-(2-butoxy -1-methylethoxy))). examples of which include limonene products : some cleaning products, botanical insecticide, paint stripper, essential oil... The results of research for flammable liquid must be replaced in the context of discovery and confronted with the observations done on the scene.
268CJZ	A light aromatic product was identified in Item 1. Examples of light aromatic products are some paint and varnish removers, some automotive part cleaners, and xylene or toluene-based products. D-Limonene was identified in Item 2. D-Limonene is a terpene. Terpenes are commonly found in turpentine and citrus scented products but are also naturally occurring in some woods.
27VKBV	Item 1: Flammable liquid detected. Presence of acetone, methylene chloride and aromatics (toluene, ethylbenzene and xylenes). Product identified as oxygenated solvent: cleaning solvent and paint remover for example. Item 2: Flammable liquid detected. Presence of terpenes (limonene, pinene) and glycol ethers (dipropylene glycol butyl ether). Product identified as specialty solvent (orange oil for example). Limonene and glycol ether can be found in some ignitable products but also in non-ignitable liquids (household cleaning products, cosmetic products for example).
2ADFEM	An ignitable liquid residue classified as either 1) a light oxygenated product or 2) a light oxygenated product and a light aromatic product was detected in the piece of cardboard from a storage room (item 1). Examples of products that may contain these types of components are paint and varnish removers, strippers, cleaning solvents, or other solvents such as acetone, toluene, and xylenes. There may also be other types of products with these components. Limonene, an ignitable liquid residue classified as a medium miscellaneous product, was detected in the piece of cardboard from an office (item 2). Examples of products that may contain limonene are orange or citrus cleaners or oils and other cleaners. There may also be other types of products with this component. Item 3 was submitted as a negative control.
2BBRXA	Item 1 bore a light aromatic product - these are flammable liquids which are used as solvents in various commercial products. Item 2 bore various volatiles, the most abundant of which were limonene and an oxygenated solvent. These types of volatiles were not observed from the control sample (item 3). It is possible that these substances could be present due to contamination by a product or solvent containing limonene (which can be encountered as a fragrance in both flammable and non-flammable commercial products). Further information would be required about products legitimately present in the warehouse before any additional comment could be made about the result from item 2.
2HTVTV	item contains a light aromatic solvent. Item 2 contains limonene. No ignitable liquid residues were identified in item 3.
2HUE4D	The following items were submitted to the Trace Evidence Unit for examination for the presence of ignitable liquid residues: Item 1: One fire debris bag containing one sealed bag containing cardboard reportedly recovered from storage room, Item 2: One fire debris bag containing one sealed bag containing cardboard reportedly recovered from office, Item 3: One fire debris bag containing one sealed bag containing cardboard reportedly listed as a comparison sample, Items 1 through 3 were examined using passive headspace adsorption. The extracts (Items 1-1, 2-1, and 3-1) recovered from Items 1 through 3 were examined by gas chromatography/mass spectrometry. Item 1-1 was found to contain a volatile mixture which was identified as a mixture of a light aromatic product and acetone. Examples of light aromatic products include some paint removers, some auto part cleaners, and some varnish removers. Acetone can be found in nail polish removers and paint thinners. It cannot be determined if these are two separate components or a commercial blend. Item 2-1 was found to contain a volatile mixture which was identified as containing limonene. Examples of uses of limonene include cleaning solvents and paint strippers. No common ignitable liquid residues were detected in Item 3-1. This does not preclude the possibility that an ignitable liquid may have been present at an earlier time.

TABLE 4

WebCode	Conclusions
2MZRNC	1. A light aromatic compound was identified on Item 1. (Piece of cardboard from a storage room). Examples of this include paint and varnish removers. 2. A medium, miscellaneous ignitable liquid identified as limonene was identified on Item 2 (Piece of cardboard from an office). 3. No ignitable liquid was detected on Item 3 (Cardboard substrate intended as a negative control).
2PPN2P	Description of Evidence: Item #1 – Sealed arson bag containing a piece of cardboard, listed as from a storage room. Item #2 – Sealed arson bag containing a piece of cardboard, listed as from an office. Item #3 – Sealed arson bag containing a piece of cardboard, listed as a negative control. Results/Opinions/Interpretations of Fire Debris Analysis: Item #1 to #3: The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. Item #1: Acetone and a light petroleum product (e.g. some cleaning solvents, some lacquer thinners, some specialty solvents, etc.) was detected. Item #2: A medium petroleum product (e.g. some cleaning solvents, some special industrial solvents, etc.) was detected. Item #3: The item was analyzed as a comparison sample. Disposition of Evidence: The unanalyzed portion of each activated charcoal strip is being returned to the submitting agency along with the submitted evidence.
2Q3Z2F	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Light Oxygenated Solvent was identified. Examples of this type ignitable liquid include: alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium Other/Miscellaneous type product was identified. Examples of this type ignitable liquid include: single component products, some blended products and some enamel reducers. Limonene was identified. Item 3: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). Ignitable liquids were not identified in the sample.
2VHJAN	Item 1: GCMS analysis of Item 001-01 disclosed the presence of Acetone, an Oxygenated Solvent. Also disclosed in Item 001-01 were Light Range Aromatics and a Medium Range Petroleum Distillate. It is undetermined if the identifications are from a single product or a mixture of two or more products. Item 2: GCMS analysis of Item 001-02 disclosed the presence of a Medium Range Miscellaneous Product. Examples of a Medium Range Miscellaneous Product include, but are not limited to, some turpentine products, some blended products, and some specialty products. Item 3: GCMS analysis of Item 001-03 Failed to Disclose the presence of an Ignitable Liquid.
2YBUW9	Items 1-1-1-1, 1-2-1-1, and 1-3-1-1 were sampled using passive headspace concentration with activated charcoal strip (ACS). A portion of each ACS was extracted with carbon disulfide, while the remaining portions were not analyzed. The solvent extracts from the activated charcoal strips (items 1-1-1-1-1, 1-2-1-1-1, and 1-3-1-1-1) were analyzed by gas chromatography/mass spectrometry (GC/MS) for the presence of ignitable liquid residues. A Miscellaneous ignitable liquid was detected in the ACS sample extract (item 1-1-1-1-1) from item 1-1-1-1. Examples of Miscellaneous ignitable liquids are some blended products and some enamel reducers. A Miscellaneous ignitable liquid was detected in the ACS sample extract (item 1-2-1-1-1) from item 1-2-1-1. Examples of Miscellaneous ignitable liquids are some turpentine products, some blended products, and some specialty products. No ignitable liquid residue was detected in the ACS sample extract (item 1-3-1-1-1) from item 1-3-1-1.
2YXZHT	Item #1- the presence of a Light Aromatic product and a Light Oxygenated product were detected. Item #2- the presence of a Miscellaneous ignitable liquid was detected.
36GYAD	Item 1 was found to contain materials consistent with the composition of "LIGHT OXYGENATED SOLVENTS" as described by ASTM specifications E1618-14. The term "LIGHT OXYGENATED SOLVENTS" includes products such as alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item 2 was found to contain materials consistent with the composition of "MEDIUM MISCELLANEOUS PRODUCTS" as described by ASTM specifications E1618-14. The term "MEDIUM MISCELLANEOUS PRODUCTS" includes products such as turpentine products, some blended products and various specialty products. Item 3 was "Control Sample" used for comparison

TABLE 4

WebCode	Conclusions
	purposes.
3AVGPA	A mixture of toluene, xylenes and acetone were detected in item 1. Limonene was detected in item 2. No ignitable liquid residues were detected in item 3.
3GDWA7	Item 1: An aromatic ignitable liquid was detected. Examples: Paint and varnish removers, some automotive parts cleaners, some insecticides and some industrial cleaning solvents. Item 2: Limonene detected. Limonene is a terpene extracted from citrus that is used in numerous ignitable and nonignitable products.
3JDZ2T	Item 1: Light aromatic product found. Item 2: No ignitable liquid identified.
3JGFKK	Sample Preparation: (1) Passive Headspace Extraction. Analytical Methods: (1) Gas Chromatography/Flame Ionization Detection. (2) Gas Chromatography/Mass Selective Detection. Item 1: A miscellaneous product was identified. Examples of miscellaneous products would include some blended products and some commercial and industrial available products. Item 2: The miscellaneous product limonene was identified. Limonene is naturally occurring in soft woods and appears in both flammable and non-flammable commercially available products. Item 3: No ignitable liquids were detected.
3NTZAZ	Examination: The evidence was examined utilizing gas-chromatography- mass spectrometry (GC-MS). The methods used are described in ASTM E1412-16 and ASTM E1618-14. Results of Analyses: Item 1: Examination of the sample revealed the presence of a light oxygenated product containing acetone, methylene chloride, toluene, ethylbenzene and xylene. Examples of light oxygenated products include industrial solvents and surface products. Item 2: Examination of the sample revealed the presence of a medium miscellaneous product containing limonene and Dowanol DPnB. Examples of such miscellaneous products include citrus based cleaners and solvents. Please submit flammable products for comparison, if desired. No ignitable liquids were detected in the control cardboard from Item 3.
3T778D	Item 1 was found to contain a light-range oxygenated solvent. Examples include some paint removers and some surface preparation solvents. Item 2 was found to contain limonene. Limonene is the major component in the oil of citrus fruit peels and is commonly used as a flavoring agent and fragrance ingredient. It could also have other uses such as in cleaning solvents and some turpentine products. Item 3 was analyzed for comparison purposes only.
3UGEMR	Item 1: Item 1 was subjected to adsorption-elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis show the presence of a light oxygenated ignitable liquid. Examples of light oxygenated ignitable liquids include (but are not limited to): alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item 2: Item 2 was subjected to adsorption-elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows the presence of a medium miscellaneous ignitable liquid. Examples of medium miscellaneous ignitable liquids include (but are not limited to): turpentine products, some blended products, and some specialty products. Item 3: Item 3 was subjected to adsorption-elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows no evidence of ignitable liquids. Three laboratory glass vials were repackaged with the evidence. The presence of ignitable liquids in Item 1 and Item 2 does not necessarily lead to the conclusion that the fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquids. The absences of ignitable liquids in Item 3 does not preclude their use at the scene.
3YB6FH	Item 1 consists of a piece of cardboard. The extract of Item 1 was found to contain a mixture of oxygenated compounds, light aromatic compounds, medium petroleum distillate residues, and weathered heavy petroleum distillate residues. Combined, this mixture is classified as a miscellaneous product, examples of which include, but are not limited to, some paint and varnish removers. Individually, oxygenated compounds may also be found in some lacquer thinners and fuel additives; light aromatic compounds may also be found in some automotive parts cleaners; medium petroleum distillates may also be found in some charcoal starters and dry cleaning fluids; and heavy petroleum distillates may also be found in diesel fuel and some charcoal starters. It could not be determined if

TABLE 4

WebCode	Conclusions
	Item 1 contained a single commercial product or a mixture of individual commercial products. Item 2 consists of a piece of cardboard. The extract of Item 2 was found to contain a miscellaneous product consisting of limonene and other compounds. Limonene, which is a natural component of citrus peels, is a flammable liquid that can be used in a variety of commercial products including cleaners and degreasers, paint strippers, deodorizers, personal care products, and insect repellants. Item 3 consists of a piece of cardboard. No ignitable liquids were found in the extract from Item 3, which was used for comparison to Items 1 and 2.
42D28J	An oxygenated solvent in the light to medium range was detected in item 1. Examples of oxygenated solvents in the light to medium range include some lacquer thinners, some fuel additives, some surface preparation solvents, some industrial solvents, and some metal cleaners/gloss removers. Limonene and dipropylene glycol butyl ether were identified in item 2. Limonene is a terpene and is a natural component in some softwoods and in citrus fruit. Products that contain limonene include but are not limited to some turpentine solvents and some pine or citrus based cleaners. Dipropylene glycol butyl ether is an oxygenated solvent. Products that contain Dipropylene glycol butyl ether include but are not limited to some scented oils used in air fresheners, some paint and adhesive solvents, and some household cleaning and maintenance products. It should be noted that some products containing limonene and dipropylene glycol butyl ether are ignitable and some are not ignitable.
46VM8X	Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1A) reveals the presence of an aromatic product. Examples of aromatic products include: some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1B) reveals the presence of limonene (miscellaneous product). Examples of miscellaneous products with limonene include: some cleaning agents, some specialty products and turpentine products. Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1C) fails to reveal the presence of any ignitable liquids. The procedure employed does not detect the presence of light volatiles such as certain alcohols and acetone.
47LV9M	Item #1- The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. A light petroleum product (e.g. camping fuels, pocket lighter fuels, rubber cement solvents, etc.) was detected. Item #2- The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. A medium miscellaneous product (e.g. charcoal starters, household cleaners, specialty products, etc.) was detected. Item #3- The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. The item was analyzed as a comparison sample.
49BUDR	Item 1 was found to contain light aromatic products. Item 2 was found to contain d-limonene which falls under medium others/miscellaneous classification.
4AN22U	Acetone, toluene and ortho-, meta-, and para-xylene were each detected in Item 1. These components are commonly present in known light oxygenated solvents. Light oxygenated solvents include, but are not limited to, some lacquer thinners, fuel additives, strippers and removers and other specialty application and industrial solvents. Limonene was detected in Item 2. This component is commonly found in medium miscellaneous products and include, but are not limited to, some cleaners, grease removers and odor eliminators and other specialty application solvents. No ignitable liquid residues were detected in Item 3.
4CAFC3	On analysis, I found that: 1) Item 1 to bear residues of ignitable liquid which falls in the class of aromatic products (subclass: light). 2) Item 2 to bear residues of D-Limonene which falls in the class of 'other-miscellaneous (subclass: medium)
4CUNFJ	Item 1 - a light oxygenate was detected within the contents of Item 1. Some examples of a light oxygenated are some lacquer thinners, some fuel additives, and alcohol. Item 2 - a medium-heavy

TABLE 4

WebCode	Conclusions
	oxygenate was detected within the contents of Item 2. Some examples of a medium-heavy oxygenate are some lacquer thinners and some industrial solvents. Item 3 - no ignitable liquid profile was identified within the contents.
4GRQDD	Item 1.1. A light oxygenated solvent was identified in the heat-sealed fire debris bag containing approximately 1.5" x 1.5" brown cardboard square. Examples of products containing this type of solvent are some lacquer thinners and surface preparation products. Item 1.2. A medium miscellaneous was identified in the heat-sealed fire debris bag containing approximately 1.5" x 1.5" brown cardboard square. Examples of products containing this type of solvent are some turpentine products. Item 1.3. No ignitable liquids were identified in the heat-sealed fire debris bag containing approximately 1.5" x 1.5" brown cardboard square.
4K79TA	Item 1: A mixture of volatile substances including acetone, methylene chloride, toluene, and xylenes was detected in the contents of this item. These substances can be found in a variety of products including some specialised thinners-type solvents and cleaning solvents. Item 2: Volatile substances including limonene as the principal constituent were detected in the contents of this item. Limonene is a natural solvent and degreaser obtained from citrus oils, and is the principal constituent in some commercially available cleaning products and specialty solvents. Item 3: The contents of this item were examined for the presence of ignitable liquid residues, and none were found.
4P2XDM	Item 1: An ignitable liquid residue was detected- a light oxygenated solvent. Light oxygenated solvents may originate from some lacquer thinners, some fuel additives, and some surface preparation solvents. The ignitable liquid residue detected contains acetone, toluene, ethylbenzene, and xylenes as components. Item 2: d-Limonene and Di(propylene glycol) butyl ether (Dowanol™ DPnB) were detected. d-Limonene is a terpene that may originate from ignitable liquids such as some charcoal starters, degreasers, and adhesive removers, as well as non-flammable products such as pine- and citrus-based cleaners. Di(propylene glycol) butyl ether is an oxygenated solvent that may originate from ignitable liquids such as paint products, cleaning solvents, industrial cleaners/degreasers, graffiti removers, or from non-flammable liquids such as cleaning solutions, hand soaps, or firefighting foams. Presently, the laboratory does not have a reference for comparison with this Item. No further classification is possible at this time. Should a comparison liquid be found, it may be submitted to the laboratory for analysis. Item 3: No ignitable liquid residues were detected. Item 3 was submitted as a control for Items 1 and 2.
4RAMLK	A light to medium range oxygenated class of solvent was detected in the plastic bag containing a piece of cardboard (Item 1). Item 2 contains compounds that can be classified as a medium oxygenated solvent. A commercial cleaning product was analyzed and found to contain the same compounds detected in item 2; however, this cleaning product does not ignite. This does not eliminate the possibility that there may be other commercial products available that contain the same compounds, and are ignitable in their formulations. Examples of oxygenated solvents include, alcohols, ketones, some lacquer thinners, fuel additive, and surface preparation solvents. No ignitable liquid was detected in the plastic bag containing a piece of cardboard (Item 3). This item was submitted as a negative control.
4UFVKA	An aromatic product in the light range was identified in Item #1. Examples of this include some paint and varnish removers and some automotive parts cleaners. A miscellaneous product in the medium range was identified in Item #2. Examples of this include turpentine products, some blended products, and some specialty products. There were no ignitable liquids identified in Item #3.
4Z6AAG	Item 1- Miscellaneous product consisting of acetone, methylene chloride, and a light aromatic product. Item 2- Miscellaneous product consisting of limonene.
66CZA2	Items 1, 2, and 3 were analyzed with a gas chromatograph-flame ionization detector (GC-FID) and a gas chromatograph-mass spectrometer (GC-MS) for the identification of ignitable liquids. Item 1 was found to contain a light aromatic product. Examples include: some paint and varnish removers, some automotive parts cleaners, xylenes, toluene-based products. Item 2 was found to contain a medium oxygenated solvent. Examples include: some lacquer thinners, some industrial solvents, some metal cleaners/gloss removers. Item 3 was used as a control.
68HJBH	Sample Preparation: (1) Passive Headspace Extraction. Analytical Methods: (1) Gas

TABLE 4

WebCode	Conclusions
	Chromatography/Flame Ionization Detection. (2) Gas Chromatography/Mass Selective Detection. Item 1: A miscellaneous product was identified. Examples of miscellaneous products include some blended products and some commercial and industrial available products. Item 2: The miscellaneous product limonene was identified. Limonene is naturally occurring in soft woods and appears in both flammable and non-flammable commercially available products. Item 3: No ignitable liquids were detected.
6BH9LJ	A medium miscellaneous product was detected in item 1. Products that may be classified as medium miscellaneous products include, but are not limited to, turpentine products, some blended products, and some specialty products. The best product match found for item 1 is Goof Off which, when analyzed, was found to also contain acetone, an oxygenated compound. Attempts were made to analyze item 1 for the presence of acetone; however, based on damage to the packaging on a second sampling, no results were obtained that indicated any light oxygenated compounds. Therefore, item 1 was reported as a miscellaneous class ignitable liquid based on the peaks that were detected; however, the presence of light oxygenated compounds in the original sample cannot be ruled out. A medium oxygenated solvent was detected in item 2. Products that may be classified as medium oxygenated solvents include, but are not limited to, some lacquer thinners, some industrial solvents, metal cleaners, and gloss removers. The commercial product Zep Heavy Duty Citrus Cleaner was analyzed and found to contain the same compounds detected in item 2; however, this cleaning product did not ignite. This does not eliminate the possibility that there may be other commercial products available that contain the same compounds, and are ignitable in their formulations. No ignitable liquid was detected in item 3.
6CRQRM	Item #1 The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. A light to medium petroleum product (e.g. some surface preparation solvents, some lacquer thinners and some industrial solvents) was detected. Item #2 The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. A medium miscellaneous product containing limonene (e.g. specialty cleaner) was detected. Item #3 The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. No ignitable residues were identified. The item was analyzed as a comparison sample
6DK7T6	1. A light range oxygenated solvent was detected. Examples include alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. 2. A medium range miscellaneous product was detected. Examples include turpentine products, some blended products and some specialty products. 3. No ignitable liquids were detected.
6G27W6	"Item 1" 1. The exhibit was analysed for the presence of ignitable liquid residues and light aromatic products were detected. 2. Examples of light aromatic products include some paint and varnish removers, some automotive parts cleaners and some xylene- and toluene-based products. "Item 2" 3. The exhibit was analysed for the presence of ignitable liquid residues and limonene and glycol ethers were detected. 4. According to literature, limonene and glycol ethers could be found in some cleaning solvents and some turpentine products, among other applications. 5. According to ASTM E1618-14 Ignitable Liquid Classification Scheme, limonene and glycol ethers can be classified under Others-Miscellaneous. "Item 3" 6. The exhibit was analysed for the presence of ignitable liquid residues and none was detected.
6G42VX	An oxygenated product consisting of acetone and aromatic compounds (toluene, ethylbenzene and xylene) was found in item 1. Examples include but are not limited to, some cleaning solvents, adhesive removers, brake parts cleaners. A miscellaneous product composed mainly of limonene was found in item 2. Examples include, but are not limited to, some universal cleaners and solvents which may be flammable liquid but may also be from a cleaning product present on the scene of the fire. No ignitable liquid were detected in the item 3.

