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FORENSIC TESTING PROGRAM

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Ignitable Liquid Identification
Test No. 20-5436 Summary Report

Each sample set consisted of three items: two nylon bags that each contained a cloth remnant to which an ignitable liquid had been added (Items 1 and 2), and one nylon bag that contained a sample of the cloth substrate (Item 3). Data were returned from 311 participants and are compiled into the following tables:

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 cloth remnant to which an ignitable liquid had been added, and one nylon bag that contained a sample of the cloth substrate. Participants were requested to identify and indicate the ASTM class for any ignitable liquid(s) detected in the submitted items.

SUBSTRATE PREPARATION: The cotton cloth was prepared by cutting it into squares after it had been washed and dried.

ITEMS 1 and 2 (SAMPLE PREPARATION): The ignitable liquid used for Item 1 was a product labeled as Goo Gone Goo and Adhesive Remover. The ignitable liquid used for Item 2 was a product labeled as Ultra-Pure Paraffin Lamp Oil. They were purchased this year from a home improvement store. After adding 50 µl of the ignitable liquid to the substrate, it was immediately heat-sealed in a nylon bag. This bag was then placed in a larger, pre-labeled nylon bag and heat-sealed. 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 to the cloth substrate.

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 belonging to both the Petroleum distillates (including De-Aromatized) and the Others-Miscellaneous class. The ignitable liquid in Item 2 was identified as belonging to the Normal Alkanes Product 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 cloth remnants packaged in nylon bags. Participants were provided with three items: two nylon bags that each contained a cloth remnant to which an ignitable liquid had been added (Items 1 and 2), and one nylon bag that contained a sample of the cloth substrate (Item 3). The cloth remnant in the Item 1 bag contained a product labeled as Goo Gone. The cloth remnant in the Item 2 bag contained a product labeled as Ultra-Pure Paraffin Lamp Oil. (Refer to the Manufacturer's Information for preparation details.)

A total of 311 participants returned results. It should be noted that one of these participants reported their findings in the Conclusions section of the report instead of reporting classifications and sub-classes for each item in the Identification section which explains some of the differences in totals in the report.

Of the 309 participants who reported classification results for Item 1, 303 participants (98.1%) classified the ignitable liquid as belonging to either the Others-Miscellaneous class (211), the Petroleum Distillates (including De-Aromatized) class (38) or a combination of the two classes (54). Differences among lab policies may treat the findings of limonene differently, therefore participants that reported the single classification of Petroleum Distillates were also included as part of the consensus. The remaining 6 participants classified the ignitable liquid as follows: Isoparaffinic Products (2); Naphthenic Products (2); Aromatic Products (1). One participant classified the ignitable liquid as belonging to three classes including Petroleum Distillates, Normal Alkane Products, and also as not having an ignitable liquid present.

Of the 310 participants who reported classification results for Item 2, 305 (98.3%) classified the ignitable liquid as belonging to the Normal Alkanes Products class. Of the remaining five participants, three classified the ignitable liquid as belonging to the Others- Miscellaneous class, and two classified it as belonging to the Petroleum Distillates class.

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
23HM2X	Isoparaffinic Products	Class 0.2
2BW9A3	Petroleum Distillates (including De-Aromatized)	Heavy
2D3WPR	Others - Miscellaneous	Heavy
2K2JGR	Others - Miscellaneous	Heavy
2MLDDR	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy Petrolium Distillate
2PRX2R	Others - Miscellaneous	Heavy
2RKMNU	No Ignitable Liquid(s) Detected	
	Normal Alkanes Products	heavy-n-alkans
	Petroleum Distillates (including De-Aromatized)	heavy petroleum distilates, n-alkans, sikloalkans, limonene
2Y3XXN	Others - Miscellaneous	Heavy
322Q9Y	Petroleum Distillates (including De-Aromatized)	C-11 to C-16 with (d-limonene)
326MNG	Others - Miscellaneous	HPD (C12-C15) + limonene
34RWPP	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
37F9NU	Others - Miscellaneous	HPD + Terpènes
39YMRV	Petroleum Distillates (including De-Aromatized)	heavy
3W673U	Others - Miscellaneous	heavy
43BZWP	Petroleum Distillates (including De-Aromatized)	Medium
44K6CY	Others - Miscellaneous	medium to heavy
47BBTP	Others - Miscellaneous	heavy
48KF7D	Others - Miscellaneous	medium
	Petroleum Distillates (including De-Aromatized)	heavy
48M3MR	Others - Miscellaneous	Heavy Petroleum Distillate and Limonene
4C2L3M	Others - Miscellaneous	
4E4NNH	Others - Miscellaneous	Heavy
4L7QWP	Others - Miscellaneous	Heavy
4MFBPC	Others - Miscellaneous	medium
	Petroleum Distillates (including De-Aromatized)	medium to heavy (C12-C14)
4QDR37	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
4RQNMX	Petroleum Distillates (including De-Aromatized)	Heavy
62AMPM	Petroleum Distillates (including De-Aromatized)	Heavy
642DL7	Others - Miscellaneous	limonene and heavy petroleum distillate
679ZCC	Others - Miscellaneous	Heavy

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
67PPKC	Others - Miscellaneous	Heavy
68KXLN	Others - Miscellaneous	Heavy (C12-C15)
6BXF2J	Others - Miscellaneous	
	Petroleum Distillates (including De-Aromatized)	Medium to Heavy/C12-C15
6D474T	Others - Miscellaneous	Heavy
6DNJUQ	Others - Miscellaneous	Heavy
6MDZ8E	Others - Miscellaneous	Heavy
734UAC	Others - Miscellaneous	medium
	Petroleum Distillates (including De-Aromatized)	heavy
74WKFQ	Others - Miscellaneous	heavy
79PRWD	Others - Miscellaneous	Heavy
7APMNW	Others - Miscellaneous	medium (limonene)
	Petroleum Distillates (including De-Aromatized)	heavy
7BEU4M	Others - Miscellaneous	
	Petroleum Distillates (including De-Aromatized)	Heavy
7MDP7P	Others - Miscellaneous	Heavy
7MMW3P	Others - Miscellaneous	Heavy
7NN2TD	Others - Miscellaneous	Heavy
7PVG36	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
7R6WPX	Others - Miscellaneous	HPD + Limonene
7RJT2A	Others - Miscellaneous	Heavy Range
7RYCL8	Others - Miscellaneous	heavy
7UQBZ7	Others - Miscellaneous	heavy
7WU7J9	Others - Miscellaneous	Heavy
8DHG7B	Others - Miscellaneous	Heavy
8JAENU	Others - Miscellaneous	Turpentine products
	Petroleum Distillates (including De-Aromatized)	Heavy (range C12 to C15)
8KYK4K	Others - Miscellaneous	
8NJ4X8	Others - Miscellaneous	Heavy
8PDU22	Others - Miscellaneous	C11-C16
8TRWYD	Others - Miscellaneous	
8U7UJ3	Others - Miscellaneous	Heavy
8WT2TL	Others - Miscellaneous	
8YKZ8J	Petroleum Distillates (including De-Aromatized)	C12-C15
9239HA	Others - Miscellaneous	Heavy
92JWQB	Others - Miscellaneous	Heavy
9AWLVB	Others - Miscellaneous	Heavy
	Petroleum Distillates (including De-Aromatized)	Heavy