TABLE 4

WebCode	Conclusions
6J8WFZ	A light aromatic product in item #1. Limonene was determined in item #2. No ignitable liquid was determined in item #3.
6R3HFD	Items #1-1, #1-2, and #1-3 were submitted to passive headspace desorption and activated carbon at 65°C for 16 hours. The activated carbon was then extracted with carbon disulfide and analyzed using gas chromatography with mass selective detection. Results and Interpretations: A light aromatic product was detected in the extract of Item #1-1. Examples of light aromatics include xylene and toluene based solvents, some paint removers and some automotive parts cleaners. No ignitable liquids were detected on the extracts of Items #1-2 and #1-3.
6TCAA9	I examined the items received and found :- 1) Item 1 to consist of a piece of cardboard from a storage room which on analysis, I detected to presence of Aromatic Products (Light); 2) Item 2 to consist of a piece of cardboard from an office which on analysis, I detected others-miscellaneous (medium); 3) Item 3 to consist of a piece of cardboard substrate which on analysis, I did not detect any ignitable products.
6UT4C4	A light aromatic product was detected in sample 1. No ignitable liquids were detected in samples 2 and 3. Examples of light aromatic products include, but are not limited to, some paint and varnish removers, some automotive parts cleaners, xylenes, and toluene-based products.
6XU84Q	A gas chromatography/mass spectrometry (GC/MS) analysis was performed on the extracts of item #'s 1 – 3. Analysis results indicate there was no presence of an ignitable liquid in item # 3. Analysis results indicate the presence of a light aromatic product in item # 1 and a light miscellaneous solvent resembling d-limonene in item #2.
6YLNBY	The following test methods were used in reaching the conclusions reported below: passive headspace concentration and gas chromatography-mass spectrometry. Exhibit 1 contained acetone and a light aromatic product, which are ignitable liquids. Acetone is a solvent and can be found in nail polish removers. Examples of light aromatic products include some paint and varnish removers, some automotive parts cleaners, and xylene- and toluene-based products. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene can be found in some cleaning products and some degreasers. No ignitable liquids were identified in Exhibit 3.
73FJFY	A light oxygenated solvent was found in exhibit #1. No ignitable liquid was determined on #2 or #3
74E8RN	A mixture containing a medium petroleum distillate, a light aromatic product, and acetone was identified in item 1. Medium petroleum distillates include, but are not limited to, some brands of charcoal starters, paint thinners, and dry cleaning solvents. Light aromatic products include, but are not limited to, xylenes- and/or toluene-based products, some brands of paint removers, varnish removers, and automotive parts cleaners. Acetone is an ignitable liquid commonly found in products including, but not limited to, nail polish remover and solvents. A specialty product containing limonene and other terpenes was identified in item 2. Specialty products include single compounds and specialty mixtures. Limonene occurs naturally in citrus peels. Terpenes occur naturally in plant materials. Limonene and other terpenes are commonly found in products including, but not limited to, essential oils, cleaning products, and turpentine. No common ignitable liquid was identified in item 3. Some conditions which could lead to this result are: A. No common ignitable liquid was present in the material analyzed. B. An ignitable liquid was present but below quantities required for a positive identification. C. An uncommon ignitable liquid was present.
7BEJZD	The volatile contents of Items 1, 2, and 3 were extracted using a passive carbon adsorption/elution technique and analyzed by gas chromatography - mass spectrometry (GC-MS). Acetone, toluene, and xylenes were identified in Item 1 (Identification). These components may have originated from a single product or from a combination of products, including oxygenated solvents and aromatic products. If these components were from a single product, it would be classified as a light range miscellaneous category ignitable liquid. Examples of products containing these components include but are not limited to lacquer thinners and automotive parts cleaners. Limonene and a glycol ether were identified in Item 2 (Identification). These components may have originated from a single product or from a combination of products, including miscellaneous products and oxygenated solvents. If these

TABLE 4

WebCode	Conclusions
	components were from a single product that was ignitable, it would be classified as a medium range miscellaneous category ignitable liquid. Examples of ignitable products containing these components include but are not limited to turpentine, some cleaning solvents, and some home and vehicle air fresheners. These components may also be present in some liquids/samples that are not ignitable. No ignitable liquid residues were identified in Item 3 (Not Identified).
7BVJ8A	An ignitable liquid residue classified as a light-range oxygenated solvent was found in Item 1. Acetone, methylene chloride, toluene, and xylenes were identified in the residue. Commercially available products that may incorporate light-range oxygenated solvents into their formulations include, but are not limited to, surface preparation products. A single component identified as limonene was found in Item 2. Limonene is a common, naturally occurring compound. It may also be incorporated into a variety of commercially available products. The products may or may not be associated with ignitable liquids. No ignitable liquid residues were detected in Item 3.
7DZQFN	Item 1 was found to contain compounds classified as light aromatic product according to ASTM E1618-14. Item 2 was found to contain compounds classified as medium miscellaneous product according to ASTM E1618-14.
7ER GAL	The following items were examined for ignitable liquids: Item 1 Piece of cardboard from a storage room sealed in a nylon bag. Analysis Result: The piece of cardboard of Item 1 contains a light aromatic product, Examples of a light aromatic product include some paint removers and some auto parts cleaners. Item 2 Piece of cardboard from an office sealed in a nylon bag. Analysis Result: The piece of cardboard of Item 2 contains limonene along with other terpenes. These constituents may be found in some non-flammable products such as citrus degreasers. Item 3 Cardboard substrate that is intended as a negative control sealed in a nylon bag. Analysis Result: No ignitable liquids were detected in the piece of cardboard of Item 3. Analysis was performed using gas chromatography with mass spectrometry (GC-MS).
7EVU2N	EXHIBIT # AGENCY # DESCRIPTION: 1 1 One square of cardboard packaged in sealed nylon bags. Examination reveals the presence of a Light Range ignitable liquid residue in the Aromatic Products Class*. Refer to the attached Ignitable Liquid Classification System. 2 2 One square of cardboard packaged in sealed nylon bags. Examination reveals the presence of a Medium Range ignitable liquid residue in the Miscellaneous Products Class (Limonene)**. Refer to the attached Ignitable Liquid Classification System. 3 3 One square of cardboard (control) packaged in sealed nylon bags. No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected. [Participant submitted data in a format that could not be reproduced in this report.]
7MNEWN	These samples were analyzed by GC/MS. Miscellaneous in the light to midium range were identified in item 1 and miscellaneous in the midium range were identified in item 2.
7R4NAT	1. Laboratory item #1: A light-to-medium range Miscellaneous Product was identified. Examples of light and medium range Miscellaneous Products include, but are not limited to, some blended products, some enamel reducers, and some specialty products. The ignitable liquids identified in Laboratory item #1 could have originated from either multiple independent sources or a single commercial product. If a particular product or substance is suspected, it can be submitted to the laboratory for analysis. 2. Laboratory item #2: A medium range Miscellaneous product containing Terpenes was identified. Examples of medium range Miscellaneous Products include, but are not limited to, turpentine products, some blended products, and some specialty products. Terpenes are used in some turpentine solvents and some pine-based cleaners, but are also common to softwoods. 3. Laboratory item #3 (comparison sample for Laboratory items #1 and #2): No ignitable liquids were identified. 4. The identification of an ignitable liquid residue on tested evidence does not necessarily lead to the conclusion that a fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquid residues.
7U7MHZ	Item I contains components identifiable as a light aromatic product containing toluene, ethylbenzene, and xylenes. Item II contains a miscellaneous component identifiable as limonene, possibly d-Limonene
7WE6VX	Specimen #1 was found to contain a light aromatic. Examples of light aromatics include some xylene based products, some toluene based products and some paint and varnish removers. Specimen #2

TABLE 4

WebCode	Conclusions
	was found to contain a medium miscellaneous product. Examples of miscellaneous medium products include turpentine products, some blended products and some specialty products. No ignitable liquids were detected in Specimen #3. Specimens 1-3 were extracted by passive concentration headspace extraction with activated charcoal and analyzed by GC/MS. Disclaimer: The absence of an ignitable liquid does not rule out the possibility that ignitable liquids were present at the fire scene. Ignitable liquids are volatile compounds that may have evaporated, been totally consumed in a fire, environmentally altered or removed or otherwise indistinguishable from background material.
7ZCH3Z	Item 1: We highlight acetone, dichloromethane and aromatic compounds (Toluene, Ethylbenzene and Xylenes). According to ASTM E 1618-14, We classify this mixture in light miscellaneous products. Relatively to Table 1 of the standard, the possible uses are "some blended products". According to our database and knowledge, acetone is used as a solvent/remover for paint, varnish, ink and glue. aromatic product is used as solvent / diluent for paint, varnish, ink. dichloromethane dissolves many products such as fats, oils, resins. It is used in the stripping of paint and varnish. Such a composition directs us to stripper/remover/cleaner products. Item 2: We highlight the presence of limonene with a minority of polyether. The limonene considered alone is a flammable compound and then can constitute a flammable liquid. However, the concomitant presence of polyether is compatible with a product originally constituted by an aqueous phase. In this case, fonction to its formulation, the highlighted product may not be flammable. According to ASTM E 1618-14, This compound is classified in medium miscellaneous products. Relatively to Table 1 of the standard, the possible uses are "some blended products" and "some specialty products". According to our database and knowledge, This compound is found in cleaning or degreasing products or paint solvent. It is also found in household cleaning products, perfumes and aromas.
7ZTC6V	Item 1 was analyzed and determined to contain acetone which is a light oxygenated solvent, and toluene, ethylbenzene, and xylenes which are light aromatic products. Acetone, toluene, ethylbenzene, and xylenes are all ignitable liquids. It cannot be determined if these ignitable liquids originated from a single commercial product or a blend of multiple commercial products. Examples of light oxygenated solvents include, but are not limited to, alcohols, ketones, some lacquer thinners, some fuel additives, and surface preparation solvents. Examples of light aromatic products include, but are not limited to, some paint and varnish removers, some automotive parts cleaners, xylenes, and toluene-based products. Item 2 was analyzed and determined to contain a medium oxygenated solvent. Examples of medium oxygenated solvents include, but are not limited to, some lacquer thinners, some industrial solvents, degreasers, and metal cleaners/gloss removers. Item 3 was analyzed, and no common ignitable liquid residue was detected.
83EGDT	Item 1: Acetone, Methylene Chloride, Aromatic product, examples of which are some paint and varnish removers, some automotive parts cleaners, specialty cleaning solvents, and fuel additives. Item 2: Limonene. Limonene is a terpene used in flavoring, fragrance and perfume materials, solvents, and resin manufacturing. Item 3: No ignitable liquids were found.
86J4QW	Item 1: A Light Aromatic Product Identified. Some examples are paint and varnish removers, automotive parts cleaners and xylenes, toluene based products. Item 2: Limonene Identified. Limonene is an Ignitable Liquid. Item 3: Comparison Sample. No Ignitable Liquid Identified.
88A6VK	Items 1, 2 and 3 were analyzed by gas chromatography / mass spectrometry for the presence of ignitable liquids. Acetone (an oxygenated solvent) and light range aromatics were identified in item 1. A medium range petroleum distillate was also detected. It is undetermined if these compounds are from a single product or a combination of products. A medium range miscellaneous product was detected in item 2. Examples include turpentine products, some blended products and some specialty products. No ignitable liquids were detected in item 3.
8EPYVN	Evidence addressed in this report was received into the laboratory on the following date: August 01, 2018. Analysis for ignitable liquid residues (Items #1, #2, and #3) by Diffusive Flammable Liquid Extraction trapping followed by Gas Chromatography / Mass Selective Detection: Item #1: Mixture of light petroleum products (oxygenated-acetone and aromatic). Examples of products containing acetone include (but are not limited to) aerosol spray paints, aerosol adhesive, and some paint and polish removers. Examples of products containing aromatic solvents include (but are not limited to)

TABLE 4

WebCode	Conclusions
	some paint and varnish removers, some auto parts cleaners, and some solvent thinners. It cannot be determined whether the mixture is homogenous or from two separate products. Item #2: Terpenes. It cannot be determined if these terpenes are a naturally occurring product of the wood or due to the addition of a foreign substance such as Turpentine. Item #3: No ignitable liquid residues identified. All evidence will be returned to the submitter.
8FJ878	On analysis, I found that item 1 was found to bear traces of aromatic products. Item 2 was found to bear traces of others-miscellaneous. Item 3 is intended as negative control, was found to be negative for the presence of ignitable liquid.
8JFHQQ	1. Laboratory item #1: A light oxygenated solvent was identified. Examples of light oxygenated solvents include, but are not limited to, ketones, lacquer thinners, surface preparation solvents, and fuel additives. 2. Laboratory item #2: Terpenes were identified. Terpenes can be found in cleaning solvents, blended products, turpentine products and specialty products. 3. Laboratory item #3 (Comparison sample for Laboratory items #1 and #2): No ignitable liquids were identified.
8QL6NL	1. A mixture containing acetone, methylene chloride and a light aromatic product was found. This can be from a blended product or from a physical mixture. Examples of light aromatic products include, but are not limited to, some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. 2. Limonene found. Limonene can be a natural or synthetic product. Commercial sources include some cleaning products. The source of limonene in this sample may be flammable or non-flammable. 3. No ignitable liquids found.
8RYKG2	Item 1: An ignitable liquid was identified in the sample. This liquid is classified as a light miscellaneous product, and contains acetone, methylene chloride, toluene and xylenes. Examples of this type of ignitable liquid would be an all-purpose paint/stain stripper, or a combination of light paint/stain/adhesive strippers or thinners. Item 2: An ignitable liquid was identified in the sample. This ignitable liquid is classified as miscellaneous product, and contains d-Limonene. Heavier chemical compounds were also indicated in testing, but were unable to be specifically identified. Examples of this type of ignitable liquid would be citrus-based cleaners/degreasers. Item 3: No ignitable liquid was detected.
8WV4KL	The following test methods were used in reaching the conclusions below: visual examination and gas chromatography-mass spectrometry (GC-MS). Exhibit 1 contained acetone, a light aromatic product, and a medium petroleum distillate, each of which is an ignitable liquid. Acetone is a solvent and is found in most nail polish removers. Examples of light aromatic products include some paint and varnish removers and lacquer thinners. Examples of medium petroleum distillates include some paint thinners and charcoal starters. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of individual products. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene may be found in some cleaning products and paint strippers. It should be noted that limonene is commonly used as a scenting and flavoring agent. No ignitable liquids were detected in Exhibit 3. Preserved extracts from Exhibits 1, 2 and 3 were designated as Exhibits 1-K1, 2-K1, and 3-K1, respectively, and sealed within the corresponding exhibit.
8XLGWC	Item 1 - A Light (C4-C9) oxygenated solvent (Acetone), a light (C4-C9) miscellaneous product (Methylene Chloride), a light (C4-C9) aromatic product and a light to medium (C8-C9) aromatic product were identified in the sample. Item 2 - A medium (C8-C13) miscellaneous product (Limonene) was identified in the sample. Item 3 - No ignitable liquid residue was identified in the sample.
8ZBXYX	The following test methods were used in reaching the conclusions reported below: passive headspace concentration and gas chromatography-mass spectrometry. Exhibit 1 contained acetone and a light aromatic product, both of which are ignitable liquids. Acetone is a solvent and is found in numerous products, such as paint and varnish removers, lacquer thinners, and parts cleaners. Examples of light aromatic products include some paint and varnish removers and some automotive parts cleaners. It could not be determined if Exhibit 1 contained one commercial product or a mixture of individual products. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene is commonly found in household cleaning products. No ignitable liquids were identified in Exhibit 3.
92HD8N	Analysis of exhibit IL Item 1 detected the presence of a light to medium range oxygenated product

TABLE 4

WebCode	Conclusions
	(examples: certain specialty solvents, certain automotive parts cleaners, certain paint/varnish removers, etc.). Analysis of exhibit IL Item 2 detected the presence of a medium range miscellaneous product comprised primarily of limonene (a terpene) (examples: certain citrus-based solvents or cleaning products, etc.). Analysis of exhibit IL Item 3 failed to detect the presence of any ignitable liquids.
938GJP	1. Acetone (a light oxygenated product, flash point -9.4°C), a light aromatic product and traces of a medium petroleum distillate were detected in Exhibit 1. Light oxygenated products, light aromatic products and medium petroleum distillates are ignitable liquids and could act as fire accelerants. Uses of acetone include, but are not limited to, some automotive parts cleaners, a solvent for some paints, varnishes and lacquers, and to clean and dry parts of precision equipment. Uses of light aromatic products include, but are not limited to, some automotive parts cleaners, some paint and varnish removers, and some barbeque grill protectors. Uses of medium petroleum distillates include, but are not limited to, some charcoal starters, some paint thinners and some dry cleaning solvents. It cannot be determined whether the acetone, light aromatic product and medium petroleum distillate detected in Exhibit 1 originate from a single blended product or from a mixture of two or more separate products. 2. Limonene (approximate flash point 45°C) was detected in Exhibit 2. Limonene is an ignitable liquid and could act as a fire accelerant. Limonene has a strong citrus odour and its uses include, but are not limited to, some citrus-scented cleaning solutions, a flavouring compound, some firefighting foams, some fragrance and perfume materials, some floor waxes and furniture polishes, and as a solvent for some resins and waxes. It should be noted that the fire accelerant capability of limonene is reduced in the presence of water and aqueous-based solutions. 3. No ignitable liquid, or its residue, was detected in Exhibit 3.
979KBC	In item 1, Toluene is the most abundant with C-2 Alkyl benzene. Alkanes, Cycloalkanes and Poly-nuclear aromatics are not present. Therefore item 1 consisted of traces of ignitable liquid containing light Aromatic products. Item 2 has mainly alcoholic ingredients and other types of components are absent. Therefore item 2 consisted of traces of ignitable liquid containing light oxygenated solvents.
9FFYEY	Instrumental analysis of exhibit #1 revealed acetone, toluene, Ethylbenzene, xylenes and medium petroleum distillate. Instrumental analysis of exhibit #2 revealed limonene. No ignitable liquid was detected in exhibit #3.
9FJ8ER	The sample in item 1 contained a light oxygenated solvent, acetone along with the light aromatics, toluene, ethylbenzene, and the xylene isomers. The sample in Item 2 contains Limonene, commonly found in citrus flavored and scented products.
9FYBB4	Item 1 - A heat sealed plastic bag containing a cardboard square. Acetone, dichloromethane, toluene and xylenes were detected in this item. These components may be used in some paint strippers, paint thinners or other specialty products. Item 2 - A heat sealed plastic bag containing a cardboard square. Limonene was indicated to be present in this item. Limonene is a flammable liquid however it is also used in many cleaning products and fragrances. Item 3 - A heat sealed plastic bag containing a cardboard square. No accelerants were detected in this item.
9FZ8DM	Others-Micellaneous were detected in Item 1. Mixtures of aromatic products(C7-C8)and petroleum distillates(C10-C13)were detected in Item 1. Others-Micellaneous were detected in Item 2. Major components of limonene and a small amount of terpenes(C10) were detected in Item 2.
9KAJB9	An ignitable liquid classified as a light oxygenated solvent was detected in item 1. An example of a light oxygenated solvent includes some paint strippers. An ignitable liquid classified as a medium miscellaneous product was detected in item 2. An example of a medium miscellaneous product includes some citrus based cleaners. No recognizable ignitable liquids were detected in item 3.
9L48U4	Item 1: Item 1 contained a piece of cardboard. Residues consistent with a medium aromatic product were detected from the item. Medium aromatic products have a variety of uses including cleaning solvents, automotive part cleaners, insecticide vehicles and fuel additives [1]. Item 2: Item 2 contained a piece of cardboard. Residues consistent with a medium miscellaneous product were detected from the item. Limonene was identified as a component of the residue. Limonene has a variety of uses including degreasers, paint strippers and cleaning products [2]. Dipropylene glycol n-butyl ether was

TABLE 4

WebCode	Conclusions
	tentatively identified as a component of the residue. Dipropylene glycol n-butyl ether [3] is known to be used as a component within cleaning products [4]. Item 3: Item 3 contained a piece of cardboard. No ignitable liquid residues were detected from the item. [1] ASTM Standard E1618-11. 2011. Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry. ASTM International, West Conshohocken, PA. [2] MSDS: D-Limonene. 2014. ACOHS Pty Ltd, Nunawading, VIC. [3] Dipropylene glycol n-butyl ether was tentatively identified based on comparison of the compound's mass spectrum with that of a literature source. Unequivocal identification of this compound can be made on receipt of a certified reference material at the laboratory. [4] Technical Data Sheet: Dowanol DPnB. 2012. The Dow Chemical Company.
9P7MA2	Item 1: A light oxygenated solvent was identified in Item 1. Examples include alcohols, ketones, some lacquer thinners, and fuel additives. Item 2: A medium miscellaneous product was identified in Item 2. Examples include turpentine products and some cleaning solvents. Item 3: No ignitable liquids were detected in Item 3.
9PLEAQ	Item 1. Aromatic product, examples of which are some paint and varnish removers, fuel additives and some insecticide vehicles. Acetone (trace) Methylene Chloride (trace). Item 2. Limonene. Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. Item 3. No ignitable liquids were found. Without a control sample, it is not possible to determine if the above listed components in the findings for Item 1 constitute one product or a mixture of products.
9Q2QXN	Analysis of exhibit IL, Item 1 detected the presence of a light oxygenated solvent (examples: some paint/varnish removers, some surface preparation solvents, some automotive parts cleaners, etc.). Analysis of exhibit IL, Item 2 detected the presence of a medium range miscellaneous product composed mainly of limonene, a terpene (examples: some paint solvents, some cleaning solvents, some specialty solvents, etc.). Analysis of exhibit IL, Item 3 failed to detect the presence of an ignitable liquid.
9QWD7K	Item 1 was subjected to adsorption – elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows the presence of a light oxygenated solvent. Examples of this class of ignitable liquid could include (but are not limited to): alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. Item 2 was subjected to adsorption – elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows the presence of a medium miscellaneous ignitable liquid. Examples of this class of ignitable liquid could include (but are not limited to): turpentine products, some blended products and some specialty products. Item 3 was subjected to adsorption – elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows no evidence of ignitable liquids.
A2CJ2N	Item #1: A light range oxygenated solvent was detected. Examples of light oxygenated solvents include some lacquer thinners, fuel additives, and some specialty solvents. Item #2: A medium range miscellaneous product was detected. Examples of medium range miscellaneous product include turpentine products, some blended products, and some specialty products.
A37DDX	An ignitable liquid in the light oxygenated solvents class was identified in Item 1. Examples of products in the light oxygenated solvents class include alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. An ignitable liquid in the medium oxygenated solvents class was identified in Item 2. Examples of products in the medium oxygenated solvents class include some lacquer thinners, some industrial solvents and metal cleaners/gloss removers.
A3PP8K	After the analysis I found that Item 1 was traces with Aromatic Product (light) and Item 2 was traces with Others-Miscellaneous (Medium) which contain d-Limonene
ALZJZQ	It was found that item 1 included medium petroleum distillates light aromatic products and Heavy normal Alkanes item 2 included medium miscellaneous.
AR4VZA	The volatile contents of Items 1, 2, and 3 were extracted using a passive carbon adsorption/desorption technique and analyzed by gas chromatography - mass spectrometry (GC-MS). A light oxygenated compound was identified in Item 1. Examples of light oxygenated compounds include

TABLE 4

WebCode	Conclusions
	alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. A light aromatic product was identified in Item 1. Examples of light aromatic products include some paint and varnish removers, some automotive parts cleaners, xylenes, and toluene-based products (Identification). A medium oxygenated solvent was identified in Item 2. Examples of medium oxygenated compounds include some lacquer thinners, some industrial solvents, metal cleaners and gloss removers. A medium range other miscellaneous product was identified in Item 2. Examples include turpentine products, blended products and various specialty products (Identification). There were no recognizable ignitable liquid residues identified in Item 3 (Not Identified).
ATLALL	We detect ignitable liquids in both samples. The existence of flammable liquids without a justification in two different seats can be a sign of arson.
AY9UDK	Item 1 consists mainly of acetone, methylene chloride, toluene, xylene and ethylbenzene including tiny amount of aliphatic hydrocarbons ranging in the medium range. Item 2 consists of limonene and tiny amount of alpha-pinene. We ignored trace amount of acetone and methylene chloride in items 2 and 3.
AYR76L	[No Conclusions Reported.]
B37QKR	Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1A) reveals the presence of an aromatic product. Examples of aromatic products include: some paint and varnish removers, some automotive parts cleaners, and Xylenes, Toluene-based products, Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1B) reveals the presence of limonene (miscellaneous product). Examples of miscellaneous products include: some specialty products, some blended products and turpentine products. Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1C) fails to reveal the presence of any ignitable liquids. The procedure employed does not detect the presence of light volatiles such as certain alcohols and acetone.
BCUWMK	Item 1: Analysis identified the presence of a Light Aromatic Product. Examples of light aromatic products include Sherwin Williams Ultra 7000 BSC600, some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. Item 2: Analysis identified the presence of a Medium Miscellaneous Product containing Limonene. Limonene is a terpene extracted from citrus that may be used in ignitable and non-ignitable products. Item 3 Control: No ignitable liquids detected.
BDMB6N	The following methodologies were used in the examination of this case: visual examination, odor assessment, GC-FID and GC-MS. Examination of item #1 revealed the presence of a Miscellaneous product or mixture containing an Aromatic product, Toluene, Acetone, and Methylene Chloride. Miscellaneous products include single component products and blended products. Examination of item #2 revealed the presence of a Miscellaneous product containing Limonene. Miscellaneous products include turpentine products and some specialty products. Examination of item #3 failed to reveal the presence of ignitable liquids.
BK6TDP	001Q1: A light oxygenated product containing acetone, toluene, ethylbenzene, xylenes was identified. 001Q2: Limonene was identified. 001K1: Analyzed for comparison. Examples of light oxygenated products include, but are not limited to, ketone, some lacquer thinners, fuel additives, and surface preparation solvents.
BN8MFZ	Item 1 - Piece of cardboard from a storage room. A light aromatic product, a medium petroleum distillate and dichloromethane identified. Item 2 - Piece of cardboard from an office. Terpenes identified. Item 3 - Comparison piece of cardboard for items 1 and 2. No ignitable liquid identified. NOTES: Dichloromethane (DCM, methylene chloride) is a toxic, colourless, volatile liquid. It is used as paint stripper, degreaser and solvent. Dichloromethane is not readily ignitable under normal conditions however it is capable of generating flammable vapours. Light aromatic products are ignitable liquids that may be used as a solvent in commercial products such as some automotive parts cleaners, paint and lacquer thinners. Medium petroleum distillates are ignitable liquids. Mineral spirits, barbecue starter fluid, 'Varsol', some paint thinners and some products marketed as kerosene are examples of medium petroleum distillates. Terpenes are ignitable liquids. Terpenes are a natural

TABLE 4

WebCode	Conclusions
	component of some soft woods and are used in a variety of products such as food additives, cleaners, fragrances and pharmaceuticals. Turpentine and pine oils are terpene based products. Mixtures of one or more the above mentioned materials can alter its properties (such as ignitability or volatility). The ignitable liquids identified in item 1 may have originated separately, as from separate commercial sources or in one or more sources that contain multiple components. There are commercial products (such as some paint removers) that contain both a light aromatic and a medium petroleum distillate.
BPXKCT	(i) A light aromatic product was detected in Item 1. (ii) Limonene was detected in Item 2. Limonene is a terpene found in non-petroleum based ignitable liquids and non-ignitable products.
BT3ENX	Item 1 contains acetone, methylene chloride and a light aromatic product. Examples of a product that may contain these components include but are not limited to some specialty products. A medium miscellaneous product was detected in Item 2. Examples of a medium miscellaneous product include but are not limited to some specialty products. No ignitable liquids were detected in Item 3
CAH63M	Item 1 - An ignitable liquid was detected. This liquid was identified as an oxygenated/aromatic product. Products of this type are often used as solvents or thinners. Item 2 - An ignitable liquid was detected. This liquid was identified as the terpene limonene. Liquids of this type are often used as odor eliminating cleaning solvents. Item 3 - No ignitable liquids were detected.
CB9ACL	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a light Oxygenate ASTM class ignitable liquid. Examples of this ASTM class are some alcohols, some ketones, and some fuel additives. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain a medium Others - Miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are some blended products and some specialty products. Item 3 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
CBT7MZ	Item 1: An ignitable liquid, classified as an aromatic product, was identified. These products are found in a variety of products on the market including thinners and solvents. Item 2: An ignitable liquid, a terpene product, was identified. Terpene products with the profile present in this sample are found in products including cleaners and solvents. Item 3: Nil ignitable liquid identified.
CCPKCE	Item 1: An ignitable liquid residue was detected – a light oxygenated solvent. The product detected contained acetone, methylene chloride, toluene, and xylenes. Examples of this type of product include brush cleaners, gloss and varnish removers, and lacquer thinners. Item 2: d-Limonene and glycol ethers (Di(propylene glycol) butyl ether aka Dowanol™ DPnB glycol ether) were detected. Glycol ethers are oxygenated solvents that may originate from ignitable liquids such as scented oil air fresheners, brake fluid, or adhesive removers, or from non-flammable liquids such as cleaning solutions or firefighting foams. d-Limonene is a terpene that may originate from ignitable liquids such as specialty cleaners and adhesive removers, or from non-flammable products such as cleansers, air fresheners, and hand scrubbers. Glycol ethers and d-limonene are known to be present together in ignitable liquids such as tar removers as well as non-flammable products such as cleaners, degreasers, and graffiti removers. Presently, the laboratory does not have a reference for comparison with this item, thus no further classification is possible at this time. Should a known liquid containing these components be found, it may be submitted to the laboratory for analysis and comparison. Item 3: No ignitable liquid residues were detected. Item 3 was submitted as a comparison sample for Items 1 and 2.
CECDFN	1: on the piece of cardboard numbered; light aromatic products, medium petroleum distillates and heavy alkane products were determined. 2: on the piece of cardboard numbered; From the others class, turpentine products have been identified. 3: on the piece of cardboard numbered; No petroleum-derived material was found in .
CGH2TT	Exhibit #1 contains a mix of toluene, ethylbenzene, and xylenes (light aromatic product). Exhibit #2 contains limonene. No ignitable liquid was determined on #3
CKHAYN	1- A light range aromatic product was identified in Item 1. Examples of light range aromatic products include but are not limited to some paint and varnish removers, some automotive parts cleaners and xylene. 2- Terpenes like those in turpentine were identified in item 2.
CM6EM8	Item #1: Ignitable liquid residues containing an aromatic product. Aromatic products in this range

TABLE 4

WebCode	Conclusions
	include, but are not limited to, some paint thinners, some automotive sealants, some cleaning solvents, and some insecticides. Item #2: Ignitable liquid residues containing Limonene. Limonene is also an ignitable liquid marketed in some charcoal lighter fluids, some cleaning solvents, some orange clean concentrates, and some orange oils. In small quantities, Limonene is found in pine wood as a naturally occurring Terpene. Item #3: No ignitable liquid residues were detected. Comparison Sample
CQPB8Q	Item 1 : a light aromatic product was recovered from this item. Examples of aromatic products include some paint and varnish removers, some automotive parts cleaners, or xylenes, toluene based-products. Item 2 : No ignitable liquids were detected in Item 2.
CUPDHL	Examination of item #1 revealed the presence of miscellaneous product comprised of acetone, methylene chloride, toluene, and xylenes. Examination of item #2 revealed the presence of limonene. Limonene may be found in some miscellaneous ignitable liquid products as well as some nonflammable products. Examination of item #3 failed to reveal the presence of ignitable liquids. Methodology: Visual Inspection, Odor Assessment, Passive adsorption-elution, GC/FID, and GC/MS.
CZU92L	The following methodologies were used in the examination of this case: visual examination, odor assessment and GC-MS. Examination of item #1 revealed the presence of a miscellaneous product or mixture containing acetone, methylene chloride, toluene, ethylbenzene and xylenes. Miscellaneous products include some blended products and some enamel reducers. Examination of item #2 revealed the presence of a miscellaneous product containing Limonene. Miscellaneous products include turpentine products, some blended products and various specialty products. Examination of item #3 failed to reveal the presence of ignitable liquids.
DC64UQ	1. Submission #1-1 (cardboard square) was extracted using dynamic headspace concentration and analyzed by gas chromatography-mass spectrometry. A light aromatic product containing toluene, ethyl benzene and o-, m-, and p-xylenes was identified in Submission #1-1. Examples of light aromatic products include xylenes, toluene based products, some paint and varnish removers, and some automotive parts cleaners. 2. Submission #1-2 (cardboard square) was extracted using dynamic headspace concentration and analyzed by gas chromatography-mass spectrometry. Limonene was identified in Submission #1-2. Limonene can be found in some cleaning fluids, turpentine, air fresheners and other household products. 3. Submission #1-3 (cardboard control) was extracted using dynamic headspace concentration and analyzed by gas chromatography-mass spectrometry. No ignitable liquids were identified in Submission #1-3.
DCJP6D	Item 1 (cardboard square from storage room) was found to contain a light aromatic solvent. Examples may include but are not limited to some paint and varnish removers, and some automotive parts cleaners. Item 2 (cardboard square from office) was found to contain D-Limonene and 1-(2-butoxy-1-methylethoxy)-2-Propanol. These compounds may be part of a commercially available solvent or cleaning product. No ignitable liquids were identified in Item 3 (CONTROL cardboard substrate).
DCLUPB	Item 1: A light aromatic product was detected containing Toluene (T), Ethylbenzene (E) and Xylenes (X). Products of this type include paint and varnish removers, some automotive cleaners and some specialty TEX products. Item 2: A medium mixed product containing D-Limonene and Tripropylene glycol methyl ether was detected, D-Limonene is found in many cleaners and solvents as its lemon scent is used to enhance the odor and to mask less-appealing odors. Dow Chemical manufacturers a tripropylene glycol methyl ether (TPGME) and suggests this product is used as a solvent for stamp pad inks and ballpoint and felt tip writing pen inks and as a coupling agent and solvent in rust, paint, and varnish removers, hard surface cleaners, and penetrating oils. Item 3: Was a negative control for the nylon sampling bag. Caprolactam, a common compound from nylon bags, was detected in all three samples and counted as part of the sample background substrate.
DCZTP8	Item 1 - a light oxygenated solvent was identified. Oxygenated solvents are ignitable liquids and include, but are not limited to, alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item 2 - a medium miscellaneous product was identified. Medium miscellaneous products are ignitable liquids and include, but are not limited to, turpentine products, some blended products, and some specialty products.

TABLE 4

WebCode	Conclusions
DDWYHK	Item 1A: Light aromatic product, light oxygenated solvent, and medium petroleum distillate. Examples of light aromatic products are some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. Examples of light oxygenated solvents are some lacquer thinners, fuel additives, and some surface preparation solvents. Examples of medium petroleum distillates are some charcoal starters, some paint thinners, and some dry cleaning solvents. Item 1B: Medium others-miscellaneous product. Examples of medium others-miscellaneous products are some cleaning products, some blended products and various specialty products. Item 1C: Control Sample. No ignitable liquid identified.
DL9D32	A light-range oxygenated solvent containing acetone, toluene and xylenes was identified in item 1. Examples of such products include, but are not limited to, some adhesive removers, some lacquer thinners, and some specialty solvents. Limonene was identified in item 2. Limonene, which is a flammable compound, is found in cleaning products, personal care products, paint strippers, and many other common industrial and household products. Some class A foam concentrates used in fire suppression contain limonene. No ignitable liquids were detected in item 3.
DXKZGM	A light-medium Miscellaneous product containing Acetone, Methylene Chloride, light aromatic product and a medium petroleum distillate was present in Item 1. This result could be a mixture of products or a blended product such as some types of brush cleaners, paint strippers and other proprietary formulations. A medium Miscellaneous product containing D-limonene was present in Item 2. Products containing D-limonene can be both flammable and non-flammable products such as some types of cleaning products, cleaning concentrates, solvents and some types of lighter fluids. No ignitable liquid residues were identified in Item 3, the control sample.
E4J4JQ	Exhibit #1 contains a mix of an aromatic product and medium petroleum distillate. No ignitable liquids on exhibits #2 and #3.
EJXAVP	On analysis, I found that: i) Item 1 containing traces of ignitable liquid of Aromatic Products class and light (C4-C9) subclass. ii) Item 2 containing traces of ignitable liquid of Other-Miscellaneous class and medium (C8-C13) subclass.
EK9AT6	Acetone, dichloromethane (methylene chloride), toluene, and a xylene mixture were identified on Item 1. The combination of these compounds constitutes a light range oxygenated solvent, which is an ignitable liquid. However, it can not be determined if these compounds are derived from a single source product or from different products. D-Limonene was identified on Item 2. D-Limonene is an ignitable liquid. Examples of some commercial products containing d-Limonene include some cleaning products. No ignitable liquid residues were identified on Item 3. Items 1 through 3 were examined using static headspace sampling and a passive adsorption/elution technique followed by analysis with gas chromatography-mass spectrometry.
ENUG9D	The following test methods were used in reaching the conclusions below: visual examination and gas chromatography-mass spectrometry (GC-MS). Exhibit 1 contained acetone, a light aromatic product, and a medium petroleum distillate, each of which is an ignitable liquid. Acetone is commonly used as a solvent and is the primary component of some nail polish removers. Examples of light aromatic products include some adhesive removers and xylenes. Examples of medium petroleum distillates include some paint thinners. The number of commercial products in Exhibit 1 could not be determined. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene may be found in some cleaning products and paint strippers. It should be noted that limonene is commonly used as a scenting and flavoring agent. No ignitable liquids were identified in Exhibit 3. Preserved extracts from Exhibits 1 through 3 were designated as Exhibit X-K1, where X is the corresponding exhibit number.
EP8UBN	Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1A) reveals the presence of an aromatic product. Examples of aromatic products include: some paint and varnish removers, some automotive parts cleaners, specialty cleaning solvents, some insecticide vehicles and fuel additives. Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1B) reveals the presence of Limonene (miscellaneous product). Examples of miscellaneous products with limonene include: some cleaning agents, some specialty products and turpentine products. Analysis by Gas Chromatography/Mass Spectrometry of the plastic bags and cardboard (Item 1C) fails to reveal the presence of any ignitable liquids. The procedure employed

TABLE 4

WebCode	Conclusions
	does not detect the presence of light volatiles such as certain alcohols and acetone.
EVCQWA	The following methodologies were used in the examination of this case: visual examination, odor assessment and GC-MS. Examination of item #1 revealed the presence of a miscellaneous product or mixture containing acetone, methylene chloride and an aromatic product. Examples of this type of miscellaneous product or mixture include single component products, some blended products and some enamel reducers. Examination of item #2 revealed the presence of a miscellaneous product containing limonene. Examples of this type of miscellaneous product include some turpentine products, some blended products and some specialty products. Examination of item #3 failed to reveal the presence of ignitable liquids.
EYB4HE	Exhibit 1 contained a light range aromatic product and acetone. Examples of light range aromatic products include some automotive parts cleaners, some paint/varnish removers, and xylene/toluene based products. Acetone can be found as a solvent in some automotive parts cleaners, as an adhesive remover, and as a solvent in nail polish removers. Both aromatic products and acetone are ignitable liquids. There are some commercial products which contain such a mixture; however it could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two or more individual products. Exhibit 2 contained limonene. Limonene can be found in some citrus based cleaners, some paint strippers, and some charcoal starters/lighters. Limonene is an ignitable liquid. No ignitable liquids were identified in Exhibit 3.
F2W6Z8	Item 1A was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid in the medium aromatic class. Examples of some products in the medium aromatic class include some automotive parts cleaners, some specialty cleaning solvents, some insecticides and some fuel additives. The evidence, including the sample used in analysis, will be returned to the submitting agency. Item 1B was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid identified as Limonene. Limonene is naturally occurring in some types of wood as well as the oil extracted from citrus rinds. Examples of products that may contain Limonene are some cleaning products, turpentine and canned heat fuels. The evidence, including the sample used in analysis, will be returned to the submitting agency. Item 1C was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). No ignitable liquids were identified. It should be noted that ignitable liquids may evaporate or can be totally consumed during a fire. A negative finding of ignitable liquids does not preclude its presence during a fire. The evidence, including the sample used in analysis, will be returned to the submitting agency.
F3ARNM	A light oxygenated solvent was identified in ITEM 1 (propanone). This substance also includes toluene, xylenes and residues of a medium petroleum distillate. A major peak of limonene was detected in the cardboard contained in ITEM 2. This substance is generally used as an aromatic agent in many commercial preparations, cleaning and cosmetic products. This substance may be considered as a flammable substance (flash point at 48°C). No ignitable liquid was detected on ITEM 3.
F6WJLB	Item 1 (Exhibit 1): A light oxygenate product was detected. Examples of this class of ignitable liquid include some alcohols, ketones, lacquer thinners, fuel additives and surface preparation solvents. Item 2 (Exhibit 2): A medium to heavy miscellaneous product was detected. Examples of this class of ignitable liquid include turpentine products, some blended products, and some specialty products. Item 3 (Exhibit 3): No ignitable liquid was detected.
F9UX92	Items 1, 2, and 3 were extracted using a passive adsorption-elution technique. The Item 1, 2, and 3 extracts were examined using Gas Chromatography-Mass Spectrometry (GC-MS). Additionally, the Item 1 and 2 extracts were examined using Gas Chromatography (GC). The Item 1 extract contained a mixture of toluene, ethylbenzene and xylenes (a light aromatic product), acetone (an oxygenated solvent), methylene chloride, and a medium petroleum distillate. This mixture is classified as a light to medium miscellaneous product which can be found in, but is not limited to, some paint thinners. The light aromatic product can be found in, but is not limited to, some adhesive removers and paint thinners. The medium petroleum distillate can be found in, but is not limited to, some paint thinners and charcoal starter fluids. The Item 2 extract contained limonene (a medium miscellaneous product) which can be found in, but is not limited to, some fragrance and cleaning products. No ignitable liquids were identified in the Item 3 extract. Supporting examination documentation is maintained in

TABLE 4

WebCode	Conclusions
	the case file. The above listed methods are those approved for use at the time of analysis. All methods can be found in [lab specific procedural document] which can be found at [website].
FCER72	An ignitable liquid classified as a light oxygenated solvent was identified in Item 1. Examples of products that contain light oxygenated solvents include, but are not limited to, some paint strippers. An ignitable liquid classified as a medium miscellaneous product was identified in Item 2. Examples of medium miscellaneous products include, but are not limited to, some citrus based cleaners. No recognizable ignitable liquids were identified in Item 3.
FD9FNW	The fire debris exhibit consisting of a piece cardboard collected from the storage room (item 1) was found to contain light to medium oxygenated solvent class ignitable liquid residues. Examples of light to medium oxygenated solvents include some formulations of the following: industrial/specialty solvents (including for plumbers cement, paints, lacquers, varnishes, enamels), lacquer and paint thinners, floor strippers, adhesive removers, fuel additives, automotive products and metal cleaners. The fire debris exhibit consisting of a piece cardboard collected from the office (item 2) was found to contain medium miscellaneous product class ignitable liquid residues. Examples of medium miscellaneous products include some formulations of the following: turpentine products, blended products and specialty products (including but not limited to specialty cleaning/remover products). The control sample of cardboard (item 3) was found not to contain any detectable ignitable liquid residues.
FFWYLN	Item #1 contains a light aromatic product. Some examples of a light aromatic product are some paint and varnish removers, some automotive parts cleaners and xylene/toluene-based products. Item #2 contains a light miscellaneous product. Some examples of a light miscellaneous product are single component products, some blended products and some enamel reducers. Item #3 No ignitable liquids were detected in item . A negative result means that the laboratory did not identify ignitable liquids in the submitted sample.
FHG6KB	In both items, 1 and 2, it was detected ignitable liquids classified by the ASTM E1618-14 Guide as Heavy Miscellaneous products.
FN8Q3T	Analysis of item 1 indicate the presence of acetone, an aromatic product and a medium petroleum distillate. No ignitable liquids were identified in item 2. No ignitable liquids were detected in item 3.
FUF938	4.1 The residue characteristics of Light Aromatic Products comparable enamel thinners(according to ASTM E1618, Ignitable Liquids Classification Scheme By GC-MS) was identified in item 1. 4.2 The residue characteristics of Medium Others-Miscellaneous(according to ASTM E1618, Ignitable Liquids Classification Scheme By GC-MS) was identified in item 2. 4.3 No ignitable liquids were detected in item 3.
FY6ACD	Exhibit 1 contained a light aromatic product (LAP) and acetone, which are both ignitable liquids. Examples of LAPs include automotive engine cleaners, adhesive removers, and some fuel additives. Acetone can be found as a component of some solvent cleaners, some adhesive removers, and some nail polish removers. Exhibit 2 contained limonene, which is an ignitable liquid. Examples of commercial products that may contain limonene include some paint thinners or strippers, some cleaning products, and some adhesive removers. No ignitable liquids were detected in Exhibit 3.
G333YG	Item 1: Contains mixture of Petroleum and Thinner (Acetone + Toluene + Xylenes); Item 2: contains turpentine
G4HA96	Item 1: A miscellaneous mixture was identified. The following flammable compounds were identified: Acetone, Toluene, Xylene, MPD (C9-C14) and HPD (C19-C22). The mixture may be a thinner or paint remover. Item 2: A miscellaneous mixture was identified. The following flammable compounds were identified:Alpha and Beta Pinene and mainly Limonene. The mixture is probably a turpentine product.
G4HT2T	Toluene, ethylbenzene and xylenes were detected in Item 1. Limonene was detected in Item 2.
GG89Y8	Items 1 and 2 were examined for the presence of hydrocarbon fire accelerants e.g. petrol, white spirit, paraffin oil, diesel oil. Item 1: No such hydrocarbon fire accelerants were detected in item 1. However, partly evaporated light aromatic product vapour was detected, examples of which include