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
9H8FWB	Others - Miscellaneous	heavy-range
9HPLW2	Petroleum Distillates (including De-Aromatized)	heavy
9NT2TJ	Others - Miscellaneous	heavy
A2WQ7B	Others - Miscellaneous	Heavy
A3TRY2	Others - Miscellaneous	Heavy (petroleum distillate), Medium (Limonene)
A6G4X8	Others - Miscellaneous	Heavy
A9EKB2	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
AH73PA	Others - Miscellaneous	Heavy
	Petroleum Distillates (including De-Aromatized)	Heavy
AHMMPT	Petroleum Distillates (including De-Aromatized)	Heavy
AJX248	Others - Miscellaneous	Medium
AMUCPE	Petroleum Distillates (including De-Aromatized)	C12-C15
ANDWYR	Others - Miscellaneous	Medium to heavy
AQWNV8	Others - Miscellaneous	Heavy
AZ7KQK	Others - Miscellaneous	medium to heavy
	Petroleum Distillates (including De-Aromatized)	medium to heavy de-aromatized distillate + limonene
B2XYUP	Others - Miscellaneous	D-limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
B6CGAK	Others - Miscellaneous	heavy
B7Q3L8	Others - Miscellaneous	Heavy
	Petroleum Distillates (including De-Aromatized)	Heavy
B9E83Y	Others - Miscellaneous	Heavy
BE2UX4	Others - Miscellaneous	Heavy
BG6PG8	Others - Miscellaneous	Heavy
BJFUBH	Others - Miscellaneous	Heavy
BLFBGK	Others - Miscellaneous	Heavy
BYPNXL	Others - Miscellaneous	Medium-Heavy Petroleum Distillate C11-C16, Limonone, Pinene.
C2AXMD	Others - Miscellaneous	Heavy (C12-C15)
C34K4M	Others - Miscellaneous	Heavy
C7L3YD	Others - Miscellaneous	Heavy
C8XABY	Others - Miscellaneous	Medium to Heavy
C9AEXH	Others - Miscellaneous	Heavy
CBGWWE	Others - Miscellaneous	heavy
CEZRY7	Others - Miscellaneous	Medium
	Petroleum Distillates (including De-Aromatized)	Heavy
CHB2PF	Others - Miscellaneous	Heavy

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
CJRYHE	Others - Miscellaneous	Heavy
CNKV77	Others - Miscellaneous	heavy
CPDJCZ	Others - Miscellaneous	
CPYUB9	Others - Miscellaneous	heavy
CQ7ZGN	Petroleum Distillates (including De-Aromatized)	medium to heavy
CR2VB6	Naphthenic Paraffinic Products	Heavy
CVKHWK	Others - Miscellaneous	
CWB9T4	Others - Miscellaneous	Heavy
CWUKK6	Others - Miscellaneous	Medium-Heavy
CYJQ8M	Others - Miscellaneous	Medium(C8-C13)
	Petroleum Distillates (including De-Aromatized)	Heavy (C9-C20+)
CZFA6G	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Medium Petroleum Distillate
DDF3Y4	Others - Miscellaneous	Heavy
DDZJF7	Others - Miscellaneous	Heavy
DGHZAW	Others - Miscellaneous	Heavy
DJ7CA2	Others - Miscellaneous	Heavy
DKZPKF	Others - Miscellaneous	heavy
DLQV27	Others - Miscellaneous	Heavy
DNZ783	Petroleum Distillates (including De-Aromatized)	Heavy
DU933J	Others - Miscellaneous	Heavy
DUMWTX	Others - Miscellaneous	heavy
DVDR38	Others - Miscellaneous	C10-C16
DWVCZ4	Others - Miscellaneous	Heavy
DYXABW	Others - Miscellaneous	Heavy
E4P2CL	Others - Miscellaneous	heavy
EKECYN	Others - Miscellaneous	Heavy (C12-C15) + Limonene
ENGDYL	Others - Miscellaneous	HEAVY
EUJJEN	Others - Miscellaneous	C13-C16
EYX2UK	Others - Miscellaneous	Heavy
EZ4JRF	Petroleum Distillates (including De-Aromatized)	heavy
F3V8YU	Others - Miscellaneous	Medium-Heavy
F4N4L4	Others - Miscellaneous	heavy
F8MARF	Others - Miscellaneous	Heavy
F9CF87	Others - Miscellaneous	medium-heavy
FCECYL	Others - Miscellaneous	Heavy
FE6HFC	Others - Miscellaneous	heavy
FGTUEH	Others - Miscellaneous	Heavy
FK8PUF	Others - Miscellaneous	Heavy