TABLE 4

WebCode	Conclusions
	some paint and varnish removers. Partly evaporated acetone vapour was also detected. Acetone is a flammable liquid found in some nail varnish removers and some paint thinners. Partly evaporated dichloromethane vapour was also detected. Dichloromethane is a non-flammable liquid found in some paint removers, adhesives, aerosols and degreasers. A mixture of light aromatic product, acetone and dichloromethane would constitute a flammable liquid. Item 2: No such hydrocarbon fire accelerants were detected in item 2.
GLEG6W	On examination and analysis, I found that: (a) Item 1 was found to contain aromatic products. (b) Item 2 was found to contain others miscellaneous products.
GN47MA	Item 1 was found to contain a light aromatic solvent. Examples may include but are not limited to some paint and varnish removers and automotive parts cleaners. Item 2 was found to contain D-limonene and oxygenated compounds, which may be present as a commercially available product or mixture of products. No ignitable liquids were identified in Item 3.
GQA8DU	GC/MS (gas chromatography/mass spectrometry) analysis of concentrated headspace vapors from item #1 - 18-536-3 revealed the presence of compounds having retention times and mass ions characteristic of components of a light aromatic product. Light aromatic products include some paint and varnish removers, some automotive parts cleaners and toluene, xylenes based products. GC/MS (gas chromatography/mass spectrometry) analysis of concentrated headspace vapors from item #2 - 18-536-2 revealed the presence of a compound having the retention time and mass ions characteristic of a medium miscellaneous product identified as limonene. Limonene is observed in ignitable and non-ignitable liquids and some soils. GC/MS (gas chromatography/mass spectrometry) analysis of concentrated headspace vapors from item #3 -18-536-3 revealed the presence of compounds having retention times and mass ions characteristic of matrix components and/or pyrolysis products.
GQV3B4	Exhibit 1: Miscellaneous product containing methylene chloride, acetone and an aromatic product (light). Exhibit 2: Miscellaneous product: limonene. Exhibit 3: used for comparison to Exhibit #1 and Exhibit #2.
GRKK4N	Item 1 contains toluene, e. benzene, pm xylene and o. xylene. the lighter is xylol xylene solvent. Item 1 contains also acetone. Item 2 no ignitable liquid detected
GURXNB	RESULTS: Volatile chemical residues were isolated on sample 3, the comparison sample. The volatile chemical residues isolated on sample 3 do not compare favorably to current laboratory standards of ignitable liquids. A mixture of ignitable liquids, identified as acetone (a light oxygenate) and a light aromatic product in the range of C7 to C9 was isolated on sample 1 (the light aromatic was comprised mostly of toluene and C2-alkyl benzenes). It is not known if the ignitable liquid(s) isolated originated with a single product, or with a mixture of consumer products. Additionally, methylene chloride was also isolated on sample 1, but is not considered to be an ignitable liquid. Some examples of consumer products that may contain such a mixture of oxygenates, and light aromatics (with or without methylene chloride) are, but are not limited to, liquid sandpapers, deglossers, and brake cleaner. Other consumer products that may contain only some of the ignitable liquids isolated include, but are not limited to, lacquer thinners, spot cleaners, strippers, fingernail polish remover, xylol, and acetone and toluene, which can be purchased as individual liquids. An ignitable liquid, identified as limonene, was isolated on sample 2. Some examples of consumer products that may contain limonene include, but are not limited to, citrus based cleaners, orange oil, and various fragrance products. Also isolated on sample 2 was a medium oxygenated product in the range of C12 to C13, which further indicates that a cleaning product may be a likely source, but was not present at great enough concentration to be identified as an ignitable liquid in accordance with ASTM E1618. CONCLUSIONS: Based upon the samples that were submitted and analyzed as described, the laboratory holds the following opinions; an ignitable liquid mixture was isolated on sample 1. The ignitable liquids isolated on sample 1 have been identified as a light oxygenate (acetone) and light aromatic products. It could not be determined if the ignitable liquids isolated originated from a single product, or a combination of products. an ignitable liquid identified as limonene, which would be classified as a miscellaneous class of ignitable liquids in accordance with ASTM E1618, was isolated on sample 2. no ignitable liquids were isolated on sample 3, the comparison.

TABLE 4

WebCode	Conclusions
H62WVN	Item 3 (control) contains no ignitable liquid, only caprolactam (most probably from the nylon packaging). Item 1 contains - mainly acetone, ethylbenzene and xylenes (all 3 isomers) and toluene, - very small amounts (about 1/30 of the aromatic compounds) of a medium petroleum distillate most likely origin : DIY product (paint remover, autoparts/mecanics cleaner, etc ...). Item 2 contains mainly one terpene, most probably limonene and a trace of a surfactant most likely origin : a cleaning solvent, not a citrus fruit extract (almost no other terpene detected)
HGHJ6P	Acetone: Acetone was chromatographically detected. Examples of acetone include some cleaning solvents and nail polish removers. Toluene: Toluene was chromatographically detected. Examples of Toluene include paint, rubber, ink, adhesives, disinfectants, and specialty solvents. Xylenes: Xylenes were chromatographically detected. Examples of Xylenes include inks, adhesives, paint thinners, and cleaning solvents. Limonene: Limonene was chromatographically detected. Limonene, naturally occurring in oils of citrus fruit peels, can be used in the manufacturing of certain adhesive, tacking and cleaning products. Examples of limonene include flavorings for food and medicines, fragrances for perfumery and cleaning products, and some specialty solvents. Negative (control): No common commercially available ignitable liquids were chromatographically detected.
HLANZE	An oxygenated solvent (containing acetone, toluene and xylenes) was identified in Lab Item 1. Limonene was identified in Lab Item 2. No ignitable liquids were identified in Lab Item 3. Negative results do not preclude the possibility that ignitable liquids were present at the fire scene. Samples of recovered materials from this case have been preserved with the evidence. Analysis method: Carbon trap followed by Gas Chromatography/Mass Spectrometry.
HLTQQN	An oxygenated product was identified in Item #1. Examples of this class of ignitable liquid would include some lacquer thinners, ketones and surface preparation solvents. A miscellaneous product was identified in Item #2. Examples of this class of ignitable liquid would include some specialty products. No ignitable liquids were detected in Item #3.
HQQ6FY	Items 1, 2, and 3 were extracted using a passive adsorption-elution technique. The Item 1 and 2 extracts were examined using Gas Chromatography (GC) and Gas Chromatography-Mass Spectrometry (GC-MS). The Item 3 extract was examined using GC-MS. The Item 1 extract contained a mixture of toluene, ethylbenzene, and xylenes (a light aromatic product), acetone (an oxygenated solvent), methylene chloride, and a medium petroleum distillate. The light aromatic product can be found in, but is not limited to, some cleaning products and paint thinners. The medium petroleum distillate can be found in, but is not limited to, some paint thinners and charcoal starter fluids. This mixture is classified as a light to medium miscellaneous product which can be found in, but is not limited to, some paint thinners. The Item 2 extract contained limonene (a medium miscellaneous product) which can be found in, but is not limited to, some cleaning products. No ignitable liquids were identified in the Item 3 extract. Supporting examination documentation is maintained in the case file. The above listed methods are those approved for use at the time of analysis. All methods can be found in [lab specific procedural document] which can be found at [website].
HVVH64	A medium Petroleum Distillate product was detected in Item 1. Examples of this distillate include some paint thinner and some specialty solvents. A medium miscellaneous products was detected in Item 2. The item contains a significant amount of terpenes. Terpenes are found in turpentine solvents and pine-based cleaners. No ignitable liquids were detected in Item 3.
HYVQ9D	On analysis, I detected light aromatic product in Item 1 and medium others-miscellaneous in Item 2.
HZCFGD	An oxygenated solvent in the light range was identified in item 1. Examples of oxygenated solvents in the light range include, but are not limited to, alcohols ketones, some lacquer thinners, fuel additives, and surface preparation solvents. A miscellaneous product in the medium range was identified in item 2. Examples of miscellaneous products in the medium range include, but are not limited to, turpentine products, some blended products, and some specialty products. No ignitable liquid residues were identified in item 3.
J7KUAA	The following test methods were utilized in reaching the conclusions reported below: visual examination and gas chromatography mass spectrometry (GC-MS). Exhibit 1 contained an oxygenated product (Acetone) and a light aromatic product. Acetone is a solvent used in lacquers,

TABLE 4

WebCode	Conclusions
	varnishes and rubber cement. Examples of a light aromatic product include xylene-based products, some paint and varnish removers and some automotive part cleaners. Acetone and light aromatic products are ignitable liquids. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 contained limonene. Limonene is a solvent used in the manufacturing of resins and cleaning agents. Limonene is an ignitable liquid. Exhibit 3 was negative for the presence of ignitable liquids.
J9K63N	Item 1 contains acetone, methylene chloride, and a light aromatic product. Examples of products that may contain these components include but are not limited to some specialty products. A medium miscellaneous product was detected in Item 2. Examples of medium miscellaneous products include but are not limited to some specialty products. No ignitable liquids were detected in Item 3. The headspace of the items were directly injected into the gas chromatograph/mass spectrometer. After headspace analysis, activated charcoal strips were used to collect any volatile organic compounds with an adsorption/elution technique. The compounds were then analyzed with a gas chromatograph/mass spectrometer. The charcoal strips used are contained in plastic vials and each was repackaged inside the original item.
JDHLDX	Item 1 contains an ignitable liquid categorized as a light oxygenated solvent. Examples of this include lacquer thinners, and solvents. Item 2 contains an ignitable liquid identified as a limonene. Limonene is categorized as a miscellaneous ignitable liquid, and is used as a solvent, or as a fragrance.
JF3HXG	SPECIMENS: 1 a sealed cardboard box containing: 1-1 a heat sealed nylon bag containing an unburned piece of cardboard identified as "Test No. 18-536 Item 1"; 1-2 a heat sealed nylon bag containing an unburned piece of cardboard identified as "Test No. 18-536 Item 2"; 1-3 a heat sealed nylon bag containing an unburned piece of cardboard identified as "Test No. 18-536 Item 3"; Results: Gas chromatography and mass spectrometry were used to analyze the samples in items #1-1, #1-2, and #1-3. A light-mid range aromatic product was present in item #1-1. Common products containing a light-mid range aromatic are: some paint/varnish removers, some automotive parts cleaners, xylenes, some toluene-based products, some specialty cleaning products, some insecticide vehicles, and some fuel additives. No ignitable liquids were present in items #1-2 or #1-3.
JMXAWH	Ignitable liquids were detected on both item 1 and item 2. Item 1 appears to be light (C4 – C9), Aromatic product. Item 2 appears to be turpentine oil which falls under others-miscellaneous class and is medium (C8 – C13).
JNUP8T	Item 1 contained a light aromatic product (xylenes toluene-based product), in the range of C4-C9. Item 2 contained a medium miscellaneous (limonene), in the range of C8-C13. Item 3 was examined as a comparison sample for Item 1 and Item 2.
JP8WVV	"Item 1" was found to bear traces of Gasoline. "Item 2" was found to bear traces of Other-Miscellaneous (subclass : light to medium, C9 - C12). No ignitable liquid detected for "Item 3".
JTCM2B	Item 1: Analysis identified the presence of a Light Aromatic Product. Examples of light aromatic products include Sherwin Williams Ultra 7000 BSC600, some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. Item 2: Analysis identified the presence of a Medium Miscellaneous Product containing Limonene. Limonene is a terpene extracted from citrus that may be used in ignitable and non-ignitable products. Item 3 Control: No ignitable liquids detected.
JWWZYY	Item 1. A light oxygenated solvent containing acetone, toluene, and xylene was identified in the heat-sealed fire debris bag. Item 2. Limonene was identified in the heat-sealed fire debris bag. Limonene is a naturally occurring wood product and is also found in some environmentally friendly cleaning products. Item 3. No ignitable liquids were identified in the heat-sealed fire debris bag. (Negative control)
JZBVDB	A mixture of acetone, a light aromatic product and a medium petroleum distillate was identified in item 1. Acetone is an ignitable liquid and is commonly found in adhesives and nail polish remover. Light aromatic products include, but are not limited to, xylenes and/or toluene-based products, some paint and varnish removers and some automotive parts cleaners. Medium petroleum distillate products include, but are not limited to, some charcoal starters, paint thinners and dry cleaning

TABLE 4

WebCode	Conclusions
	solvents. Terpenes, natural by-products of wood, were identified in item 2. No common ignitable liquid was identified in item 3. Some conditions which could lead to this result are: A. No common ignitable liquid was present in the material analyzed. B. An ignitable liquid was present but below quantities required for a positive identification. C. An uncommon ignitable liquid was present.
K2GKDX	Item #1 contained residues consistent with the aromatic products class of ignitable liquids. Examples of this class of ignitable liquids include: xylenes, some paint and varnish removers, fuel additives, some automotive parts cleaners, some specialty cleaning solvents, and toluene based products. Item #2 contained residues consistent with turpenes, a miscellaneous class of ignitable liquids. Examples of the miscellaneous class of ignitable liquids include: turpentine products, some blended products, some specialty products and some single component products. No ignitable liquid residues were detected in Item #3.
K7CD68	Item 1: An ignitable liquid residue consistent with a light aromatic product was identified in Item #1. Examples of the light aromatic class of ignitable liquids include some paint and varnish removers, some automotive parts cleaners, xylenes, and toluene-based products. Item 2: An ignitable liquid residue consistent with a medium other/miscellaneous product was identified in Item #2. Examples of the medium other/miscellaneous class of ignitable liquids include turpentine products, some blended products, and some specialty products. The compounds detected are also found in a variety of household products/materials and cannot be excluded as a possible source. Item 3: No ignitable liquid residues were detected in Item #3.
KAEAWN	Item 1 contains acetone, methylene chloride, and a light aromatic product. Examples of products that may contain these components include, but are not limited to, some specialty products. A medium miscellaneous product was detected in Item 2. Examples of medium miscellaneous products include, but are not limited to some specialty products. No ignitable liquid residues were detected in Item 3.
KCW4FN	It was found that Item 1 included medium petroleum distillates, light aromatic products and heavy normal alkanes. Item 2 included medium miscellaneous.
KDD3XT	Item 1 was identified as a light to medium Aromatic product. Examples of Aromatic products are paint or varnish remover. Item 2 was identified as a Miscellaneous product. Examples of Miscellaneous products are cleaning solvents.
KE6K8L	Analysis of item 1 revealed the presence of an aromatic product, examples of which include some toluene based products, some automotive parts cleaners, fuel additives, and industrial cleaning solvents. The product is further classified as a light product. Analysis of item 2 revealed the presence of a miscellaneous product, examples of which include some blended products, some enamel reducers, turpentine products, and some specialty products. The product is further classified as a medium product.
KJ4XUB	The evidence was received on August 8, 2018. The start date of analysis was September 4, 2018. The above items were extracted using passive adsorption/elution and analyzed using Gas Chromatograph/Flame Ionization Detector (GC/FID) and Gas Chromatograph/Mass Spectrometer (GC/MS). Item 1: A light oxygenated solvent and a medium aromatic product residue were identified. Examples of an oxygenated solvent include but are not limited to alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Examples of an aromatic product include but are not limited to some automotive parts cleaners, specialty cleaning solvents, some insecticide vehicles, and fuel additives. Item 2: A medium miscellaneous product residue was identified. Examples of this include but are not limited to turpentine products, some blended products, and some specialty products. Item 3: This item is listed as a control sample. This control sample was analyzed and the results were used in evaluating possible matrix influences on other submitted sample(s). No Ignitable Liquids were identified.
KJYK39	Item #1: presence of a light oxygenated solvent and a light aromatic product were detected. Item #2: presence of a miscellaneous product was detected.
KKBFQL	Items 1, 2, and 3 were analyzed with a gas chromatograph-flame ionization detector (GC-FID) and a gas chromatograph-mass spectrometer (GC-MS) for the identification of ignitable liquids. Item 1 was found to contain a light aromatic product. Examples include: some paint and varnish removers, some

TABLE 4

WebCode	Conclusions
	automotive parts cleaners, xylenes, toluene-based products. Item 2 was found to contain a medium oxygenated solvent. Examples include: some lacquer thinners, some industrial solvents, metal cleaners/gloss removers. Item 3 was used as a control.
KLLU3G	Item 1 was subjected to headspace technique followed by Gas Chromatography Mass Spectrometer analysis show presence of ignitable liquid residue of aromatic product class and light subclass. Item 2 was subjected to headspace technique followed by Gas Chromatography Mass Spectrometer analysis show presence of ignitable liquid residue of Others-Miscellaneous class and medium subclass.
KQZX6X	Analysis of Item 1 revealed the presence of an aromatic product. Examples of this class are some paint and varnish removers, some automotive part cleaners, xylenes, and some toluene based products. Analysis of Item 2 revealed the presence of an Others-Miscellaneous class. Examples of this class are turpentine products, some blended products and some specialty products.
KTJUNG	In Item 1 an ignitable liquid is present consisting of following compounds: acetone, methylene chloride, toluene, ethylbenzene, o-, m-, p-xylenes. Such ignitable liquids are sold most often as paint/varnish removers. According to ASTM 1618-14 classification scheme the ignitable liquid found in Item 1 falls into the class "oxygenated solvents" subclass "light", though some ignitable liquids of similar composition were classified in the NCFS Ignitable Liquids Database (http://ilrc.ucf.edu/search.php) as "Miscellaneous". In Item 2 an ignitable liquid is present consisting of single compound - limonene. Such liquids are available on the market and sold as cleaning solvents, specialty solvents or cleaners. According to ASTM 1618-14 classification scheme the ignitable liquid found in Item 2 falls into the class "Others-Miscellaneous" subclass "medium"
KW6R2E	Item 1 Contains acetone, methylene chloride, toluene, ethyl benzene and xylenes. Item 2 Contains limonene. Item 3 No flammable or combustible liquids were found. Item 3 was used as a comparison sample to Items 1 and 2.
L44GJ4	Item 1 was determined to contain the following: A Light Aromatic Product Ignitable Liquid, examples of which includes some paint and varnish removers, some automotive parts cleaners, xylenes, and some toluene-based products. Item 2 was determined to contain the following: A Medium Miscellaneous Ignitable Liquid, examples of which include turpentine products, some blended products, and some specialty products.
L6TUVU	Item 1: Results/Opinions/Interpretations: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Light Oxygenated Solvent was identified. Examples of this type ignitable liquid include: alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. Item 2: Results/Opinions/Interpretations: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: turpentine products, some blended products and various specialty products. Limonene was identified.
L8GVUA	Item 1 contained main component of acetone, dichloromethane and aromatic solvent (toluene, ethylbenzene, m,p-xylene, o-xylene). The samples extract were classified as Others-Miscellaneous. Item 2 contained the single main component of limonene. The samples extract were classified as Others-Miscellaneous. No ignitable liquids were detected in Item 3.
LMFA2C	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a light Oxygenate ASTM class ignitable liquid. Examples of this ASTM class are some lacquer thinners and some fuel additives. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain Limonene. Item 3 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
LNNV2T	Item 1 to bear the residue of Aromatic Products with light subclass. Item 2 to bear the residue of Others-Miscellaneous with medium subclass consisting of D-Limonene.
LTHJ4X	The volatile contents of Items 1 - 3 were extracted using a passive carbon adsorption/elution technique and analyzed by gas chromatography - mass spectrometry (GC-MS). A light miscellaneous product consisting of acetone, toluene and a light aromatic product was identified in Item 1 (Identification). Examples of light aromatic products include, but are not limited to, some paint and