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
FP678A	Others - Miscellaneous	Heavy (C12-C15)
FRATNK	Petroleum Distillates (including De-Aromatized)	Heavy
FWP2CJ	Others - Miscellaneous	Heavy
FXF8TA	Others - Miscellaneous	heavy
G9AA73	Petroleum Distillates (including De-Aromatized)	Heavy
GGMRQ3	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
GME8TB	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
GTH77L	Petroleum Distillates (including De-Aromatized)	Medium to heavy (C11-C16)
H36LAF	Petroleum Distillates (including De-Aromatized)	Medium to Heavy
H74699	Others - Miscellaneous	heavy
H99TPJ	Others - Miscellaneous	Heavy
H9RG8D	Others - Miscellaneous	Heavy
	Petroleum Distillates (including De-Aromatized)	Heavy
HFUV4U	Others - Miscellaneous	heavy
HHXDVG	Petroleum Distillates (including De-Aromatized)	Heavy petroleum distillate
HJR4YB	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
HLCWBD	Others - Miscellaneous	Heavy
HPC87D	Others - Miscellaneous	Heavy
HWVBDF	Others - Miscellaneous	Heavy (C12-C16)
J2PMTC	Others - Miscellaneous	Medium to heavy
J4QR4C	Others - Miscellaneous	Heavy
J8UV6R	Others - Miscellaneous	Heavy
J97RAW	Others - Miscellaneous	Heavy
JCKXWD	Others - Miscellaneous	Meduim
JDX3JU	Others - Miscellaneous	heavy
JFNV86	Petroleum Distillates (including De-Aromatized)	Heavy
JHC88B	Others - Miscellaneous	Heavy
JLXPQG	Others - Miscellaneous	medium
	Petroleum Distillates (including De-Aromatized)	heavy
JPBYNX	Naphthenic Paraffinic Products	Heavy
JQK9CP	Others - Miscellaneous	C11-C16
JR2TCA	Others - Miscellaneous	Heavy
JU6NVC	Others - Miscellaneous	Heavy
JX76HY	Others - Miscellaneous	Heavy
K239MQ	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
K4QKLW	Others - Miscellaneous	Heavy
K88EGG	Others - Miscellaneous	Medium
K9HG4F	Naphthenic Paraffinic Products	Medium-heavy
	Others - Miscellaneous	terpenes - mainly limonene
KHQHAT	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
KKEU9Y	Others - Miscellaneous	Heavy
KPQ7GF	Others - Miscellaneous	Medium to Heavy
KZKT43	Petroleum Distillates (including De-Aromatized)	Heavy
L3DA9P	Others - Miscellaneous	Limonene (Medium), Distillate (Heavy)
L7T64A	Others - Miscellaneous	Heavy
LBJC8V	Others - Miscellaneous	Heavy
LFZ83F	Others - Miscellaneous	HPD + Limonene
LH283D	Petroleum Distillates (including De-Aromatized)	Heavy
LJEPHC	Others - Miscellaneous	Heavy
LR8PLN	Others - Miscellaneous	HEAVY
LUJRMA	Others - Miscellaneous	Medium
	Petroleum Distillates (including De-Aromatized)	Heavy
M4ZV8D	Petroleum Distillates (including De-Aromatized)	heavy
M7Q2N4	Others - Miscellaneous	Heavy
M9UW88	Others - Miscellaneous	medium
	Petroleum Distillates (including De-Aromatized)	heavy
MA72UP	Others - Miscellaneous	heavy
MHF2E8	Others - Miscellaneous	Heavy
MK68VW	Others - Miscellaneous	Heavy
MK9P29	Others - Miscellaneous	medium to heavy (C11-C15)
MP3Q22	Others - Miscellaneous	Heavy
MRQ3Z8	Others - Miscellaneous	Heavy
MWHZBW	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
N4FERB	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy (De-aromatised) C12-C15
N4YVRQ	Others - Miscellaneous	Heavy
NNMPR9	Others - Miscellaneous	Heavy
NPDV9Y	Isoparaffinic Products	heavy
NR4C4R	Others - Miscellaneous	medium-heavy
NTYU8E	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
NURJQA	Petroleum Distillates (including De-Aromatized)	heavy

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
NVKGZ3	Others - Miscellaneous	Heavy
NXCDMB	Others - Miscellaneous	
NYKRRV	Others - Miscellaneous	Heavy petroleum distillate (C12-C16) and Limonene
P2MHMU	Others - Miscellaneous	Heavy
P6KYZN	Others - Miscellaneous	Heavy
P72KK7	Others - Miscellaneous	Heavy
	Petroleum Distillates (including De-Aromatized)	Heavy
PET7MY	Others - Miscellaneous	Heavy
PHRGHY	Others - Miscellaneous	C10 - C16
PLTHM2	Others - Miscellaneous	heavy
PNKG2Z	Others - Miscellaneous	limonene
	Petroleum Distillates (including De-Aromatized)	medium dearomatized in C12-C15 range
PXM8RU	Others - Miscellaneous	Heavy
PYY7NP	Others - Miscellaneous	Terpenes (Limonene)
	Petroleum Distillates (including De-Aromatized)	Heavy
Q4RXMT	Others - Miscellaneous	Heavy
QDWE3H	Others - Miscellaneous	Limonene detected as well as some heavy alkanes
QEA8XK	Others - Miscellaneous	Limonene (Medium) & Petroleum Distillate (Heavy)
QGE3WA	Others - Miscellaneous	Medium-Heavy; C12-C15
QGTTJZ	Petroleum Distillates (including De-Aromatized)	Heavy
QJG6H6	Others - Miscellaneous	heavy range
QNVB6J	Others - Miscellaneous	Heavy
QQHU7G	Others - Miscellaneous	C10-C15
QTB724	Others - Miscellaneous	Heavy
QTRYLQ	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
QUG73G	Others - Miscellaneous	C10-C15
QUGV2R	Petroleum Distillates (including De-Aromatized)	heavy
QVYHZA	Others - Miscellaneous	Heavy
QWPNFZ	Others - Miscellaneous	Heavy
QZ6F68	Others - Miscellaneous	Heavy
R3A4KX	Others - Miscellaneous	Heavy
R8M4JA	Others - Miscellaneous	C12-C15
RB2EGQ	Others - Miscellaneous	Heavy
RDPDP3	Others - Miscellaneous	C12-C15 Heavy
REMQ9N	Petroleum Distillates (including De-Aromatized)	HPD
RF3M3A	Others - Miscellaneous	Medium-Heavy (C12-C15)

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
RN73K2	Others - Miscellaneous	medium
	Petroleum Distillates (including De-Aromatized)	heavy
RRNRUJ	Others - Miscellaneous	Heavy
RUC4UN	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
RUWELP	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	HPD
RVQ3XT	Others - Miscellaneous	Heavy
RXBLRG	Others - Miscellaneous	
RXG473	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
T3QCVQ	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
T4H9JK	Others - Miscellaneous	Heavy Range
T9CWRX	Others - Miscellaneous	Heavy
T9D3GL	Others - Miscellaneous	medium to heavy
TE3AQZ	Others - Miscellaneous	Heavy
TFBRXP	Others - Miscellaneous	Heavy
TKQUW2	Others - Miscellaneous	
TXFNC2	Others - Miscellaneous	Heavy (C10-C16)
U4GX2L	Others - Miscellaneous	Heavy
UANQB6	Petroleum Distillates (including De-Aromatized)	Medium to heavy
UBEXRV	Others - Miscellaneous	
	Petroleum Distillates (including De-Aromatized)	Medium/Heavy C12-C15
UBFJTL	Others - Miscellaneous	Limonene
UEUPF3	Others - Miscellaneous	heavy petroleum range
UHF7XN	Others - Miscellaneous	C9-C17
UTXF9F	Others - Miscellaneous	Heavy
V3FJTK	Petroleum Distillates (including De-Aromatized)	Heavy
V3JCZM	Others - Miscellaneous	Medium
	Petroleum Distillates (including De-Aromatized)	Heavy
V4VBVW	Others - Miscellaneous	Heavy
V8VRGJ	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
VBF8Z8	Others - Miscellaneous	Heavy
VBTXQ3	Others - Miscellaneous	Medium to Heavy
VC7DGW	Others - Miscellaneous	Heavy
VCKW2U	Others - Miscellaneous	Heavy (Limonene + HPD)
VEDRN4	Others - Miscellaneous	medium

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
VETAM3	Others - Miscellaneous	Heavy
VHC4J3	Others - Miscellaneous	Heavy
VKYL2N	Others - Miscellaneous	Heavy
VLBKWW	Others - Miscellaneous	Heavy
W6KW2T	Petroleum Distillates (including De-Aromatized)	Heavy
W94R6K	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
W9ZYWG	Others - Miscellaneous	Heavy
WAYA98	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
WC43ZK	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate
WENRKX	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
WLKEZG	Others - Miscellaneous	heavy
WP44DL	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate
WRWUJZ	Others - Miscellaneous	heavy
WT92VL	Others - Miscellaneous	Heavy
WUJC2L	Others - Miscellaneous	heavy
WYUK7W	Others - Miscellaneous	Heavy
WZNKEL	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	heavy
X3TRVJ	Petroleum Distillates (including De-Aromatized)	heavy
X3UXMU	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
X7CA7W	Aromatic Products	Medium
X9HHNP	Others - Miscellaneous	Heavy
XB3PQW	Others - Miscellaneous	Heavy
XFXJPJ	Others - Miscellaneous	Heavy
XKTAWV	Others - Miscellaneous	Heavy
XMGLV2	Others - Miscellaneous	Heavy
XQKPWG	Others - Miscellaneous	Heavy
XQXJ8B	Others - Miscellaneous	Heavy
XUDGVK	Petroleum Distillates (including De-Aromatized)	Heavy
XUZRUT	Others - Miscellaneous	heavy
XXEHX3	Petroleum Distillates (including De-Aromatized)	Heavy
XXXXXH	Others - Miscellaneous	Terpene-based
	Petroleum Distillates (including De-Aromatized)	Heavy
Y4ZUCV	Petroleum Distillates (including De-Aromatized)	Heavy
Y78MBG	Others - Miscellaneous	Limonene

Updated to include results for participant ZUD2VT

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
Y78MBG	Petroleum Distillates (including De-Aromatized)	Heavy
Y7N7B2	Petroleum Distillates (including De-Aromatized)	Heavy
Y9EDQR	Others - Miscellaneous	Heavy
YH34F6	Others - Miscellaneous	Heavy
YH39NL	Petroleum Distillates (including De-Aromatized)	Heavy
YHGXRY	Others - Miscellaneous	Heavy
YMDGX4	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy - Dearomatized - narrow range
YNL4DA	Others - Miscellaneous	Heavy
YP3MDU	Others - Miscellaneous	Heavy
YT32YX	Petroleum Distillates (including De-Aromatized)	Heavy
YUE7LF	Others - Miscellaneous	Heavy
YW2CVX	Others - Miscellaneous	HPD and Limonene
YYNUDJ	Others - Miscellaneous	heavy
ZD3FC3	Others - Miscellaneous	Heavy
ZHUEBB	Others - Miscellaneous	Limonene
	Petroleum Distillates (including De-Aromatized)	Heavy
ZM8YJH	Others - Miscellaneous	Heavy
ZNNJJ3	Others - Miscellaneous	C12-C15
ZRMUF3	Others - Miscellaneous	C12-C15
ZTV8VH	Others - Miscellaneous	heavy
ZUD2VT	Others - Miscellaneous	Heavy

Response Summary

Total Participants: 309

Item 1: Class

Others - Miscellaneous	265	(85.8%)
Petroleum Distillates (including De-Aromatized)	92	(29.8%)
Naphthenic Paraffinic Products	3	(1.0%)
Isoparaffinic Products	2	(0.6%)
Aromatic Products	1	(0.3%)
No Ignitable Liquid(s) Detected	1	(0.3%)
Normal Alkanes Products	1	(0.3%)

Totals may add up to more than the total number of participants because participants can report multiple ignitable substance classes detected.

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
23HM2X	Normal Alkanes Products	Class 0.3
2BW9A3	Normal Alkanes Products	Heavy
2D3WPR	Normal Alkanes Products	Heavy
2K2JGR	Normal Alkanes Products	Heavy
2MLDDR	Normal Alkanes Products	Heavy Normal Alkane
2PRX2R	Normal Alkanes Products	Heavy
2RKMNU	Others - Miscellaneous	
2Y3XXN	Normal Alkanes Products	Heavy
322Q9Y	Normal Alkanes Products	C13-to C18
326MNG	Normal Alkanes Products	Heavy C13-C19
34RWPP	Normal Alkanes Products	Heavy
37F9NU	Normal Alkanes Products	Heavy
39YMRV	Normal Alkanes Products	heavy
3W673U	Normal Alkanes Products	heavy
43BZWP	Normal Alkanes Products	Heavy (C13-C18)
44K6CY	Normal Alkanes Products	medium to heavy
47BBTP	Normal Alkanes Products	heavy
48KF7D	Normal Alkanes Products	heavy
48M3MR	Normal Alkanes Products	Heavy
4C2L3M	Normal Alkanes Products	
4E4NNH	Normal Alkanes Products	Heavy
4L7QWP	Normal Alkanes Products	Heavy
4MFBPC	Normal Alkanes Products	heavy
4QDR37	Normal Alkanes Products	Heavy
4RQNMX	Normal Alkanes Products	Heavy
62AMPM	Petroleum Distillates (including De-Aromatized)	Heavy
642DL7	Normal Alkanes Products	Heavy
679ZCC	Normal Alkanes Products	Heavy
67PPKC	Normal Alkanes Products	Heavy
68KXLN	Normal Alkanes Products	Heavy (C13-C19)
6BXF2J	Normal Alkanes Products	Heavy
6D474T	Normal Alkanes Products	Heavy
6DNJUQ	Normal Alkanes Products	Heavy
6MDZ8E	Normal Alkanes Products	Heavy
734UAC	Normal Alkanes Products	heavy
74WKFQ	Normal Alkanes Products	heavy
79PRWD	Normal Alkanes Products	Heavy
7APMNW	Normal Alkanes Products	heavy
7BEU4M	Normal Alkanes Products	Heavy