TABLE 4

WebCode	Conclusions
	varnish removers, some automotive parts cleaners and xylene and toluene based products. A medium miscellaneous product consisting of limonene and a medium oxygenated solvent was identified in Item 2 (Identification). Examples of medium oxygenated solvents include but are not limited to some scented oils used in home and vehicle air fresheners, some paint and adhesive solvents, some household cleaning and maintenance products, and some fire suppression products. Not all products containing this category of oxygenated solvents are ignitable. No ignitable liquid residues were detected in Item 3 (Not Detected).
LUTUCH	Item 1, piece of cardboard from a storage room was found to contain Light Aromatic products. According to ASTM E1618-14 Ignitable Liquid Classification Scheme, Examples of these Aromatics products are some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. Item 2, piece of cardboard from an office was found to contain Medium Others-Miscellaneous products. According to ASTM E1618-14 Ignitable Liquid Classification Scheme, Examples of these Miscellaneous Products are Turpentine products, some blended products and various specialty products. No ignitable liquid was detected in Item 3, cardboard substrate intended as a negative control in a nylon evidence bag.
M2QZ9W	Residues of a light oxygenated solvent containing acetone, methylene chloride, toluene, and C2-alkylbenzenes were identified on Item 1. Examples of light oxygenated solvents include some lacquer thinners, some fuel additives, and some surface preparation solvents. Residues of d-limonene were identified on Item 2. D- Limonene is an oil utilized in some commercial products as a fragrance. No ignitable liquid residues were identified on Item 3.
M762K9	All items were extracted using passive adsorption/elution and were analyzed using Gas Chromatograph/Flame Ionization Detector (GC/FID) and Gas Chromatograph/Mass Spectrometer (GC/MS). Item 1: Light Oxygenated Solvent residue, Medium Aromatic Product residue and Medium Petroleum Distillate residue were identified. Examples of Light Oxygenated Solvent include but are not limited to alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Examples of Medium Aromatic Product include but are not limited to some automotive parts cleaners, specialty cleaning solvents, some insecticide vehicles, and fuel additives. Examples of Medium Petroleum Distillate include but are not limited to some charcoal starters, some paint thinners, and some dry cleaning solvents. It could not be determined whether item 1 contained a single commercial product or a mixture of two or more individual products. Item 2: Medium Miscellaneous Product residue was identified. Examples of this include but are not limited to turpentine products, some blended products, and some specialty products. Item 3: No Ignitable Liquids were identified. This item is listed as a comparison sample. This comparison sample was analyzed and the results were used in evaluating possible matrix influences on other submitted sample(s).
M7PHZB	The following methodologies were used in the examination of this case: visual examination, odor assessment and GC-MS. Examination of item #1 revealed the presence of a light-range oxygenated product containing acetone, methylene chloride, toluene, xylenes and ethylbenzene. Oxygenated products include some lacquer thinners, fuel additives and other solvents. Examination of item #2 revealed the presence of a medium-range miscellaneous product containing limonene. Miscellaneous products include some blended products and specialty products. Examination of item #3 failed to reveal the presence of ignitable liquids.
M9A4FY	item 1: residue characteristic of light aromatic product comparable to enamel thinners(ASTM E1618,Ignitable liquid classification scheme by GCMS). Item 2: residue characteristic of medium others-miscellaneous products(ASTM E1618,Ignitable liquid classification scheme by GCMS). Item 3: negative
MJRB8E	1. Volatile residues from Exhibits 1 (piece of cardboard from a storage room), 2 (piece of cardboard from an office), and 3 (cardboard substrate) were collected using simple heated headspace and passive headspace concentration techniques, and were analyzed using gas chromatography-mass spectrometry (GC-MS) for the presence of ignitable liquid residues. Exhibit 3 was analyzed as a negative control for Exhibits 1 and 2. 2. A light-to-medium miscellaneous product, consisting of acetone, methylene chloride, a light aromatic product, and a medium petroleum distillate (MPD), was identified in the concentrated headspace vapors from Exhibit 1. Some examples of commercial

TABLE 4

WebCode	Conclusions
	products in this ignitable liquid classification would include some adhesive removers, strippers, and enamel reducers. 3. A medium miscellaneous product, consisting of limonene and other monoterpene/terpenoid compounds, were identified in the concentrated headspace vapors from Exhibit 2. Some examples of commercial products in this ignitable liquid classification would include some adhesive removers, strippers, enamel reducers, and turpentine products. 4. No ignitable liquid residues were identified in the concentrated headspace vapors from Exhibit 3.
MQAY9Q	Result: Item 1: Aromatic Product (Light C4-C9), (Toluene, Ethylbenzene, m/p/o - Xylene); Item 2: Pinene, Limonene; Item 3: No relevant components were detected. Result Assessment: Item 1: An ignitable liquid was detected. It is a light (C4-C9) aromatic product, which is found, e.g. in paint, varnish removers or in common cleaning solvents. Item 2: The detected components are most likely pyrolysis products from wood (Pinene) and synthetic materials (Limonene). However, the detected components could also come from an air freshener. Item 3: No ignitable liquids were detected.
MRKX6K	Item 1: A light oxygenated product in the range of C5-C9 was detected in Item 1. Examples include: alcohols, surface preparation solvents, fuel additives and some lacquer thinners. Item 2: A medium miscellaneous product in the range of C6-C11 was detected in Item 2. Examples include: turpentine products, some blended products and some specialty products.
MYLDT8	The laboratory analysis of the samples was performed in accordance with ASTM E1412-12 (Separation and Concentration of Flammable or Combustible Residues from Fire Debris Samples by Passive Headspace Concentration with Activated Charcoal) and ASTM E1618-11 (Identification of Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectroscopy). Sample ID: Description Result: Item 1 Cardboard from Storage Room Aromatic Solvent; Item 2 Cardboard form Office d-limonene [Participant submitted data in a format that could not be reproduced in this report.]
MZZ629	Evidence addressed in this report was received into the laboratory on August 1, 2018. Analysis for ignitable liquid residues using Diffusive Flammable Liquid Extraction trapping, followed by Gas Chromatography / Mass Selective Detection: Item #1: Light Petroleum Product. Mixture of an Oxygenate (Acetone) and Aromatics. Examples of some products containing acetone include (but are not limited to) nail polish removers, lacquer thinners and aerosol paints. Examples of some products where aromatics are found are (but are not limited to) octane boosters for gasolines, paint and varnish removers, model glue and adhesives. *Unable to determine if this is a mixture of ignitable liquids or a single source miscellaneous product. Item #2: Terpenes (Limonene). Some products that contain limonene include (but are not limited to) general cleaning solvents, dry cleaning solvents as well as solvents for paints. Item #3: No Ignitable Liquid Residues Identified. All evidence has been returned to the vault.
N7ZFFZ	A light aromatic ignitable liquid residue was detected in item IL1, the piece of cardboard from the storage room. Examples of light aromatic products include, but are not limited to, some automotive parts cleaners and some paint and varnish removers. A miscellaneous medium ignitable liquid residue was detected in item IL2, the piece of cardboard from the office. Examples of miscellaneous ignitable liquids include, but are not limited to, some blended or specialty products. No ignitable liquid residues were detected in item IL3, the cardboard negative control.
NHFVDD	1. Volatile residues from Exhibits 1 (fire debris), 2 (fire debris), and 3 (control sample) were collected using simple headspace sampling techniques and passive headspace concentration techniques and analyzed using gas chromatography/mass spectrometry for the presence of ignitable liquid residues. 2. A light to medium range miscellaneous product was identified in the headspace vapors of Exhibit 1. This miscellaneous product consisted of acetone, methylene chloride, a light range aromatic product, and a medium petroleum distillate. Ignitable liquids belonging to this class are commercially available as some blended products, some enamel reducers, and some specialty products. 3. A medium range miscellaneous product was identified in the headspace vapors of Exhibit 2. This miscellaneous product consisted of limonene. Ignitable liquids belonging to this class are commercially available as turpentine products, some blended products, and some specialty products. 4. No ignitable liquid residue classifications were identified in the headspace vapors of Exhibit 3.
NJ74E2	item 1: a light aromatic product (ignitable liquid) containing toluene, ethylbenzene, p-xylene and

TABLE 4

WebCode	Conclusions
	m-xylene. item 2: dipropylene glycol, a medium oxygenated solvent. Dipropylene glycol is applied as a coolant. A coolant is a vehicle fluid used to fill the engine's cooling system, to act as a heat exchange fluid, to lower the freezing point of water, and to increase the boiling point of water. Limonene (a cyclic monoterpene) was also identified. item 3: no ignitable liquids were identified in the control sample
NLCUWX	#1: A light to medium miscellaneous product was present in Item 1. Acetone, methylene chloride, a light aromatic solvent (toluene, xylenes) and a medium petroleum distillate. This could be a blended product or a mixture of a couple of solvents. Sources of these components could include paint brush cleaners and/or paint strippers, as well as, other proprietary formulations. #2: A medium miscellaneous solvent (D-Limonene) was present in Item 2. This product is known citrus smell and present in many non-combustible cleaning products. It is also in some combustible products. #3: No ignitable liquids were identified.
NLRF6D	Aromatic products consisting of toluene, ethylbenzene, m-& p-xylene and o-xylene were detected in Item 1. No ignitable liquids were detected in Item 2.
NTB6X2	GC/MS analysis of Item 001-01 identified the presence of the oxygenated solvent acetone. Also identified in Item 001-01 were light range aromatics and a medium range petroleum distillate. It is undetermined if these identifications are from a single product or a mixture of two or more products. GC/MS analysis of Item 001-02 disclosed the presence of a medium range miscellaneous product. Examples of a medium range miscellaneous product include, but are not limited to, some turpentine products, some blended products, and some specialty products. GC/MS analysis of Item 001-03 failed to disclose the presence of an ignitable liquid.
NW93DE	Specimen #1 was found to contain a light aromatic product. Examples of aromatics are paint removers, cleaning solvents, and auto part cleaners. Specimen #2 was found to contain a miscellaneous product. Examples of miscellaneous products includes turpentine products. No ignitable liquids were detected in specimen #3. Specimens 1, 2 & 3 were extracted by passive concentration headspace with activated charcoal and analyzed by gas chromatography/mass spectrometry.
NZC7CA	Item 1 was analyzed by GC/MS and determined to contain a light Oxygenated Solvent ASTM class ignitable liquid. Examples of this ASTM class are alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item 2 was analyzed by GC/MS and determined to contain a medium Others-Miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are turpentine products, some blended products, and some specialty products. Item 3 was analyzed by GC/MS; however, ignitable liquids could not be detected.
P3GLC8	ITEM 1: CONTAINS C4-ALKYLBENZENE GROUPS(XYLENES) AND TOLUENE WHICH CLASSIFIED AS LIGHT AROMATIC PRODUCTS. ITEM 2: CONTAINS METHANE DI-ETHOXY AND BRANCHED PROPANOL WHICH IS A SIGNIFICANT OXYGENATED COMPOUND.
P3UXPN	A light aromatic product was identified in Item #1, examples of which include xylenes, toluene-based products, some paint and varnish removers, and some automotive parts cleaners. A medium miscellaneous product was identified in Item #2, examples of which include turpentine products, some blended products, and some specialty products. There were no ignitable liquids identified in Item #3.
P7DVDE	1. Light aromatic product, examples include some automotive parts cleaners, degreasers, and specialty solvents. 2. Contains Limonene, a naturally occurring terpene which can be found in both ignitable and non-ignitable commercial products. 3. No ignitable liquids were detected.
P92EB6	Item 1: Item 1 was subjected to adsorption-elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis show the presence of a light oxygenated ignitable liquid. Examples of light oxygenated ignitable liquids include (but are not limited to): alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item 2: Item 2 was subjected to adsorption-elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows the presence of a medium miscellaneous ignitable liquid. Examples of medium miscellaneous ignitable liquids include (but are not limited to): turpentine products, some blended products, and some specialty products. Item 3: Item 3 was subjected to

TABLE 4

WebCode	Conclusions
	adsorption-elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. GC/MS analysis shows no evidence of ignitable liquids. Three laboratory glass vials were repackaged with the evidence. The presence of ignitable liquids in Item 1 and Item 2 does not necessarily lead to the conclusion that the fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquids. The absences of ignitable liquids in Item 3 does not preclude their use at the scene.
PDB2YM	A light aromatic product was identified in Item 1. Examples of light aromatic products include some paint and varnish removers, xylenes-based products and toluene-based products. A medium miscellaneous product was identified in Item 2. Examples of miscellaneous products include turpentine products, some blended products and some specialty products.
PDV7PU	A residue of a light oxygenated solvent was detected in Item 1. Examples of light oxygenated solvents include alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. A residue of a medium miscellaneous product was detected in Item 2. Examples of medium miscellaneous products include turpentine products, some blended products, and some specialty products. No ignitable liquid residues were detected in the control sample (Item 3). The samples were extracted by passive adsorption-elution techniques and analyzed by gas chromatography with mass spectrometry.
PENTPJ	These samples were analyzed by using GC and GC/MS. Others-miscellaneous class/light to medium range were identified in item 1 and others-miscellaneous class/medium range were identified in item 2.
PGC6QA	Item #1: A light aromatic product was detected in item #1. Examples of aromatic products are paints and varnishes, removers, and xylenes or toluene based products. Item #2: A medium range miscellaneous product was found in item #2. Examples of miscellaneous products in this range are turpentine products, blended products, and specialty products. Item #3: No ignitable liquid was detected in item # 3.
PH7GGN	Item 1 - Found to contain: Acetone; Dichloromethane; Toluene; Ethylbenzene; Xylenes. This mixture of compounds is commonly associated with specialty type products/solvents (ie. thinners, paint strippers or similar products). Item 2 - Found to contain: Limonene (predominantly). Also contained trace amounts of Propylene Glycol and Cymene. Limonene is commonly associated with cleaning solvents, cosmetics and the food industry.
PH9L2L	Light isoparaffinic products, medium and light oxygenated solvents are ignitable liquids. Ignitable substances can initiate and / or accelerate a fire.
PKCGMA	Item #1: A light aromatic product was detected in Item #1, Examples of commercial products that include paint and varnish removers, automotive parts cleaners, and xylenes, toluene-based products. Item #2: A medium range miscellaneous product like was recovered from Item #2. Examples of miscellaneous products in this range include Turpentine products, blended products and specialty products. Item #3: No ignitable liquids were identified in Item #3.
PRGFDK	Within the limits of the applied methodology and after considering item 3 provided as a negative control: the presence of an oxygenated solvent (light to medium) was detected in item 1. The product detected is a blended product (acetone, aromatics and MPD) that could correspond in particular some cleaning solvents and some paint thinners. the presence of a others-miscellaneous product (medium) was detected in item 2. The product detected could correspond in particular to some cleaning solvents, some specialty/industrial solvents and some paint products/solvents.
PTP8BM	1) In the sample received and labeled as item 1, it was detected the presence of one mixture which can be classified in the scheme proposed by the ASTM E 1618-14 Standard Methods as Light Oxygenated Solvent (Thinner). 2) In the sample received and labeled as item 2, it was detected the presence of one mixture which can be classified in the scheme proposed by the ASTM E 1618-14 Standard Methods as Medium Others – Miscellaneous Products. Examples of the product detected are: cleaning solvent and thinners. 3) In the sample received and labeled as item 3, it were not detected any mixture which can be classified in the scheme proposed by the ASTM E 1618-14 Standard Method. 4) The Thinners and Medium Others – Miscellaneous Products are ignitable liquids. Ignitable liquid may start or

TABLE 4

WebCode	Conclusions
	accelerate a fire.
PU2HAR	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Light Oxygenated Solvent was identified. Examples of this type ignitable liquid include: alcohols, ketones, some lacquer thinners, fuel additives and surface preparation solvents. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: turpentine products, some blended products and various specialty products. Limonene was identified in the sample. Item 3: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). Ignitable liquids were not identified in the sample.
PVHMUB	Item 1 was analyzed for the presence of ignitable liquid residues. A Light Miscellaneous product containing acetone, methylene chloride, toluene, ethylbenzene and xylenes was detected. Item 2 was analyzed for the presence of ignitable liquid residues. A Medium Miscellaneous product "Limonene" was detected. Limonene is found in products including but not limited to ignitable liquids, nonflammable liquids, and cleaners. Item 3 was a control samples submitted for comparison.
PVW94D	Analysis by Gas Chromatography/Mass Spectrometry of the cardboard sample (item 1) reveals the presence of a light aromatic product. Examples include: some paint and varnish removers, some automotive parts cleaners and xylene and toluene based products. Analysis by Gas Chromatography/Mass Spectrometry of the cardboard sample (Item 2) reveals the presence of a miscellaneous product containing limonene. Examples of similar products include some cleaning products, some specialty products and turpentine products. Analysis by Gas Chromatography/Mass Spectrometry of the cardboard comparison sample fails to reveal the presence of any ignitable liquids. The procedure employed does not detect the presence of light volatiles such as certain alcohols and acetone.
PYWJZD	1. Light aromatic product, examples include some automotive parts cleaners, degreasers, and specialty solvents. 2. Contains Limonene, a naturally occurring terpene which can be found in both ignitable and non-ignitable commercial products. 3. No ignitable liquids were detected.
Q2E4HL	Item 1 contained acetone, methylene chloride, toluene, ethyl benzene and xylenes. These compounds are commonly used in lacquer thinners, paint strippers, adhesive removers etc. It was not possible to link to an exact source. Item 2 contained limonene, pinenes and cymene. These compounds are commonly found in cleaning products, wax and tar removers etc. It was not possible to link to an exact source.
Q488H4	Item 1 contained light aromatic product which include but not limited to some paint and varnish removers, automotive cleaners, xylenes and toluene based products. Item 2 contained medium miscellaneous product which include but not limited to turpentine products, blended products and some specialty products.
Q9WGDE	Nothing of significance was detected with IT.3 (control). A different ignitable liquid was detected with IT.1 and IT.2. The source of these could be legitimate. A possible source of Item 1 could be a paint remover. A possible source of Item 2 could be a cleaning product. It should be noted that neither IT.1 or IT.2 could be compared to and reference material on our database and had some similarities when compared to literature search.
QDRDF8	[No Conclusions Reported.]
QFWN62	Item 1 (Exhibit 1) A light oxygenated solvent was detected. Examples include alcohols, ketones, some lacquer thinners, fuel additives, and some surface preparation solvents. Item 2 (Exhibit 2) A medium miscellaneous product containing D-Limonene was detected. Examples of a miscellaneous product include single component products, some blended products and some enamel reducers. Item 3 (Exhibit 3) No ignitable liquid was detected.
QMDA37	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a light Oxygenated Solvent ASTM class ignitable liquid. Examples of this ASTM class are some lacquer solvents and some fuel additives. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain a medium Others-Miscellaneous ASTM class ignitable liquid. Examples of this

TABLE 4

WebCode	Conclusions
	ASTM class are some turpentine products and some blended products. Item 3 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
QPMA9D	The above exhibits were extracted using passive headspace concentration and analyzed using gas chromatography-mass spectrometry. Exhibit 1 contained acetone and a light aromatic product. Acetone is an ignitable liquid which is used in products such as nail polish removers, degreaser and as a solvent. A light aromatic product is an ignitable liquid which can be found in products such as automotive parts cleaners, paint and varnish removers and specialty solvents. There are some products such as cleaners, strippers and lacquer thinners that contain acetone and a light aromatic product. However, it could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene is typically used a fragrance and can be found in various cleaning products. It is also used in some brands of charcoal lighter fluid.
QRBT66	An oxygenated solvent in the light range was identified in item 1. Examples of oxygenated solvents in the light range include, but are not limited to, surface preparation solvents, some lacquer thinners and alcohols. A miscellaneous product in the medium range was identified in item 2. Examples of miscellaneous products in the medium range include, but are not limited to, some specialty products and some blended products. No ignitable liquid residues were identified in item 3.
QZNCFB	Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Light (C4-C9) Oxygenated Product and Light (C4-C9) Aromatic Product. Examples of a Light (C4-C9) Oxygenated Product include ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Examples of a Light (C4-C9) Aromatic Product include toluene-based products. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Medium (C8-C13) Miscellaneous Product. Examples of a Medium (C8-C13) Miscellaneous Product include limonene, and some specialty products. Item 1.3: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: No ignitable liquids/ignitable liquid residues identified. The identification of an ignitable liquid / ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. The absence of an ignitable liquid / ignitable liquid residue does not preclude the possibility that ignitable liquids were present.
R8ZQZR	Residues of a light aromatic product and a medium petroleum distillate (MPD) were identified on Item 1. Examples of light aromatic products include some paint and varnish removers, some automotive parts cleaners, and xylenes and toluene-based products. Examples of MPD's include some charcoal starters, some paint thinners, and some dry cleaning solvents. Residues of limonene was identified on Item 2. Limonene is an ignitable liquid and is found in many common household products. No ignitable liquids were detected on Item 3.
RAMYU7	Item 1: Without a control sample, it is not possible to determine if the above listed components (xylenes, toluene) in the findings for Item 1 constitute one product or a mixture of products. Item 2: Limonene is a terpene used in flavoring and perfume materials, solvents, and resin manufacturing.
RBNP92	Item 1: A mixture containing acetone, methylene chloride and a light aromatic product was found. This can be from a blended product or from a physical mixture. Examples of light aromatic products include, but are not limited to, some paint and varnish removers, some automotive parts cleaners, xylenes, and toluene based products. Item 2: Limonene found. Limonene can be a natural or synthetic product. Commercial sources include some cleaning products. The source of limonene in this sample may be flammable or non-flammable. Item 3: No ignitable liquids found.
RH3KZP	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Light Oxygenated Solvent was identified. Examples of this type ignitable liquid include: ketones, some lacquer thinners, fuel additives and surface preparation solvents. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: some cleaners, some blended products and various specialty products. Limonene was identified in the submitted sample. Item 3: The submitted sample was analyzed using a passive headspace technique and gas