Updated to include results for participant ZUD2VT

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
7MDP7P	Normal Alkanes Products	Heavy
7MMW3P	Normal Alkanes Products	heavy
7NN2TD	Normal Alkanes Products	Heavy
7PVG36	Normal Alkanes Products	Heavy
7R6WPX	Normal Alkanes Products	Heavy
7RJT2A	Normal Alkanes Products	Heavy Range
7RYCL8	Normal Alkanes Products	heavy
7UQBZ7	Normal Alkanes Products	heavy
7WU7J9	Normal Alkanes Products	Heavy
8DHG7B	Normal Alkanes Products	Heavy
8JAENU	Normal Alkanes Products	Heavy (range C14 to C18)
8KYK4K	Petroleum Distillates (including De-Aromatized)	Heavy
8NJ4X8	Normal Alkanes Products	Heavy
8PDU22	Normal Alkanes Products	heavy
8TRWYD	Normal Alkanes Products	heavy
8U7UJ3	Normal Alkanes Products	Heavy
8WT2TL	Normal Alkanes Products	Heavy
8YKZ8J	Normal Alkanes Products	Heavy
9239HA	Normal Alkanes Products	Heavy
92JWQB	Normal Alkanes Products	Heavy
9AWLVB	Normal Alkanes Products	Heavy
9H8FWB	Normal Alkanes Products	heavy-range
9HPLW2	Normal Alkanes Products	heavy
9NT2TJ	Normal Alkanes Products	heavy
A2WQ7B	Normal Alkanes Products	Heavy
A3TRY2	Normal Alkanes Products	Heavy
A6G4X8	Normal Alkanes Products	Heavy
A9EKB2	Normal Alkanes Products	Heavy
AH73PA	Normal Alkanes Products	Heavy
AHMMPT	Normal Alkanes Products	Heavy
AJX248	Normal Alkanes Products	Heavy
AMUCPE	Normal Alkanes Products	C13-C16
ANDWYR	Normal Alkanes Products	Heavy
AQWNV8	Normal Alkanes Products	Heavy
AZ7KQK	Normal Alkanes Products	Heavy Normal Alkanes
B2XYUP	Normal Alkanes Products	heavy
B6CGAK	Normal Alkanes Products	heavy
B7Q3L8	Normal Alkanes Products	Heavy
B9E83Y	Normal Alkanes Products	Heavy
BE2UX4	Normal Alkanes Products	Heavy
BG6PG8	Normal Alkanes Products	Heavy
BJFUBH	Normal Alkanes Products	Heavy

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
BLFBGK	Normal Alkanes Products	Heavy
BYPNXL	Normal Alkanes Products	Medium-Heavy normal alkanes products C12-C18.
C2AXMD	Normal Alkanes Products	Heavy (C14-C16)
C34K4M	Normal Alkanes Products	Heavy
C7L3YD	Normal Alkanes Products	Heavy
C8XABY	Normal Alkanes Products	Heavy
C9AEXH	Normal Alkanes Products	Heavy
CBGWWE	Normal Alkanes Products	heavy
CEZRY7	Normal Alkanes Products	Heavy
CHB2PF	Normal Alkanes Products	Heavy
CJRYHE	Normal Alkanes Products	Heavy
CNKV77	Normal Alkanes Products	heavy
CPDJCZ	Normal Alkanes Products	Heavy
CPYUB9	Normal Alkanes Products	heavy
CQ7ZGN	Normal Alkanes Products	medium to heavy
CR2VB6	Normal Alkanes Products	Heavy
CVKHWK	Normal Alkanes Products	
CWB9T4	Normal Alkanes Products	Heavy
CWUKK6	Normal Alkanes Products	Heavy
CYJQ8M	Normal Alkanes Products	Heavy (C9-C20+)
CZFA6G	Normal Alkanes Products	Heavy Normal Alkane Product
DDF3Y4	Normal Alkanes Products	Heavy
DDZJF7	Normal Alkanes Products	Heavy
DGHZAW	Normal Alkanes Products	Heavy
DJ7CA2	Normal Alkanes Products	Heavy
DKZPKF	Normal Alkanes Products	heavy
DLQV27	Normal Alkanes Products	Heavy
DNZ783	Normal Alkanes Products	Heavy
DU933J	Normal Alkanes Products	Heavy
DUMWTX	Normal Alkanes Products	
DVDR38	Normal Alkanes Products	C13- C18
DWVCZ4	Normal Alkanes Products	Heavy
DYXABW	Normal Alkanes Products	Heavy
E4P2CL	Normal Alkanes Products	heavy
EKECYN	Normal Alkanes Products	Heavy (C13-C18)
ENGDYL	Normal Alkanes Products	HEAVY
EUJJEN	Others - Miscellaneous	C10-C19
EYX2UK	Normal Alkanes Products	Heavy
EZ4JRF	Normal Alkanes Products	
F3V8YU	Normal Alkanes Products	Heavy
F4N4L4	Normal Alkanes Products	heavy

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
F8MARF	Normal Alkanes Products	Heavy
F9CF87	Normal Alkanes Products	heavy
FCECYL	Normal Alkanes Products	Heavy
FE6HFC	Normal Alkanes Products	heavy
FGTUEH	Normal Alkanes Products	Heavy
FK8PUF	Normal Alkanes Products	Heavy
FP678A	Normal Alkanes Products	Heavy (C13-C20)
FRATNK	Normal Alkanes Products	Heavy
FWP2CJ	Normal Alkanes Products	Heavy
FXF8TA	Normal Alkanes Products	heavy
G9AA73	Normal Alkanes Products	Heavy
GGMRQ3	Normal Alkanes Products	Heavy
GME8TB	Normal Alkanes Products	Heavy
GTH77L	Normal Alkanes Products	Heavy (C13-C20)
H36LAF	Normal Alkanes Products	Heavy
H74699	Normal Alkanes Products	heavy
H99TPJ	Normal Alkanes Products	Heavy
H9RG8D	Normal Alkanes Products	Heavy
HFUV4U	Normal Alkanes Products	heavy
HHXDVG	Normal Alkanes Products	
HJR4YB	Normal Alkanes Products	Heavy
HLCWBD	Normal Alkanes Products	Heavy
HPC87D	Normal Alkanes Products	Heavy
HWVBDF	Normal Alkanes Products	Heavy (C13-C18)
J2PMTC	Normal Alkanes Products	Heavy
J4QR4C	Normal Alkanes Products	Heavy
J8UV6R	Normal Alkanes Products	Heavy
J97RAW	Normal Alkanes Products	Heavy
JCKXWD	Normal Alkanes Products	Heavy
JDX3JU	Normal Alkanes Products	heavy
JFNV86	Normal Alkanes Products	Heavy
JHC88B	Normal Alkanes Products	Heavy
JLXPQG	Normal Alkanes Products	heavy
JPBYNX	Normal Alkanes Products	Heavy
JQK9CP	Normal Alkanes Products	Heavy
JR2TCA	Normal Alkanes Products	Heavy
JU6NVC	Normal Alkanes Products	Heavy
JX76HY	Normal Alkanes Products	Heavy
K239MQ	Normal Alkanes Products	Heavy
K4QKLW	Normal Alkanes Products	Heavy
K88EGG	Normal Alkanes Products	Medium to Heavy
K9HG4F	Normal Alkanes Products	heavy

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
KHQHAT	Normal Alkanes Products	Heavy
KKEU9Y	Normal Alkanes Products	Heavy
KPQ7GF	Normal Alkanes Products	Heavy
KZKT43	Normal Alkanes Products	Heavy
L3DA9P	Normal Alkanes Products	Heavy
L7T64A	Normal Alkanes Products	Heavy
LBJC8V	Normal Alkanes Products	Heavy
LFZ83F	Normal Alkanes Products	Heavy
LH283D	Normal Alkanes Products	Heavy
LJEPHC	Normal Alkanes Products	Heavy
LR8PLN	Normal Alkanes Products	HEAVY
LUJRMA	Normal Alkanes Products	Heavy
M4ZV8D	Normal Alkanes Products	heavy
M7Q2N4	Normal Alkanes Products	Heavy
M9UW88	Normal Alkanes Products	heavy
MA72UP	Normal Alkanes Products	heavy
MHF2E8	Normal Alkanes Products	Heavy
MK68VW	Normal Alkanes Products	Heavy
MK9P29	Normal Alkanes Products	heavy (C13-C17)
MP3Q22	Normal Alkanes Products	Heavy
MRQ3Z8	Normal Alkanes Products	Heavy
MWHZBW	Normal Alkanes Products	Heavy
N4FERB	Normal Alkanes Products	Heavy (C13 to C16)
N4YVRQ	Normal Alkanes Products	Heavy
NNMPR9	Normal Alkanes Products	Heavy
NPDV9Y	Normal Alkanes Products	heavy
NR4C4R	Normal Alkanes Products	heavy
NTYU8E	Normal Alkanes Products	Heavy
NURJQA	Normal Alkanes Products	heavy
NVKGZ3	Normal Alkanes Products	Heavy
NXCDMB	Others - Miscellaneous	
NYKRRV	Normal Alkanes Products	heavy
P2MHMU	Normal Alkanes Products	Heavy
P6KYZN	Normal Alkanes Products	Heavy
P72KK7	Normal Alkanes Products	Heavy
PET7MY	Normal Alkanes Products	Heavy
PHRGHY	Normal Alkanes Products	C13 - C17
PLTHM2	Normal Alkanes Products	heavy
PNKG2Z	Normal Alkanes Products	medium-heavy C14-C15
PXM8RU	Normal Alkanes Products	Heavy
PYY7NP	Normal Alkanes Products	Heavy
Q4RXMT	Normal Alkanes Products	Heavy

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
QDWE3H	Normal Alkanes Products	Heavy
QEA8XK	Normal Alkanes Products	Heavy
QGE3WA	Normal Alkanes Products	Heavy
QGTTJZ	Normal Alkanes Products	Heavy
QJG6H6	Normal Alkanes Products	heavy range
QNVB6J	Normal Alkanes Products	Heavy
QQHU7G	Normal Alkanes Products	heavy
QTB724	Normal Alkanes Products	Heavy
QTRYLQ	Normal Alkanes Products	Heavy C13-18
QUG73G	Normal Alkanes Products	Heavy
QUGV2R	Normal Alkanes Products	
QVYHZA	Normal Alkanes Products	Heavy
QWPNFZ	Normal Alkanes Products	Heavy
QZ6F68	Normal Alkanes Products	Heavy
R3A4KX	Normal Alkanes Products	Heavy
R8M4JA	Normal Alkanes Products	Heavy
RB2EGQ	Normal Alkanes Products	Heavy
RDPDP3	Normal Alkanes Products	C13-C18 Heavy
REMQ9N	Normal Alkanes Products	
RF3M3A	Normal Alkanes Products	Heavy
RN73K2	Normal Alkanes Products	heavy
RRNRUJ	Normal Alkanes Products	Heavy
RUC4UN	Normal Alkanes Products	Heavy
RUWELP	Normal Alkanes Products	Normal Alkanes (C13 to C17)
RVQ3XT	Normal Alkanes Products	Heavy
RXBLRG	Normal Alkanes Products	Heavy
RXG473	Normal Alkanes Products	Heavy
T3QCVQ	Normal Alkanes Products	Heavy
T4H9JK	Normal Alkanes Products	Heavy Range
T9CWRX	Normal Alkanes Products	Heavy
T9D3GL	Normal Alkanes Products	heavy
TE3AQZ	Normal Alkanes Products	Heavy
TFBRXP	Normal Alkanes Products	Heavy
TKQUW2	Normal Alkanes Products	Heavy
TXFNC2	Normal Alkanes Products	Heavy (C13-C16)
U4GX2L	Normal Alkanes Products	Heavy
UANQB6	Normal Alkanes Products	Heavy
UBEXRV	Normal Alkanes Products	Heavy
UBFJTL	Normal Alkanes Products	Heavy (C13-C16)
UEUPF3	Normal Alkanes Products	heavy petroleum range
UHF7XN	Normal Alkanes Products	heavy
UTXF9F	Normal Alkanes Products	Heavy

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
V3FJTK	Normal Alkanes Products	Heavy
V3JCZM	Normal Alkanes Products	Heavy
V4VBVW	Normal Alkanes Products	Heavy
V8VRGJ	Normal Alkanes Products	Heavy
VBF8Z8	Normal Alkanes Products	Heavy
VBTXQ3	Normal Alkanes Products	Heavy
VC7DGW	Normal Alkanes Products	Heavy
VCKW2U	Normal Alkanes Products	Heavy
VEDRN4	Normal Alkanes Products	heavy
VETAM3	Normal Alkanes Products	Heavy
VHC4J3	Normal Alkanes Products	Heavy
VKYL2N	Normal Alkanes Products	Heavy
VLBKWW	Normal Alkanes Products	Heavy
W6KW2T	Normal Alkanes Products	Heavy
W94R6K	Normal Alkanes Products	C13-C17
W9ZYWG	Normal Alkanes Products	Heavy
WAYA98	Normal Alkanes Products	C13-C19
WC43ZK	Normal Alkanes Products	C13-C17
WENRKX	Normal Alkanes Products	Heavy
WLKEZG	Normal Alkanes Products	heavy
WP44DL	Normal Alkanes Products	
WRWUJZ	Normal Alkanes Products	heavy
WT92VL	Normal Alkanes Products	Heavy
WUJC2L	Normal Alkanes Products	heavy
WYUK7W	Normal Alkanes Products	Heavy
WZNKEL	Normal Alkanes Products	heavy
X3TRVJ	Normal Alkanes Products	heavy
X3UXMU	Normal Alkanes Products	Heavy
X7CA7W	Normal Alkanes Products	Heavy
X9HHNP	Normal Alkanes Products	Heavy
XB3PQW	Normal Alkanes Products	Heavy (C13-C17)
XFXJPJ	Normal Alkanes Products	Heavy
XKTAWV	Normal Alkanes Products	Heavy
XMGLV2	Normal Alkanes Products	Heavy
XQKPWG	Normal Alkanes Products	Heavy
XQXJ8B	Normal Alkanes Products	Heavy
XT8UK2	Normal Alkanes Products	heavy
XUDGVK	Normal Alkanes Products	Heavy
XUZRUT	Normal Alkanes Products	heavy
XXEHX3	Normal Alkanes Products	Heavy
XXXXXH	Normal Alkanes Products	Heavy
Y4ZUCV	Normal Alkanes Products	Heavy