TABLE 4

WebCode	Conclusions
	chromatography-mass spectrometry (GC-MS). Ignitable liquids were not identified in the sample.
RRKP2G	1. Analysis indicates the presence of acetone, an aromatic product and a medium petroleum distillate. 2. No ignitable liquids were detected.
RTZCRN	Item 1: The square piece of cardboard contains a light to medium aromatic ignitable liquid residue. Examples of this type of liquid can include, but are not limited to, some paint and varnish removers, some automotive parts cleaners, xylene and toluene-based products, specialty cleaning solvents, and some fuel additives. Item 2: The square piece of cardboard contains a miscellaneous (limonene) ignitable liquid residue. Example of this type of liquid can include, but are not limited to, some blended and specialty products and cleaning solvents. While limonene itself is an ignitable liquid it can, however, be found in numerous food, automotive, and household products which are not themselves ignitable. Limonene is used to impart a citrus scent and/or flavor to those products. Item 3: An ignitable liquid residue was not detected on the square piece of cardboard.
RVL7KH	"Item 1" 1.The exhibit was analysed for the presence of ignitable liquid residues and xylenes, toluene, ethylbenzene and acetone were detected. According to ASTM1618-14 Ignitable Liquid Classification Scheme, xylenes, toluene, ethylbenzene and acetone can be classified as light others-miscellaneous. "Item 2" 2.The exhibit was analysed for the presence of ignitable liquid residues and limonene and compounds that could be glycol ethers were detected. According to ASTM1618-14 Ignitable Liquid Classification Scheme, limonene and glycol ethers can be classified as medium others-miscellaneous. "Item 3" 3.The exhibit was analysed for the presence of ignitable liquid residues and none was detected.
T3K6JB	The following techniques were used in reaching the conclusions reported below: passive headspace concentration and gas chromatography-mass spectrometry (GC-MS). Exhibit 1 contained a light aromatic product and acetone, both of which are ignitable liquids. Examples of light aromatic products include some paint/varnish removers, some automotive parts cleaners, and xylenes. Acetone may be found in products such as nail polish removers, degreasers, and solvents. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of more than one individual product. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene may be found in some cleaning products, some degreasers, and some pest control products. No ignitable liquids were identified in Exhibit 3.
T6QMFL	Acetone (an oxygenated solvent) and a Light Aromatic Product containing toluene, ethylbenzene, and xylenes were identified in Item 1. Acetone and toluene are commercially available as solvents. Acetone is also found in nail polish remover. Examples of light aromatic products include some paint and varnish removers and automotive parts cleaners. The mixture of acetone with light aromatic compounds can be found in some paint strippers. Limonene was identified in Item 2. Limonene is found in several products, such as citrus oils, some cleaning products and air fresheners. No ignitable liquid residues were detected in Item 3 ("control").
TBVYJT	item 1: residue characteristic of light aromatic product comparable to enamel thinners(ASTM E1618,Ignitable liquid classification scheme by GCMS). Item 2: residue characteristic of medium others-miscellaneous products(ASTM E1618,Ignitable liquid classification scheme by GCMS). Item 3: negative
TCATED	Items 1, 2, and 3 were analyzed with a gas chromatograph-flame ionization detector (GC-FID) and a gas chromatograph-mass spectrometer (GC-MS) for the identification of ignitable liquids. Item 1 was found to contain a light aromatic product. Examples include: some paint and varnish removers, some automotive parts cleaners, xylenes, toluene-based products. Item 2 was found to contain a medium oxygenated solvent. Examples include: some lacquer thinners, some industrial solvents, some metal cleaners/gloss removers. Item 3 was used as a control.
TGKJM9	Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Light (C4-C9) oxygenated product and toluene (a light (C4-C9) aromatic product). Examples of a light (C4-C9) oxygenated product include some lacquer thinners, strippers, fuel additives, and surface preparation solvents. Examples of a light (C4-C9) aromatic product include some paint and varnish removers, some automotive parts cleaners, and toluene-based products. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the

TABLE 4

WebCode	Conclusions
	<p>following: Limonene (a medium (C8-C13) miscellaneous product). Types of products containing this compound include some strippers, cleaners, blended products, and specialty products. Item 1.3: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: No ignitable liquids/ignitable liquid residues identified. The identification of an ignitable liquid / ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. The absence of an ignitable liquid / ignitable liquid residue does not preclude the possibility that ignitable liquids were present.</p>
TN632M	<p>Results and Conclusions of Examinations: Item A1-1 was found to contain materials consistent with the composition of "LIGHT OXYGENATED SOLVENTS" as described by ASTM specifications E1618-14. The term "LIGHT OXYGENATED SOLVENTS" includes products such as alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item A1-2 was found to contain materials consistent with the composition of "MEDIUM MISCELLANEOUS PRODUCTS" as described by ASTM specifications E1618-14. The term "MEDIUM MISCELLANEOUS PRODUCTS" includes products such as turpentine products, some blended products and various specialty products. Item A1-3 was "Control Sample" used for comparison purposes.</p>
TTHKGJ	<p>Item 1: Methylene chloride, a light aromatic product and a medium petroleum distillate identified. Item 2: Terpene-based product identified. Item 3: No ignitable liquid identified.</p>
TW2XYL	<p>Item 1 was found to contain acetone and a light aromatic product. Examples of light aromatic products include some organic solvents and some insecticides/pesticides. Acetone can be found in products such as nail polish remover and paint thinners. It cannot be determined whether these are two separate products or a commercial blend. Item 2 was found to contain limonene. Limonene can be used in commercial products as a solvent, flavoring or fragrance. No common ignitable liquid residues were detected in the comparison sample (Item 3).</p>
TWED78	<p>The analyses performed in our laboratory on Item 01 enabled the detection of oxygenated solvent including acetone, toluene, xylene and ethyl benzene. The analyses performed in our laboratory on Item 02 enabled the detection of limonene.</p>
TYLRWL	<p>A light range aromatic product residue was detected in Item 001-1. A medium range miscellaneous product residue was detected in Item 001-2. No common ignitable liquid residues were detected in Item 001-3.</p>
U7KQNM	<p>Item 1. A light oxygenated solvent was identified in the heat-sealed fire debris bag containing a piece of cardboard. Examples of light oxygenated solvents include some lacquer thinners, fuel additives, and surface preparation solvents. Item 2. Limonene, a medium miscelleous solvent, was identified in the heat-sealed fire debris bag containing a piece of cardboard. Limonene is a naturally occurring wood product and is also found in some environmentally friendly cleaning products. Item 3. No identifiable hydrocarbons were identified in the heat-sealed fire debris bag containing a piece of cardboard. (Control)</p>
U8C4FZ	<p>Item 1 was found to contain ethyl benzene, toluene and xylenes which are classified as a light aromatic product and acetone which is a light oxygenated solvent. A non-ignitable solvent, dichloromethane, was also found. Item 2 was found to contain limonene, alpha-pinene and dipropylene glycol butyl ethers. Dipropylene glycol butyl ether is a medium oxygenated solvent associated with cleaning products and surface coatings. Limonene and alpha-pinene are terpenes which are common to wood-based materials. No ignitable liquids were detected in the cardboard exhibit labelled Item 3.</p>
U9MF6A	<p>Item 1 contains a light aromatic product. Some examples of a light aromatic product are some paint and varnish removers, some automotive parts cleaners and xylene/toluene based products. Item 2 contains a medium miscellaneous product. Some examples of a medium miscellaneous product are turpentine products, some blended products and various specialty products. No ignitable liquids were detected in Item 3.</p>
UAGW8E	<p>An aromatic product and a medium petroleum distillate were detected in sample 1. No ignitable liquids were detected in samples 2 and 3.</p>
UAY94J	<p>Item 1: A mixture of volatile substances including acetone, methylene chloride, toluene, ethyl benzene</p>

TABLE 4

WebCode	Conclusions
	and xylenes was detected in the contents of this item. These substances can be found in a variety of products including some specialised cleaning solvents and paint/varnish removers. Item 2: A mixture of volatile substances consisting predominantly of limonene together with lower levels of terpene hydrocarbons and glycol-based compounds, was detected in the contents of this item. These substances can be found in some citrus-based cleaning solvents. Item 3: The contents of this item were examined for the presence of ignitable liquid residues, and none were found.
UCLY6M	Item #1) Oxygenated (based on the presence of acetone). Examples of products in that class: Composition may vary, some products similar to this product include but are not limited to some parts cleaning solvents, paint solvents/thinners &/or removers. It cannot be confirmed if this is a commercially available product or an improvised mixture. The sample used for comparison was made by analyst. Item #2) Miscellaneous (D-Limonene). Examples of products in this class: No classification system is likely to describe all products which could be classified as miscellaneous. The item contains a significant of D-Limonene, which is not a contributed by the substrate material (cardboard).
UM37W6	In item 1 is detected the presence of aromatic products (toluene, ethylbenzene, xylenes)acetone and dichloromethane. In item 2 is detected the presence of terpenes (dl-limonene and B-myrcene), oxygenated compounds and some alkenes.
UMPE79	Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Light (C4-C9) Oxygenated Product and Light (C4-C9) Aromatic Product (Toluene was identified). Examples of a Light (C4-C9) Oxygenated Product include some lacquer thinners and surface preparation solvents. Examples of a Light (C4-C9) Aromatic Product include some paint and varnish removers and toluene-based products. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Medium (C8-C13) Miscellaneous Product (Limonene was identified). Examples of a Medium (C8-C13) Miscellaneous Product include some blended products and some specialty products. Item 1.3: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: No ignitable liquids/ignitable liquid residues identified. The identification of an ignitable liquid / ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. The absence of an ignitable liquid / ignitable liquid residue does not preclude the possibility that ignitable liquids were present.
UQMY98	Item #1 was a piece of cardboard measuring approximately 4.9 cm by 4.6 cm. It was examined for the presence of ignitable liquid residues and found to contain light aromatic products in the C7 to C9 n-alkane range. Item #2 was a piece of cardboard measuring approximately 4.9 cm by 5.0 cm. It was examined for the presence of ignitable liquid residues and found to contain medium oxygenated solvents. Note: Item #2 also contained D-Limonene. D-Limonene is a terpene extracted from citrus that is used in both ignitable and non-ignitable products. Item #3 was a cardboard substrate measuring approximately 4.9 cm by 4.9 cm. No ignitable liquid residues were detected on Item #3 which was intended as a comparison blank for Items #1 and #2. Note: (1) Examples of light aromatic products include xylene-based products, some paint and varnish removers. (2) Examples of medium oxygenated solvents include some lacquer thinners and some industrial solvents.
UVZX3D	Instrumental analysis of exhibit #1 revealed acetone, toluene, ethylbenzene and mixed xylenes. These compounds can be found in many paint thinners, paint removers and specialty solvents. Instrumental analysis of exhibit #2 revealed limonene. Limonene is a common cleaning/degreasing solvent and is flammable in pure form but not when diluted with water. No ignitable liquid was detected in exhibit #3 (control item).
UXKQEF	The piece of cardboard from a storage room sealed in a nylon evidence bag (Item 1) was found to contain an ignitable liquid consistent with a technical solvent product which maybe a thinner composed mainly of acetone, dichloromethane, aromatics and medium products n-alkanes. The piece of cardboard from an office sealed in a nylon evidence bag (Item 2) was found to contain a non-petroleum Ignitable liquid composed mainly of D-limonene and other terpenes which found in products such as citrus oil extract, fragrances, cleaners, flavorings and other products.
V49TYQ	4.1 The residue characteristics of Light Aromatic Products comparable enamel thinners(according to ASTM E1618, Ignitable Liquids Classification Scheme By GC-MS) was identified in item 1.; 4.2 The

TABLE 4

WebCode	Conclusions
	residue characteristics of Medium Others-Miscellaneous(according to ASTM E1618, Ignitable Liquids Classification Scheme By GC-MS) was identified in item 2.; 4.3 No ignitable liquids were detected in item 3.
VC39V3	1. Laboratory Item #1: A light oxygenated solvent was identified. Examples of light oxygenated solvents include, but are not limited to, some lacquer thinners, some surface preparation solvents, and some fuel additives. 2. Laboratory Item #2: Limonene was identified. Limonene is a terpene that can be found in, but not limited to, some miscellaneous turpentine solvents, some citrus-based cleaners, and some food and flavoring agents. 3. Laboratory Item #3 (comparison sample): No ignitable liquids were identified.
VDJHTB	An oxygenated product was identified in Item 1-1. Some examples of oxygenated products would include specialty solvents and some brands of commercial products. A miscellaneous product was identified in Item 1-2. Some examples of miscellaneous products would include some brands of commercial cleaning products and specialty solvents. No ignitable liquids were detected in Item 1-3.
VJJBTC	Sample one was found to be positive with an Aromatic product. (Common products include or resemble likeness are Benzene, toluene, ethyl benzene ETC). Sample two and three found to be negative responses for any ignitable liquid substance.
VM4NPE	Item 1: Ignitable liquid residues containing an aromatic product. Aromatic products in this range include, but are not limited to, some paint thinners, some automotive sealants, some cleaning solvents, and some insecticides. Item 2: Ignitable liquid residues containing Limonene. Limonene is also an ignitable liquid marketed in some charcoal lighter fluids, some cleaning solvents, some orange clean concentrates, and some orange oils. In small quantities, Limonene is found in pine wood as a naturally occurring Terpene. Item 3: No ignitable liquid residues were detected. Comparison Sample.
VQL9A9	Acetone and a light aromatic product, both of which are ignitable liquids, were identified in Exhibit 1. It could not be determined if Exhibit 1 contained a single commercial product or a mixture of individual products. Some automotive parts cleaners and cleaning solvents contain both acetone and a light aromatic product. Acetone is used in products such as nail polish removers and solvents. Examples of light aromatic products include some paint and varnish removers, some automotive parts cleaners and some toluene based products. Exhibit 2 contained limonene, which is an ignitable liquid. Limonene can be found in citrus based cleaners, some degreasers, and some flea and tick products. No ignitable liquids were identified in Exhibit 3.
VTAK9E	Item 1 The results of the examination extremely strongly support that Item 1 contain ignitable liquid (Level +4), of thinner type. Item 2 The results of the examination of Item 2 support neither that it is nor that it is not ignitable liquid (Level 0).
VTPJ9C	Acetone, a medium petroleum distillate, and an aromatic product were detected in sample 1. No ignitable liquids were detected in sample 2.
VVUE29	Item 1 contains a light aromatic product. Some examples of a light aromatic product are some paint and varnish removers, some automotive parts cleaners and xylene/toluene-based products. Item 2 contains a light miscellaneous product. Some examples of a light miscellaneous product are single component products, some blended products and some enamel reducers. No ignitable liquids were detected in Item 3.
VYVDKD	Item 1 - An ignitable liquid was identified. The ignitable liquid is a Light Aromatic Product. Examples of this liquid are some paint and varnish removers/strippers. Item 2 - An ignitable liquid was identified. The ignitable liquid is a Medium Miscellaneous Product. An example of this liquid are some industrial solvents and cleaners. Limonene, a common citrus smell, was found to be the main component in the sample. Item 3 - No ignitable liquid was identified.
W2Y383	1. A light oxygenated solvent based on a mixture of acetone (flash point -9°C), toluene (flash point 4°C), ethylbenzene (flash point 15°C) and xylenes (flash point 27 to 46°C) with trace amounts of a medium petroleum distillate was detected in Item 1. It could not be determined whether the mixture resulted from a single product or from a combination of two or more separate products. Light oxygenated solvents are ignitable liquids and could act as fire accelerants. Light oxygenated solvents

TABLE 4

WebCode	Conclusions
	are used in the manufacture of, but are not limited to, some automotive cleaners and degreasers, some cleaning solvents and some paint and varnish removers. 2. A medium miscellaneous product based on limonene (flash point 48°C) was detected in Item 2. Some medium miscellaneous products are ignitable liquids and could act as fire accelerants. Medium miscellaneous products are used in the manufacture of, but are not limited to, some cleaning solvents, some degreasers, some fire suppression foams, some fragrances, some hand cleaners and some odor controlling agents. 3. No ignitable liquid, or its residue, was detected in Item 3.
W6JUJ6	The samples were analyzed by gas chromatography - mass spectrometry for presence of ignitable liquids. Item 1: Instrumental analysis detected the presence of alkyl-benzenes (toluene, ethyl-benzene, m/p/o-xylene), acetone and dichloro-methane. The ignitable liquid is identified as paint and varnish removers, which is classified in light other-miscellaneous group. Item 2: Instrumental analysis detected high levels of limonene with very small amount other terpenes. The limonene is combustible and ignitable, but alone is not a typical ignitable product, so the sample is identified as no ignitable liquids. Item 3: No ignitable liquids were detected in the sample. I
W7EX8Q	Item 1 was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid in the light aromatic class. Examples of some products in the light aromatic class include some paint and varnish removers, some automotive parts cleaners, xylenes and toluene-based products. The evidence, including the sample used in analysis, will be returned to the submitting agency. Item 2 was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid identified as Limonene. Limonene is naturally occurring in some types of wood as well as the oil extracted from citrus rinds. Examples of products that may contain Limonene are some cleaning products, turpentine and canned heat fuels. The evidence, including the sample used in analysis, will be returned to the submitting agency. Item 3 was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). No ignitable liquids were identified. It should be noted that ignitable liquids may evaporate or can be totally consumed during a fire. A negative finding of ignitable liquids does not preclude its presence during a fire. The evidence, including the sample used in analysis, will be returned to the submitting agency
WB79F4	Instrumental analysis of Item 1 revealed the presence of a mixture of acetone, methylene chloride, toluene, ethyl benzene and xylene. These substances are capable of supporting combustion. Instrumental analysis of Item 2 revealed the presence of limonene. Limonene is capable of supporting combustion. Examples of products containing limonene include citrus cleaners. Instrumental analysis of Item 3 did not reveal the presence of ignitable liquids. Item 3 was submitted as a cardboard comparison sample.
WDAATL	ITEM 1 CONTAINED AROMATIC SOLVENTS (ALKYLBENZENES) AND ALSO A SMALL AMOUNT OF N-ALKANES (C10-C13). ITEM 2 CONTAINED TERPENES
WJGPNP	Item 1: An ignitable liquid classified as a light-to-medium miscellaneous product was detected. Examples of light-to-medium miscellaneous ignitable liquids include primers, blended products, or specialty products. Item 2: An ignitable liquid classified as a medium miscellaneous product was detected. Examples of medium miscellaneous ignitable liquids include single-component products, essential oils, blended products, or specialty products. The major component found in item 2 and its reference could also be found in non-ignitable liquid products such as cleaning products, some fire foam suppressants, or naturally occurring in some woods. Item 3: An ignitable liquid was not detected.
WV8Z2G	On analysis, i found Item 1 to bear traces of aromatic products, subclass light. On analysis, i found Item 2 to bear traces of others-miscellaneous, subclass medium.
WZNVTT	WE DETECT IN ITEM 1 AN ACCELERANT OF COMBUSTION MIX OF LIGHT AROMATIC PRODUCT, DICHLOROMETHANE AND OXYGENATED COMPOUNDS. WE DETECT IN ITEM 2 A MIX OF TERPENES (TURPENTINE PRODUCTS).
X4H2V2	Item 1.1 contained a light oxygenated solvent. Examples of which include alcohols, ketones, some lacquer thinners, fuel additives, and surface preparation solvents. Item 1.2 contained limonene, a component in the oil of citrus fruits that is commonly used as a fragrance, cleaning solvent, and as a natural insecticide. No ignitable liquids were detected in Item 1.3.

TABLE 4

WebCode	Conclusions
X6YXLF	Item #1 Acetone, toluene, ethyl benzene, p-xylene, o-xylene, nonane, ethyl methyl benzene detected, which suggested a specialty type product, such as thinners. Item #2 Limonene detected, which is found in cleaning products, deodorants, toiletry products. Item #3 No flammable liquid detected on the control sample.
X9DB94	In item 1, an aromatic product was detected. These products are used as special solvents like paint thinners. Item 2 contained no ignitable liquids.
XEEM3F	Upon analysis I found: 1. Item 1 to contain bear of Aromatic Products Subclass Light; 2. Item 2 to contain bear of Others - Miscellaneous Subclass Medium
XMGZH4	Item 1 was analyzed for the presence of ignitable liquid residues. A Light Miscellaneous Product containing acetone, methylene chloride, and a light aromatic was detected. This could be a result of a mixture of products or a blended product. Item 2 was analyzed for the presence of ignitable liquid residues. A Medium Miscellaneous product (limonene) was detected. Limonene can be found in both flammable and non-flammable products such as cleaning products and lighter fluids. Item 3 was a control sample submitted for comparison.
XNTYDC	An organic mixture containing light aromatic solvents and traces of acetone was recovered from Item 1. These solvents are highly flammable. An organic mixture containing terpenes was recovered from Item 2. Terpenes are flammable organic solvents. Nothing of significance was found with respect to the recovery of ignitable residues from Item 3.
XXD4MX	EXHIBIT # AGENCY # DESCRIPTION 1 1 One piece of cardboard. Examination reveals the presence of an ignitable liquid residue in the Light Range of the Oxygenated Solvents Class (acetone). Refer to the attached Ignitable Liquid Classification System. 2 2 One piece of cardboard. Examination reveals the presence of an ignitable liquid residue in the Medium Range of the Miscellaneous Class (limonene)*. Refer to the attached Ignitable Liquid Classification System. 3 3 One piece of cardboard (control sample). No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected. Exhibits 1, 2 and 3 were analyzed using passive adsorption on an activated charcoal disk. The disk was extracted with a solvent and the recovered volatile material was analyzed by gas chromatography / mass spectrometry. Footer on report: * Limonene is commonly detected in plant based materials and other household products. Not all products and materials containing limonene are flammable. The source of the limonene in Exhibit 2 is unknown. [Participant submitted data in a format that could not be reproduced in this report].
XXG86A	Item 1 was found to contain an oxygenated product which also contains an aromatic solvent and a trace medium petroleum distillate. Examples of an oxygenated product which also contains an aromatic product and a trace medium petroleum distillate includes but is not limited to some removers and some cleaning solvents. Item 2 was found to contain a miscellaneous petroleum product which contains some turpentine peaks. Examples of a miscellaneous product which contains some turpentine peaks includes but is not limited to some cleaning solvents. No ignitable liquids were detected in item 3.
XYRRL4	1 Volatile residues from Exhibits 1 (piece of cardboard from a storage room sealed in a nylon evidence bag), 2 (piece of cardboard from an office sealed in a nylon evidence bag), and 3 (cardboard substrate that is intended as a negative control sealed in a nylon evidence bag) were collected using direct and passive headspace concentration techniques and analyzed using gas chromatography/mass spectrometry for the presence of ignitable liquid residues. 2. A light to medium range miscellaneous product containing acetone, methylene chloride, light aromatic compounds, and a medium petroleum distillate was identified in the concentrated headspace vapors of Exhibit 1. Ignitable liquids belonging to this class are commercially available as blended or specialty products, enamel reducers, and adhesive removers. 3. A medium range miscellaneous product containing limonene and other terpene compounds was identified in the concentrated headspace vapors of Exhibit 2. Ignitable liquids belonging to this class are commercially available as blended or specialty products, enamel reducers, turpentine products, and adhesive removers. 4. No ignitable liquid residues were identified in the concentrated headspace vapors of Exhibits 3.
XZHZMR	An ignitable liquid classified as a light Others-Miscellaneous, or light oxygenated solvent with light

TABLE 4

WebCode	Conclusions
	aromatic product was detected in Item 1. This sample contains Acetone, Dichloromethane, Toluene, Ethylbenzene and Xylene isomers. Examples of light Others-Miscellaneous products: some Blended products, Laquer Thinner, Cleaner. An ignitable liquid classified as a Medium Others-Miscellaneous product was detected in Item 2. This sample contains D-Limonene. Examples of turpentine products some Orange or Citrus Baze Cleaner.
Y4FBAY	A light oxygenated solvent was detected in Item 1. Acetone, toluene and meta-, para- and ortho-xylenes are commonly present in known light oxygenated solvents. Light oxygenated solvents include, but are not limited to, surface preparation solvents, spray adhesives, automotive parts cleaners, fuel additives and other specialty application and industrial solvents. A medium miscellaneous product was detected in Item 2. Limonene is commonly found in medium miscellaneous products including, but not limited to, citrus cleaners, mineral spirit substitutes, turpentine products, brush cleaners and other specialty application solvents. No ignitable liquids were detected in Item 3.
Y4H9R3	The analysis performed in our laboratory on item 01 enabled the detection of a oxygenated solvent (acetone) and aromatic products (toluene and xylenes). The analysis performed on item 02 enabled the detection of a miscellaneous- others (Limonene) and item 03 did not show the presence of any ignitable liquid in the sample.
Y6BRJA	Acetone, toluene, xylene, C10 ~ C15, etc. were detected in item 1. Limonene, mycene, terpinene, etc. were detected in item 2.
Y8Y4K2	Ignitable liquid was detected in the Item 1 and its ASTM E1618-14 classification is: Light oxygenated solvents in the range of C4-C9. Example of ignitable liquids in this class include: Some lacquer thinner, fuel additives and surface preparation solvents. Ignitable liquid was detected in the Item 2 and its ASTM E1618-14 classification is: Medium others miscellaneous in the range of C8-C13. Example of ignitable liquids in this class include: Turpentine products.
Y9N6B3	Item 1 was analyzed and determined to contain acetone which is a light oxygenated solvent, and toluene, ethylbenzene, and xylenes which are light aromatic products. Acetone, toluene, ethylbenzene, and xylenes are all ignitable liquids. It cannot be determined if these ignitable liquids originated from a single commercial product or a blend of multiple commercial products. Examples of light oxygenated solvents include, but are not limited to, alcohols, ketones, some lacquer thinners, some fuel additives, and surface preparation solvents. Examples of light aromatic products include, but are not limited to, some paint and varnish removers, some automotive parts cleaners, xylenes, and toluene-based products. Item 2 was analyzed and determined to contain a medium oxygenated solvent. Examples of medium oxygenated solvents include, but are not limited to, some lacquer thinners, some industrial solvents, degreasers, and metal cleaners / gloss removers. Item 3 (comparison sample) was analyzed, and no common ignitable liquid residue was detected.
YEZ4TM	Item 1: Two ignitable liquids were detected, classified as a light miscellaneous product and a light-to-medium miscellaneous product. Examples of light and light-to-medium miscellaneous products include some blended products, some enamel reducers, and some specialty solvents. Although two ignitable liquids are reported, it is possible that a single reference exists but was not attainable. Item 2: An ignitable liquid classified as a medium miscellaneous product was detected. Examples of medium miscellaneous products include turpentine products, some blended products, and some specialty products. The major component detected in item 2 is also found in some cleaning products and other specialty solvents, such as fire foam suppressants, that are not ignitable. Item 3: An ignitable liquid was not detected. For archival purposes, carbon strips from items 2, 3, and an empty nylon bag were booked as item 4 under this DR.
YHVAEY	Conclusions: 1. Acetone (flash point -9.4oC), a light oxygenated product, was detected in Item 1, as well as a light aromatic product and traces of a medium petroleum distillate (detected in much lower abundances than acetone and the light aromatic product). Although it cannot be determined whether these three ignitable liquids originate from a single, blended product or from two, or more, separate sources, they are available blended together in some Goof Off® (The Miracle Remover™) formulations. Other uses of acetone include, but are not limited to, a paint, varnish and lacquer solvent, some nail polish removers and a surface preparation solvent. Other uses of light aromatic

TABLE 4

WebCode	Conclusions
	products include, but are not limited to, some paint and varnish removers, some automotive parts cleaners and some barbeque grill protectors. Other uses of medium petroleum distillates include, but are not limited to, some charcoal starters, some paint thinners, some kerosenes and some lamp oils. Light oxygenated products, light aromatic products and medium petroleum distillates are ignitable liquids and could act as fire accelerants. 2. Limonene (a medium-range terpene, flash point 46oC) was detected in Item 2, uses of which include, but are not limited to, flavouring, fragrance and perfume materials, wetting agent, some fire suppression foams, and some citrus-based cleaning products. Limonene is an ignitable liquid and could act as a fire accelerant; however, it should be noted that the fire accelerant capabilities of limonene are greatly reduced in the presence of water and in aqueous-based solutions. 3. No ignitable liquid, or its residue, was detected in Item 3.
YMQNWZ	Exhibit 1 - Acetone, Methylene Chloride, Toluene, Ethylbenzene and Xylenes were found. These substances may be present as parts of a single chemical product or as a mixture of products. Exhibit 2 - Limonene was found. Limonene is used in flavoring, fragrance and perfume materials, solvents, wetting agents and resin manufacture. Exhibit 3 - Used for comparison to Exhibits 1 and 2.
YNHU7Y	1. Laboratory item #1: A mixture of a light range oxygenated product and a light range aromatic product was identified. Examples of a light range oxygenated product include, but are not limited to, some lacquer thinners, surface preparation solvents, ketones, and alcohols. Examples of a light range aromatic product include some paint and varnish removers, some automotive parts cleaners xylenes, and toluene-based products. The ignitable liquids identified in Laboratory item #1 could have originated from either two independent sources or a single commercial product such as Klean-Strip Strip-X Stripper. If a particular product or substance is suspected, it can be submitted to the laboratory for analysis. 2. Laboratory item #2: Limonene was identified. Limonene is a terpene that is naturally occurring in some soft woods and citrus fruits, but can also be found in, but not limited to, cleaning solvents, some cosmetic and personal care products, some fragrances, and some food and beverage flavorings. 3. Laboratory item #3 (Comparison Sample): No ignitable liquids were identified.
Z24VFX	A light oxygenated solvent was detected in Item 1. Oxygenated solvents include, but are not limited to, some lacquer thinners, some automotive parts and brush cleaners, some surface preparation solvents and some fuel additives. Limonene was detected in Item 2. Limonene is commonly found in known miscellaneous products including, but not limited to, lacquer thinners, citrus cleaners, turpentine products and wood. No ignitable liquids were detected in Item 3.
Z7KJ9N	In the sample 1 was detected ignitable liquids as acetone, aromatic hydrocarbons and small amounts of medium petroleum distillate. Acetone and aromatic hydrocarbons can be originated from e.g. thinners, solvent, paints or paint thinner products. Medium petroleum distillate can belong to the thinner and paint products, but it can be originated from e.g. charcoal starter or lamp oil (if there is two products in the sample 2.) In the sample 2 was detected ignitable liquids as terpenes and dipropylenglycolbutylether. Terpenes and dipropylenglycolbutylether can come from e.g. cleaners. The product itself can be ignitable liquid or not.
ZGXQYW	An oxygenated solvent (containing acetone, toluene and xylenes) was identified in Lab Item 1. Limonene was identified in Lab Item 2. No ignitable liquids were identified in Lab Item 3. Samples of recovered materials from this case have been preserved with the evidence. Analysis method: Carbon trap followed by Gas Chromatography/Mass Spectrometry.
ZKE9ZD	The cardboard-like material, Item 001-1, contained light aromatic product residues. The cardboard-like material, Item 001-2, contained medium miscellaneous product residues. The cardboard-like material, Item 001-3, did not contain any common ignitable liquid residues.
ZRE6T6	Item 1, piece of cardboard from a storage room, contains a mixture of a light aromatic solvent and acetone. Item 2, piece of cardboard from an office, contains limonene.
ZTT6YT	Light Aromatic was identified in Item 1, such as some paint & varnish removers, some auto parts cleaners, xylene and toluene base products.
ZU8LZD	Item 1: This was found to contain acetone, dichloromethane, toluene, ethyl benzene and xylene. This combination of components might be found in a specialty product such as a paint stripper, or in a mixture of products of that type. Item 2: This item was found to contain limonene, which might be

TABLE 4

WebCode	Conclusions
ZV2KLL	used in cosmetics or as a solvent. Item 3: This item did not contain any ignitable liquid.
ZZUCM9	Item 1: GC-MS analysis identified residues of an aromatic product in Item 1. GC-MS analysis identified residues of a miscellaneous ignitable liquid in Item 2. GC-MS analysis failed to identify any ignitable liquid residues in Item 3.
ZZUCM9	Item 1: An ignitable liquid was detected. This liquid was found as containing an oxygenated compound (acetone) and an aromatic liquid mixture. Examples of these are a toluene/xylene product and a brake/carburetor cleaner. Item 2: An ignitable liquid was detected. This liquid was identified as limonene. This liquid can be found in products such as citrus cleaners. A sample of this type of product failed to ignite when tested. Item 3: No ignitable liquids were detected.
ZZWG77	[No Conclusions Reported.]

Additional Comments

TABLE 5

WebCode	Additional Comments
248JEZ	we're using ASTM E-1618 scheme for the interpretation of the analysis results.
2YXZHT	Item #1- Acetone was identified as the Oxygenated solvent. The combination of aromatic and oxygenated products could be a blended Miscellaneous product. Low level alkanes were also present. Item #2- the presence of terpenes were detected.
3NTZAZ	Item #1 was classified as oxygenated rather than aromatic due to the presence of acetone. Item #2 could also be classified as an oxygenated product due to the presence of Dowanol DPnB . As it is likely a citrus based cleaner and limonene was the more prominent component, I classified as a miscellaneous product. I believe that because classification is part of the PT scheme, that products used in the test should be more straightforward in their classification and CTS should ensure that the product is in the ILRC database. It was no issue to detect the flammables and their components, but, for example, if I did not use a method in which I could detect acetone (which is atypical), I would have classified as aromatic and I suspect that many participants will do so. Because the test is consensus based, participants detecting acetone may not meet consensus but be correct in their classification.
3YB6FH	This participant repackaged Items 1 through 3 prior to analysis; however, this participant respectfully disagrees with the repackaging instructions, believing that NONE of the original packaging materials should be included in the repackaging container.
46VM8X	Item 1A is CTS item 1; Item 1B is CTS item 2; Item 1C is CTS item 3
49BUDR	No ignitable liquids detected in Item 3.
4AN22U	The body of report reads: GC-MS (gas chromatography-mass spectrometry) analysis of concentrated headspace vapors from Item 1 reveals the presence of components having the retention times and mass spectra consistent with known acetone, toluene and xylenes. GC-MS analysis of concentrated headspace vapors from Item 2 reveals that the major component of the volatile portion has the retention time and mass spectra consistent with that of known limonene. GC-MS analysis of concentrated headspace vapors from Item 3 fails to reveal the presence of any ignitable liquid residues.
4K79TA	Item 1: Could not source an [country] product with the same composition. Used literature references and internationally accessible databases to provide product examples.
4P2XDM	It is not possible to classify Item 2 as it is unknown if the compounds detected are from a consumer product that is ignitable. Without the submission of the liquid itself for comparison and ignitability testing, classification is not possible.
4Z6AAG	Item# 1- It is unknown if the ignitable liquids found in Item #1 represent a single product as manufactured or a subsequent mixture. Item #2- Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing.
66CZA2	In Item 2 the dominant peak was limonene, however, the second and third dominant peaks were medium range oxygenated compounds. According to the definitions provided at the NCFS Ignitable Liquid Database, this places the product in the Oxygenated Solvent classification. The examples given for Items 1 and 2 are from ASTM-1618-14.
6CRQRM	Item #1 appeared to contain acetone, dichloromethane, aromatics and a trace medium petroleum distillate. No single reference material in our laboratory's reference collection or observed in the NCFS Database appeared to contain the specific combination of substances. It was therefore not possible to determine if this was a single oxygenated solvent product, a mixture of oxygenated solvent products, a mixture of multiple (differing category) products or a single miscellaneous blended product.
6J8WFZ	Limonene was the dominant component of #2, but lower levels of other terpenes and oxygenates (similar to cellosolve or carbitols) were also seen, but not reported.
6UT4C4	Failure to identify an ignitable liquid in any samples of fire debris should not be interpreted to mean that an ignitable liquid could not have been present. It means only that none could be recovered from

TABLE 5

WebCode	Additional Comments
	the debris and or detected during analysis. These opinions are based upon my knowledge, skills, experience, training, education and personal observations as well as facts and data perceived by or made known to me, which facts and data are of the type reasonably relied upon by experts in my particular field in forming opinions or inferences.
73FJFY	Exhibit #1 was closely matched to a reference standard purchased from the ILRC SRN 594 Goof Off which is classified as an oxygenate because it contains acetone with ethylbenzene and mixed xylenes. The sample also contained a very low level of a medium petroleum distillate, but it was at an extremely low level. Exhibit #2 contained a very strong terpene as well as what appears to be a butoxy ethoxy compound. The [laboratory] does not make determinations of most terpene containing samples since terpenes are so common. In addition, I did not find a commercial product in the ILRC database that compared. In these cases, we choose to select a negative finding.
7BEJZD	One of the inner nylon bags (Item 2) was not sealed when received. No complications were observed from this. For Items 1 and 2, because there were multiple classes of components for each, they were both considered to be miscellaneous products. However, it can't be known if these were from a single or multiple products; therefore, the report wording also included the individual components and classes. For Item 2, these components are found in ignitable products and in non-ignitable products, but in the absence of a liquid sample, it can't be known if the source was ignitable or not, which led to unusual wording. Also, no reference sample with both of these components was encountered. While these types of cases are potentially encountered, it is not a good test of proficiency when the form that is required to be filled out forces the analyst into certain checkboxes when a more full explanation is required to convey the results. Multiple answers with explanations could be correct for this test.
7DZQFN	Item 3 was used as negative control.
7ER GAL	The terpenes detected in Item 2 may be considered a medium miscellaneous product; however, other constituents detected in the sample, including possible surfactants, indicate a cleaning product such as Zep Heavy-Duty Degreaser was in the sample. Zep Heavy-Duty Degreaser is not flammable.
7EVU2N	*Acetone and dichloromethane were also identified in this exhibit. These compounds can be found in many types of products used for paint and varnish stripping or cleaning. **Limonene is found in many types and varieties of products, often used as a fragrance or as a cleaning agent. In higher concentrations limonene is considered to be a flammable substance. The exhibits listed on this report were analyzed using passive adsorption on a piece of activated charcoal. The charcoal was extracted with a solvent and the recovered volatile material was analyzed by gas chromatography / mass spectrometry.
7WE6VX	A compound identified in Specimen #2 is consistent with a terpene found in both ignitable and nonignitable products.
7ZCH3Z	A paraffinic hydrocarbon sequence from C22 to C32 is detected in the three samples including the control sample. All or part of these hydrocarbons come from cardboard. Please note that some remover products can also contain paraffins. The hypothesis of several contributions is therefore not excluded (especially for item 1 : if so this interferes with the subclass of the targeted product). The products listed above are examples of known commercial uses. These examples are not intended to be all-inclusive.
7ZTC6V	Item 1: If sample was a known neat liquid, it could be classified as an oxygenated solvent or a miscellaneous (blended) product. However, there's no way to determine if this is a single product (because there is no ignitable liquid known to this laboratory, either in-house or ILRC, with the same mixture of compounds) or a blend of multiple products. Could be an oxygenated + oxygenated, oxygenated + aromatic + aromatic, or oxygenated + aromatic. Thus, the sample was classified as miscellaneous and numerous known ignitable liquid references were included. Item 3: Trace amounts of the same compounds identified in Item 1 (acetone, toluene, C2-alkylbenzenes) are observed but do not affect the findings. It should be noted that CTS may have contaminated item 3.
83EGDT	Without a control sample, it is not possible to determine if the above listed components in the findings for Item 1 constitute one product or a mixture of products.
8JFHQQ	1. The identification of an ignitable liquid residue on tested evidence does not necessarily lead to the

TABLE 5

WebCode	Additional Comments
	conclusion that a fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquid residues. 2. Evidence listed on invoice #Q112290 will be forwarded to the Property Clerk Division for storage.
8RYKG2	I wasn't able to find a reference for Item 1 that contained methanol in addition to the other compounds. It's very possible this could be a mixture of liquids. Didn't have glycol-type references available to confirm other compounds in Item 2. If able to confirm these glycols, one may conclude that the liquid is an oxygenated product.
9FFYEY	A copy of our "Ignitable Liquid Classification Scheme" will be sent along with the report.
9FYBB4	Our laboratory does not employ the ASTM Ignitable Liquid Classification Scheme.
9QWD7K	Notes: Three laboratory glass vials were repackaged with the evidence. The presence of ignitable liquids in Item 1 and Item 2 does not necessarily lead to the conclusion that the fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquids.
AR4VZA	Explanation of Terms: The following descriptions are meant to provide context to the types of opinions reached in fire debris / ignitable liquid examinations. Identification: The sample contained an ignitable liquid or residues of an ignitable liquid. Not Identified: Compounds were detected that may be present in some ignitable liquids. Possible factors that prevented identification of an ignitable liquid may include one or more of the following: The detected compounds may originate from substrate materials and/or pyrolysis of substrate materials. Other compounds in the sample impeded data interpretation. An unexplained absence of components and/or differences in ratios of compound types compared to a reference liquid was observed. No comparable sample in the reference collection was found. Not Detected: The data did not indicate the presence of an ignitable liquid.
ATLALL	Some samples or this type of substances are: Item 1. paint remover Item 2. degreaser,natural cleaning
B37QKR	item 1A = Agency Item 1; item 1B = Agency Item 2; item 1C = Agency Item 3
BK6TDP	001Q1 could also be reported as a light miscellaneous product due to its blended nature. Additionally, the in-house reference is a reducer. Both of these are listed in ASTM E1618 as examples of light miscellaneous products.
BT3ENX	Headspace of the items was directly injected into the gas chromatograph/mass spectrometer (GC/MS). After the headspace analysis, activated charcoal strips were used to collect any volatile organic compounds with an adsorption/elution technique. The compounds were then analyzed with a gas chromatograph/mass spectrometer. The charcoal strips used are contained in plastic vials and have each been repackaged inside the original item.
CCPKCE	It is not possible to classify Item 2 using this form. As we know that there are some formulations containing d-limonene and DPnB glycol ether that are flammable and some that are not, to classify Item 2 as an oxygenated solvent under the ignitable liquid tab is misleading.
CGH2TT	Exhibit #1 was compared with a mix of pure compounds to match the peaks to standards of toluene, ethylbenzene, and xylenes. Exhibit #2 would not be routinely called positive since the key component was a terpene and we do not typically report terpenes. However, the recent purchase and analysis of a variety of terpenes provided a standard for both retention time and mass spectral determination.
CKHAYN	1- Mixture of ethyl benzene, p-Xylene and o-Xylene was identified in Item 1. 2- a-Pinene and D-Limonene were identified in Item 2.
CZU92L	I reviewed three other analysts' proficiencies. I noted that there were large differences in the quantity of Methylene Chloride found in Item #1 and Limonene found in Item #2 even though the same extraction technique and GCMS method was used. It also became apparent that there were some differences in the interpretation of the ASTM Guideline for Miscellaneous products and Oxygenated Solvents based on 10.2.7.6 where it states "there should be a large excess of the compound (at least one order of magnitude above the matrix peaks in the chromatogram) before the analyst should consider the finding of an oxygenated product significant." The ILRC was used as a reference guide to help determine what would be considered significant. According to the ILRC classification criteria, an