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
Y78MBG	Normal Alkanes Products	Heavy
Y7N7B2	Normal Alkanes Products	Heavy
Y9EDQR	Normal Alkanes Products	Heavy
YH34F6	Normal Alkanes Products	Heavy
YH39NL	Normal Alkanes Products	Heavy
YHGXRY	Normal Alkanes Products	Heavy
YMDGX4	Normal Alkanes Products	Heavy
YNL4DA	Normal Alkanes Products	Heavy
YP3MDU	Normal Alkanes Products	Heavy
YT32YX	Normal Alkanes Products	Heavy
YUE7LF	Normal Alkanes Products	Heavy
YW2CVX	Normal Alkanes Products	class 0.3 (alkanes C14 - C17)
YYNUDJ	Normal Alkanes Products	heavy
ZD3FC3	Normal Alkanes Products	Heavy
ZHUEBB	Normal Alkanes Products	Heavy
ZM8YJH	Normal Alkanes Products	Heavy
ZNNJJ3	Normal Alkanes Products	Heavy
ZRMUF3	Normal Alkanes Products	Heavy
ZTV8VH	Normal Alkanes Products	heavy
ZUD2VT	Normal Alkanes Products	Heavy

Response Summary

Total Participants: 310

Item 2: Class

Normal Alkanes Products	305 (98.4%)	Totals may add up to more than the total number of participants because participants can report multiple ignitable substance classes detected.
Others - Miscellaneous	3 (1.0%)	
Petroleum Distillates (including De-Aromatized)	2 (0.6%)	

Recovery Techniques

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
23HM2X		✓		✓	90	0.1 Minutes	SPME	
2BW9A3	✓			✓	80	15 hrs	Carbon/Charcoal	Pentane, Thermal
2D3WPR	✓			✓	80	16 hr	Carbon/Charcoal	CS2
2K2JGR	✓			✓	70	16 hours	Carbon/Charcoal	Pentane
2MLDDR		✓		✓	85	20	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Heated Headspace								
2PRX2R	✓			✓	~67	4 hours	Carbon/Charcoal	pentane
2RKMNU				✓	50-80		spme	n-hexan
2Y3XXN	✓			✓	75	3 hrs	Carbon/Charcoal	Carbon Disulfide
322Q9Y	✓			✓	75	Overnight	Carbon/Charcoal	
326MNG		✓		✓	80	5 mins	Carbon/Charcoal	Pentane
34RWPP	✓			✓	63	~16 hrs	Carbon/Charcoal	Carbon Disulfide
37F9NU				✓				
Other Recovery Technique: direct head-space at 80°C								
39YMRV	✓			✓	76	4 hours	Carbon/Charcoal	CS2
3W673U	✓			✓	75	4h	Tenax TA	Thermal
43BZWP	✓		✓	✓	80		SPME Carbox pdms	Thermal
44K6CY	✓			✓	80	22 hrs	Carbon/Charcoal	hexane
47BBTP	✓			✓	90	45		
48KF7D	✓			✓	65	~16 hrs	Carbon/Charcoal	CS2
48M3MR	✓				70	15	Carbon/Charcoal	CS2
4C2L3M		✓		✓	100		tenax	
4E4NNH	✓			✓	~60	~16 h	Carbon/Charcoal	Carbon disulfide
4L7QWP	✓			✓	70	~3 hours	Carbon/Charcoal	pentane
Other Recovery Technique: Heated headspace								
4MFBPC	✓		✓			22 hours	Carbon/Charcoal	Carbon Disulfide
4QDR37	✓			✓	65	16 hours	Carbon/Charcoal	CS2
4RQNMX	✓			✓	60	16 hours	Carbon/Charcoal	Pentane
62AMPM	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
642DL7	✓			✓	65	~16 hours	Carbon/Charcoal	CS2
679ZCC	✓			✓	60	16 Hours	Carbon/Charcoal	Carbon Disulfide
67PPKC	✓			✓	60		Carbon/Charcoal	CS2
Other Recovery Technique: Chemical solvent extraction (C5)								
68KXLN	✓			✓	~65	~24 hours	Carbon/Charcoal	carbon disulfide
6BXF2J	✓			✓	66	16 hours	Carbon/Charcoal	CS2

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
6D474T	✓			✓	70	6	Carbon/Charcoal	Carbon Disulfide
6DNJUQ	✓			✓	77.8	3 hours	Carbon/Charcoal	carbon disulfide
6MDZ8E	✓			✓	70	16.5hours	Carbon/Charcoal	Ethyl Ether with TCE
734UAC	✓			✓	80	2 hrs	Carbon/Charcoal	carbon disulfide
Other Recovery Technique: n/a								
74WKFQ	✓			✓	80	overnight	Carbon/Charcoal	CS2/C26
79PRWD	✓			✓	65	16hrs	Carbon/Charcoal	Dichloromethane
7APMNW	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
7BEU4M		✓		✓	85	20 minutes	Carbon/Charcoal	Carbon disulfide
Other Recovery Technique: Heated headspace								
7MDP7P	✓			✓	65	0.5-5 minutes	SPME (PDMS 100 um)	Thermal
7MMW3P	✓			✓	80	8 hours	Carbon/Charcoal	Methylen chloride and Butan-1-ol
7NN2TD	✓			✓	80	2 Hours	Carbon/Charcoal	Pentane
7PVG36	✓			✓	70	16 hours	Carbon/Charcoal	Carbon disulfide
7R6WPX	✓			✓	76	8 Hours	Carbon/Charcoal	Carbon Disulfide
7RJT2A	✓			✓	80	2 hours	Carbon/Charcoal	n-Pentane
7RYCL8	✓			✓	70	12 hours	Carbon/Charcoal	ethyl ether
Other Recovery Technique: static headspace								
7UQBZ7	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
7WU7J9	✓			✓	70	4 hours	Carbon/Charcoal	carbon disulfide
8DHG7B	✓			✓	68	16 hours	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Direct Manual Headspace Injection at room temperature								
8JAENU	✓		✓					Ethyl Acetate
8KYK4K	✓			✓	85			
8NJ4X8	✓			✓	70	2 hours	Carbon/Charcoal	Carbon Disulfide
8PDU22	✓			✓	70	12 hours	Carbon/Charcoal	diethyl ether
Other Recovery Technique: Solvent extraction - diethyl ether								
8TRWYD	✓				80	12-16 hours	Carbon/Charcoal	carbon disulfide
8U7UJ3	✓			✓	70	16 Hours	Carbon/Charcoal	Dichloromethane
8WT2TL		✓		✓	85	20 minutes	Carbon/Charcoal	CS2
Other Recovery Technique: Heated headspace								
8YKZ8J				✓	90			
Other Recovery Technique: Solvent Extraction - Hexane								
9239HA	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
Other Recovery Technique: Heated Headspace Analysis								
92JWQB	✓			✓	65	16 hours	Carbon/Charcoal	Dichloromethane
Other Recovery Technique: Solvent extraction								