TABLE 5

WebCode	Additional Comments
	oxygenated solvent is "one where one or more of the five major peaks (based on peak height) in the liquid, is an oxygenated compound." There is a note that states that "if the oxygenated compound is present and is not identified as one of the five major peaks, it will be classified as a Miscellaneous product." The ILRC defines a miscellaneous product as "one that is composed of two or more distinct patterns". When searching the ILRC, there are several samples with the same or similar peaks that were placed in both the miscellaneous as well as the oxygenated classifications. This lead to confusion as to whether Item #1 was more appropriately classified as an oxygenated solvent or a miscellaneous product. Our current technical procedures did not clearly address which classification Item #1 should fall under.
DCJP6D	Our protocols (lab specific protocol numbers) require us to provide comparison data from library samples when making a positive identification to an ignitable liquid (multiple compounds). We do not have a product containing D-Limonene and the substituted glycol ether doublet (Item 2). Such a product could not be found on the NCFIS Ignitable Liquid Reference Collection either. The dominant peaks (in the absence of all background) were reported instead with the statement that they could be part of a commercially available product. IF we did have a product in our library with the requisite compounds (likely a cleaner / degreaser), it would be classified as a MEDIUM OXYGENATED SOLVENT. Examples may include but are not limited to some lacquer thinners, some industrial solvents, and some metal cleaners.
DCLUPB	For Item 2, this mix of more than one product places it into the miscellaneous class of ASTM 1618 though it could be included in the oxygenated class as well due to the presence of the TPGME. The two classes serve as a catchall for solvents not belonging the more common petroleum distillate classes.
E4J4JQ	The medium petroleum distillate in #1 is at a very low level as compared to the aromatic product. Exhibit #2 contains a very large terpene peak and unidentified doublet. The [laboratory] does not typically report terpenes. Because a reference standard matching this combination of components was not found, I could only call this as negative.
EJXAVP	On analysis, I did not detected any ignitable liquid in Item 3.
EP8UBN	Agency item 1 is my item 1A. Agency item 2 is my item 1B. Agency item 3 is my item 1C.
EVCQWA	While performing case reviews, I noted significant differences in the amount of methylene chloride recovered in Item #1 and the amount of limonene recovered in Item #2 (same extraction technique) between tests. In some cases, the amount of limonene recovered in Item #2 would likely have rendered Item #2 negative in real casework which commonly does not have a negative control. I also noted different interpretations of the ASTM 1618-14 criteria for oxygenated and miscellaneous products, notably what is meant by "major compound" and "large excess of the compound" under 10.2.7 (oxygenated solvents). In seeking clarification, a search of the ILRC was performed; however, products with similar TIC's were not consistently classified as either oxygenated or miscellaneous. Ultimately, the differing interpretations of the ASTM 1618-14 criteria have highlighted a weakness in our technical procedure which will be remedied in the next version.
F3ARNM	The analyses carried out on the contents of the ITEM 1 showed the presence of an oxygenated substance that could correspond to a technical solvent like some cleaners or strippers. The analyses carried out on the content of ITEM 2 showed the presence of limonene. A potentially flammable substance that can be found in the composition of some cleaning solvents.
FCER72	Limonene is found in some fire suppression foams and is not typically reported in fire debris samples.
FN8Q3T	In regards to item 2,our lab typically does not report limonene as it is present in many cleaning products.
G4HA96	Item 1: The mixture contained also methylene chloride (non flammable). Item 2: The presence of larg quantities of limonene suggest that this pine may be related to P. torreyana. Although the 2 mixtures are of the same class of compounds they are completely different and apparently not from the same source.
GG89Y8	Item 2 - a peak partially co-eluting with caprolactam was observed. However, the library matches of

TABLE 5

WebCode	Additional Comments
	this peak were too poor to obtain a possible identification. Caprolactam is a known component of nylon bags.
GN47MA	Item 2 is likely an oxygenated solvent. I called it miscellaneous as the most appropriate answer for test purposes only because I normally would not assign a class since I was unable to find a OS library standard similar to the sample in Item 2 (in-house or NCFS). By policy, without a comparison sample I cannot classify the sample as an OS. Our policy allows us to openly interpret the data to call individual compounds present when the abundance is significant in relation to the background. So that is what I would do in casework with this data.
GQA8DU	A light aromatic product was observed in item 1. A medium miscellaneous product consisting of limonene was observed in item 2. No ignitable liquid residues were observed in item 3. The presence of an ignitable liquid residue in items 1 and 2 does not in and of itself indicate an incendiary fire. The results do not eliminate the possibility that an ignitable liquid was present at the incident in question for item 3.
GQV3B4	Exhibit #1: Without a reference sample, it is not possible to determine if the components constitute one product or a mixture of products. Exhibit #2: Limonene is a monoterpene used as a flavoring agent in food manufacturing.
HGHJ6P	All of the above conclusions are subject to an abundance 'order of magnitude' criteria and matrix considerations for a final call. Single peak calls at [laboratory] require an abundance of approximately 10X the baseline or next significant peak. This approximation can be less to the discretion of the analyst dependent on the circumstances. For example, if this is a swab of a liquid, it is most likely that acetone, toluene, limonene and xylenes are present in pure form (i.e. from a liquid pour) versus if the debris is comprised of 'wood, carpet, & flooring.' Wood tends to have terpenes (such as pinenes & limonene) in [state]; also, limonene is present in large quantities in floor cleaners and toluene is present in large quantities in carpet glue. Therefore, the analyst may not be able to determine with absolute certainty if these peaks are coming from the matrix OR from an actual ignitable pour IF the order of magnitude is not met. In other words, under different fire investigation submission circumstances, the above list of positive results may actually be reported as "Negative" with notes in the case file explaining why.
JF3HXG	Note: Although an ignitable liquid was identified in the submitted sample(s), further investigation may reveal a legitimate reason for the presence of an ignitable liquid. Note: A finding of no ignitable liquids identified does not preclude the possibility that ignitable liquids were present in the sample(s). Ignitable liquids are volatile compounds that may: evaporate, be completely consumed in a fire, be environmentally altered, be indistinguishable from background materials, or not have been present in the sample(s).
KAEAWN	Headspace sampling of vapors were used to collect volatile organic compounds for headspace analysis by direct injection into the GC/MS. Activated charcoal strips were used to collect volatile organic compounds with an adsorption/elution technique. The compounds were then analyzed with a gas chromatograph/mass spectrometer (GC/MS). The charcoal strips used are contained in plastic vials and each was repackaged inside the original item. Chemical Analysis performed includes: Gas Chromatography/Mass Spectrometry (GC/MS).
KJYK39	Item #1: acetone was identified as the light oxygenated solvent and a mixture of toluene and xylene(s) were identified as the light aromatic product. Also, could be classified as a blended miscellaneous product of light aromatic ignitable liquids. Item #2: Terpenes identified.
KKBFQL	Limonene was also identified in Item 2.
KQZX6X	Ignitable liquid classification is based on ASTM E1618 Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography - Mass Spectrometry and/or the laboratory internal policy and procedures.
KW6R2E	All the chemicals listed in Items 1 and 2, are either flammable or combustible liquids.
L6TUVU	Item 3: The submitted material was analyzed using a passive headspace technique and gas chromatography/mass spectrometry (GC-MS). No ignitable liquid was identified.

TABLE 5

WebCode	Additional Comments
LMFA2C	Based on composition and n-alkane range, the limonene in item 2 is a medium Others-Miscellaneous ASTM class ignitable liquid. ASTM standard E1618-14 section 12.3.2.4 states that single compounds shall be reported based upon identification of the compounds rather than their classification. This explains the difference between the item 2 result entered in part 1 [Table #1b-Item 2] of this data sheet and the wording of my conclusion for item 2 in part 4 [Table # 4.]
LTHJ4X	Adding mixtures of oddball classifications is not typical of representative casework. We would include the following explanation of terms in our lab report: Explanation of Terms: The following descriptions are meant to provide context to the types of opinions reached in fire debris / ignitable liquid examinations. Identification: The sample contained an ignitable liquid or residues of an ignitable liquid. Not Identified: Compounds were detected that may be present in some ignitable liquids. Possible factors that prevented identification of an ignitable liquid may include one or more of the following: The detected compounds may originate from substrate materials and/or pyrolysis of substrate materials. Other compounds in the sample impeded data interpretation. An unexplained absence of components and/or differences in ratios of compound types compared to a reference liquid was observed. No comparable sample in the reference collection was found. Not Detected: The data did not indicate the presence of an ignitable liquid.
MQAY9Q	The flash points of Pinene and Limonen are 33 °C and 50 °C respectively. Therefore, these two substances are both potential fire accelerants. However, the use of these fire accelerants seems unlikely because they are not common as pure substances.
NJ74E2	item 1: in the total ion chromatogram (TIC) obtained using solvent extraction techniques (pentane and carbon sulphide), a (minor) profile of a heavy n-alkane product was present. This profile was not present in the TIC of item 3 (control sample), solvent- and systemblanc or was not due to carry-over.
NW93DE	Disclaimer: A naturally occurring terpene was detected in specimen #2 that is also commonly found in background material.
P3GLC8	ITEM (1) INTERPRETATION OF RESULT IS MORE LIKELY TO '(LIGHT AROMATIC)CLASS THAN (GASOLINE) BECAUSE OF THE ABSENCE OF ALKANES AND CYCLOALKANES IN THE CHROMATOGRAPHY SPECTRUM.
PGC6QA	Item #1: Product consists mainly of toluene, ethylbenzene, and xylenes. Presence of caprolactam which is present also in the negative control sample. Item #2 : Product consists mostly of d-limonene. Presence of caprolactam which is present also in the negative control sample. All three samples contain caprolactam which is a raw material used in the manufacture of nylon bags.
PH7GGN	Both of these solvents (Items 1 & 2) would be flammable.
PKCGMA	Item #1 product mainly contained Toluene, Ethylbenzene, Xylenes. D-Limonene and tripropylene glycol methyl ether were identified in Item #2. All three items contained Caprolactam which is a main organic compound in manufacture of Nylon bag.
PRGFDK	All compounds detected in item 1 were considered to be from a single (blended) product but we cannot rule out that they may come from a mixture of several products. The products detected in item 1 and item 2 do not exactly correspond to any of the products known in our reference database.
PTP8BM	In the Item 3 it was detected the chromatograph peak of Nylon (sample container material described as nylon evidence bag).
PVHMUB	Item 1 contained a weak abundance of n-alkanes and branched alkanes in the ambient charcoal strip extraction with the lower ratio of the C10 disrupting the appearance of a bell curve. When a heated charcoal strip extract was performed, the abundance of these n-alkanes and branched alkanes decreased.
PVW94D	For Item 2, data includes limonene and 2 oxygenate compounds (not conclusively identified by mass spec of GC retention time).
PYWJZD	Item 1: There is an indication of an extremely low concentration medium petroleum distillate; however the concentration and analytical detail precludes positive identification.
R8ZQZR	Items 1 through 3 were analyzed using a passive adsorption elution extraction technique followed by

TABLE 5

WebCode	Additional Comments
	analysis with gas chromatography/mass spectrometry.
RVL7KH	Note: a.Light others-miscellaneous can be found in single component products and some blended products among other applications. b.Medium other-miscellaneous can be found in some blended products and some specialty products among other applications.
T6QMFL	Also detected low-level dichloromethane and n-alkanes (C9-C13) in Item 1, but did not report them because they were too low.
TCATED	The oxygenated solvent in Item 2 contained limonene.
TN632M	Sample #1: Trace level medium range compounds were not considered for subclass identification.
TTHKGJ	Methylene chloride, also known as dichloromethane, is a volatile liquid that is typically non-ignitable except under specific circumstances. It can be found in commercial products such as paint strippers, solvent degreasers, adhesives, glues, cleaners and waxes and industrial solvent. Light aromatic products are ignitable liquids and may be found in commercial products such as some paint and varnish removers and some automotive parts cleaners. Medium petroleum distillates are ignitable liquids that may be found in commercial products such as mineral spirits, Barbecue Starter Fluid, Varsol, some products marketed as kerosene, and some paint thinners. The mixture of methylene chloride, light aromatic product and medium petroleum distillate identified in item QA-1 may originate from multiple commercial sources or from a single unidentified commercial product. A mixture of methylene chloride, light aromatic product and medium petroleum distillate may or may not constitute an ignitable liquid since methylene chloride is typically ignitable only when present in relatively high concentrations (13% to 23% in air). The ignitability of such a mixture would depend on the relative amounts of methylene chloride, light aromatic product and medium petroleum distillate and could only be determined by flash point analysis with a suitable amount of comparable liquid. Terpene-based products are ignitable liquids that are made from organic compounds produced by a variety of plants and trees. Limonene and turpentine are terpene-based products. Terpenes may also be found in commercial products such as food additives, fragrances, pharmaceuticals, cleaning products and disinfectants.
U8C4FZ	The analysis of arson exhibits is not an accredited test of the laboratory, nor is the reporting of results in accord with ASTM 1618-14.
UCLY6M	Item #3) No ignitable liquid detected.
VDJHTB	Item 1-1: aromatic & acetone were identified, thus oxygenated product. Item 1-2: limonene & pinenes were identified, thus miscellaneous product.
VTAK9E	Item 1 The liquid contain aromatics, dichloromethane and acetone. The substances are common as thinners in paint and glue. Item 2 Terpenes were identified in the sample. Terpenes are ignitable liquids that are a natural component in some softwoods and are also found in turpentine solvents, perfume, fruits and pine-based cleaners.
VTPJ9C	Although limonene, which is flammable, was detected in Sample 2, it was detected along with several glycol ethers which are common in non-flammable cleaning products.
VYVDKD	For Item 1, the significant majority of data supports a conclusion of an Aromatic Product, even though the presence of oxygenated compounds are present. There are much larger peaks of aromatic compounds, than oxygenated, which supports the wording present in ASTM Guidelines for Aromatic Products.
W6JUJ6	Note: The identification of an ignitable residue from the fire debris from a fire scene does not necessarily lead to the conclusion that a fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence liquid residues. Our laboratory is situated in other Continent, and we don't have so standard samples, of which chromatograms could be fit exactly with those chromatograms which resulted the testing of Item 1 and Item 2, so we can not identify the commercial product we have found in the mentioned items.
WZNVTT	AS FOR AS WE DO NOT HAVE A PATRON WITH THAT COMPOSITION WE CAN NOT DETERMINE IF IT IS A COMERCIAL PRODUCT OR A MIX PREPARED SPECIFICALLY.

TABLE 5

WebCode	Additional Comments
X9DB94	Item 1 contained traces of Acetone, Methylenechloride and of a medium distillate. All these are consistent with a special solvent like paint thinner. Item 2 contained mainly Limonene. In traces other terpenes and some oxygenates like dipropylether. Thus it was concluded, that Limonene did not stem from natural turpentine (an ignitable liquid) but Limonene was added as an odorant to a aqueous product (for example for cleaning).
XMGZH4	A possible MPD was noted on Item 1, however, it could not be confirmed via mass spectrometer.
XXD4MX	A copy of the Ignitable Liquids Classification Table is attached to all reports.
Y9N6B3	Item 1: If sample was a known neat liquid, it could be classified as an oxygenated solvent or a miscellaneous (blended) product. However, there's no way to determine if this is a single product (because there is no ignitable liquid known to this laboratory, either in-house or ILRC, with the same mixture of compounds) or a blend of multiple products. Could be an oxygenated + oxygenated, oxygenated + aromatic + aromatic, or oxygenated + aromatic. Thus, the sample was classified as miscellaneous and numerous known ignitable liquid references were included. Trace amounts of the same compounds identified in Item 1 (acetone, toluene, C2-alkylbenzenes) are observed in Item 3, but do not affect the findings. It should be noted that CTS may have contaminated Item 3.
YNHU7Y	The identification of an ignitable liquid residue on tested evidence does not necessarily lead to the conclusion that a fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquid residues.
Z24VFX	GC-MS (gas chromatography-mass spectrometry) analysis of concentrated headspace vapors from Item 1 reveals the presence of components having retention times, selected ion profiles and mass spectra consistent with acetone, toluene and meta-, para- and ortho-xylenes. These are commonly present in known light oxygenated solvents. GC-MS analysis of concentrated headspace vapors from Item 2 reveals the major component of the volatile portion of the sample has the retention time and mass spectrum consistent with that of known limonene. GC-MS analysis of concentrated headspace vapors from Item 3 fails to reveal the presence of any ignitable liquid residues.
Z7KJ9N	Dichlormethane was detected as well in the sample 1, but it can easily be a contaminant, and it is not used in products so often nowadays, because it is a carcinogen. In the sample 1 was detected furthermore very small amounts of paraffines (C22-C26) which are not ignitable liquids. Terpenes and dipropylenglycolbutylether (flash point 96 C) are classified as ignitable liquid (flash point < 100 C).
ZTT6YT	Medium Miscellaneous was detected in Item 2 such as terpene base products, some blended products, specialty products, and fuel additives.
ZV2KLL	Item 1: Aromatic products (APs) are highly refined petroleum products and are ignitable liquids. Examples of APs include, but are not limited to: paint and varnish removers, automotive parts cleaners, toluene- and xylene-based products, commercial and industrial cleaning solvents, insecticide vehicles, and fuel additives. Item 2: Miscellaneous ignitable liquids (MILs) are ignitable liquid products of unusual composition that do not fit into a prescribed ignitable liquid classification. Examples of MILs include, but are not limited to: single-component products, mixtures or blends of multiple products, enamel reducers, and naturally occurring substances such as turpentine or essential oils. Limonene, a terpene compound, was detected in the sample. Limonene is commonly detected as a background compound in wood and cardboard, although it was not detected in the reference sample provided. It is also a component of ignitable liquids including cleaning solutions, fragrances, citrus oil products, and pure gum turpentine. Limonene is a liquid at normal temperature and pressure, and has a flash point of 50 C. It is therefore considered an ignitable liquid.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 18-536: Ignitable Liquid IdentificationDATA MUST BE RECEIVED BY October 01, 2018 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB and A2LA. Please select one of the following statements to ensure your data is handled appropriately.

- This participant's data is intended for submission to ASCLD/LAB, ANAB and/or A2LA. (Accreditation Release section on the last page must be completed and submitted.)
- This participant's data is **NOT** intended for submission to ASCLD/LAB, ANAB or A2LA.

Scenario:

Police are investigating a suspected attempted arson of a warehouse. It appeared that someone attempted to start a fire in two places, a storage room and an office. Investigators collected pieces of cardboard from each of these areas and immediately sealed the cardboard within nylon evidence bags. The police are requesting that you identify any ignitable liquid(s) that may be present on the pieces of cardboard.

Please note: For laboratories that do not process evidence in nylon bags, please utilize the following method to transfer the items to a sampling container consistent with fire debris submission in your laboratory:

Cut open 3 sides of the inner and outer bags containing the sample and place both opened bags and its contents into your laboratory container. Do not separate the sample (cloth, wood, cardboard, etc.) from the bags when transferring to the laboratory container.

CTS will not reproduce Interpretation Scales, Scale of Conclusions or Terminology Keys in the final report, please do not submit with the participant's data sheet.

Items Submitted (Sample Pack IL):

- Item 1 Piece of cardboard from a storage room sealed in a nylon evidence bag.
- Item 2 Piece of cardboard from an office sealed in a nylon evidence bag.
- Item 3 Cardboard substrate that is intended as a negative control sealed in a nylon evidence bag.

Please return all pages of this data sheet.

Page 1 of 4

Participant Code:

WebCode:

1.) Using the ASTM E1618-14 Ignitable Liquid Classification Scheme, indicate the class for any ignitable liquid(s) detected in the submitted items.

With the exception of the gasoline class, there are three subclasses for each major class based on n-alkane range: **Light** (C4-C9), **Medium** (C8-C13) and **Heavy** (C9-C20+). When the carbon range does not fit clearly into one of the previous categories (e.g. "light to medium", "medium to heavy"), report the carbon number range. Typical chromatograms for some of the classes/subclasses may be found in the published ASTM standard.

	Item 1	Item 2
No Ignitable Liquid(s) Detected	<input type="checkbox"/>	<input type="checkbox"/>
Class	<i>Subclass</i>	<i>Subclass</i>
Gasoline	<input type="checkbox"/>	<input type="checkbox"/>
Petroleum Distillates (including De-Aromatized)	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Isoparaffinic Products	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Aromatic Products	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Naphthenic Paraffinic Products	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Normal Alkanes Products	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Oxygenated Solvents	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Others - Miscellaneous	<input type="checkbox"/> _____	<input type="checkbox"/> _____

2.) Ignitable Liquid Recovery Techniques

Adsorption Headspace

a) Method:

- Passive
- Dynamic

b) Adsorption Temperature:

- Room Temperature
- Heated (_____ °C)

c) Adsorption Duration: _____

d) Adsorbent:

- Carbon/Charcoal
- Other: _____

e) Desorption:

- Solvent: _____
- Thermal

Other Recovery Techniques

Specify: _____

3.) Ignitable Liquid Identification Techniques

- GC
- GC/MS
- Other (specify): _____

Please return all pages of this data sheet.

Participant Code:

WebCode:

4.) What would be the wording of the Conclusions in your report?

5.) Additional Comments

Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by **October 01, 2018** to be included in the report. Emailed data sheets are not accepted.

QUESTIONS?

TEL: +1-571-434-1925 (8 am - 4:30 pm EST)

EMAIL: forensics@cts-interlab.com

www.ctsforensics.com

Participant Code:

ONLINE DATA ENTRY: www.cts-portal.com

FAX: +1-571-434-1937

MAIL: Collaborative Testing Services, Inc.

P.O. Box 650820

Sterling, VA 20165-0820 USA

Please return all pages of this data sheet.

Collaborative Testing Services - Forensic Testing Program

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **18-536: Ignitable Liquid Identification**

This release page must be completed and received by **October 1, 2018** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

Have the laboratory's designated individual complete the following steps **only if your laboratory is accredited in this testing/calibration discipline** by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ANAB Certificate No. _____

(Include ASCLD/LAB Certificates here)

A2LA Certificate No. _____

Step 2: Complete the Laboratory Identifying Information in its entirety

Signature and Title _____

Laboratory Name _____

Location (City/State) _____

Accreditation Release

Return Instructions

Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.

*Questions? Contact us 8 am-4:30 pm EST
Telephone: +1-571-434-1925
email: forensics@cts-interlab.com*

Please return all pages of this data sheet.

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