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
9AWLVB	✓			✓	66	16 Hours	Carbon/Charcoal	Carbon Disulfide
9H8FWB	✓			✓	70	16 hrs	Carbon/Charcoal	CS2
Other Recovery Technique: Simple Heated Headspace								
9HPLW2	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
9NT2TJ	✓		✓			~24 hrs	Carbon/Charcoal	CS2
9YCETF		✓		✓	130	5 minutes	Carbon/Charcoal	AnalaR n-pentane
A2WQ7B	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
Other Recovery Technique: Headspace Volatiles Analysis								
A3TRY2	✓			✓	70	12-16 hours	Carbon/Charcoal	Carbon Disulfide
A6G4X8	✓		✓	✓	85	Overnight	Carbon/Charcoal	Dichloromethane
A9EKB2	✓			✓	70	~16 hours	Carbon/Charcoal	carbon disulfide
AH73PA	✓			✓	65	17 hours	Carbon/Charcoal	carbon disulfide
AHMMPT	✓			✓	80-100	16 Hours	Carbon/Charcoal	CS2 (carbon disulfide)
AJX248		✓	✓	✓	80, 100	20 min (80 C) , ACS-16 h (100 C))	Tenax	DKM (ACS), Thermal
Other Recovery Technique: ACS (Activated Charcoal Stripe)								
AMUCPE		✓		✓	100	10 min	Tenax-TA	Thermal
ANDWYR		✓	✓				Tenax TA	Thermal
AQWNV8	✓			✓	65	16 hours	Carbon/Charcoal	CS2
Other Recovery Technique: Headspace								
AZ7KQK	✓			✓	130			Thermal
B2XYUP	✓			✓	65	16 hours	Carbon/Charcoal	CS2
B6CGAK	✓			✓	78	3.5 hours	Carbon/Charcoal	carbon disulfide
B7Q3L8	✓			✓	63	16 hours	Carbon/Charcoal	Carbon Disulfide
B9E83Y	✓			✓	60	19 hours	Carbon/Charcoal	carbon disulfide
BE2UX4	✓			✓	60	About 14 hours	Carbon/Charcoal	Carbon Disulfide
BG6PG8	✓			✓	80		Carbon/Charcoal	Pentane
BJFUBH	✓			✓	80	16 hours	Carbon/Charcoal	CS2
BLFBGK	✓			✓	75	4 hours	Carbon/Charcoal	Carbon Disulfide
BYPNXL	✓			✓	110	30 minutes	Tenax	Thermal
C2AXMD	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
C34K4M	✓			✓	70	17 Hours	Carbon/Charcoal	CS2
C7L3YD	✓			✓	72	17 hours	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Heated headspace								
C8XABY	✓			✓	approx. 90	~9 hours	Carbon/Charcoal	Carbon Disulfide
C9AEXH		✓		✓	90	20 minutes	Carbon/Charcoal	Carbon DiSulfide
CBGWWE	✓			✓	95			

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
CEZRY7	✓			✓	80	2 hrs 2 min	Carbon/Charcoal	Carbon Disulfide
CHB2PF	✓			✓	70	30 min	SPME	Thermal
Other Recovery Technique: Liquid extraction								
CJRYHE	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
CNKV77	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
CPDJCZ	✓			✓	65	16 hours	Carbon/Charcoal	CS2
CPYUB9	✓			✓	70		Carbon/Charcoal	Ethyl Ether
CQ7ZGN				✓	80	15 min	SPME carboxen/PDMS	Thermal
CR2VB6	✓			✓	70	15	Carbon/Charcoal	Carbon Disulfide
CVKHWK	✓			✓	80	8 hours	Carbon/Charcoal	DCM and Butanol
CWB9T4	✓		✓	✓	90	24 hours	Carbon/Charcoal	Dichloromethane
CWUKK6	✓			✓	65	16 hrs	Carbon/Charcoal	carbon disulfide
CYJQ8M	✓		✓			3min		n-hexane
CZFA6G		✓		✓	85	20 min	Carbon/Charcoal	Carbon DiSulfide
Other Recovery Technique: Heated Headspace for Oxygenates								
DDF3Y4	✓			✓	60-70	18 hours	Carbon/Charcoal	carbon disulfide
DDZJF7	✓			✓	80	2 hours	Carbon/Charcoal	Pentane
DGHZAW	✓			✓	65	16 hours	Carbon/Charcoal	CS2
DJ7CA2	✓			✓	70	3 hours	Carbon/Charcoal	Carbon disulfide
DKZPKF	✓			✓	67	4 hours	Carbon/Charcoal	carbon disulfide
DLQV27	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
Other Recovery Technique: Heated headspace								
DNZ783	✓			✓	80	18 hours	Carbon/Charcoal	CS2
DU933J	✓			✓	70		Carbon/Charcoal	Carbon Disulfide
DUMWTX	✓			✓	~70	16 hours	Carbon/Charcoal	carbon disulfide
DVDR38	✓			✓	70	16 hours	Carbon/Charcoal	Pentane
DWVCZ4	✓			✓	80	2 hours	Carbon/Charcoal	Carbon Disulfide
DYXABW	✓			✓	70	16 hours	Carbon/Charcoal	Carbon Disulfide
E4P2CL	✓			✓	~60	~16 hours	Carbon/Charcoal	Carbon Disulfide
EKECYN		✓	✓	✓	80	N/A	Tenax TA	Thermal
Other Recovery Technique: SPME and Solvent extraction (n-Hexane)								
ENGDYL	✓			✓	60	5min	Carbon/Charcoal	Hexane
EUJJEN	✓			✓	70	2 hour	Carbon/Charcoal	Carbondisulfide
EYX2UK	✓			✓	~80	Overnight	Carbon/Charcoal	CS2/C26
EZ4JRF	✓			✓	70		Tenax TA	Thermal
F3V8YU	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
F4N4L4	✓			✓	80	4 hours	Carbon/Charcoal	pentane

TABLE 2

	Adsorption Headspace		Adsorption Temp					
WebCode	Passive	Dynamic	Rm Temp	Heated	(°C)	Adsorption Duration	Adsorbent	Desorption
F8MARF	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
F9CF87	✓			✓	60	16 hrs	Carbon/Charcoal	CS2
FCECYL	✓			✓	20	~18 hours	Carbon/Charcoal	CS2
FE6HFC	✓		✓			~16 hours	Carbon/Charcoal	CS2
FGTUEH	✓			✓	70	16 hours	Carbon/Charcoal	Carbon Disulfide
FK8PUF	✓			✓	78	2 hours	Carbon/Charcoal	Carbon Disulfide
FP678A	✓			✓	50	30 minutes	SPME (PDMS)	
FRATNK	✓			✓	80	74 minutes	Carbon/Charcoal	Carbon disulfide
FWP2CJ	✓			✓	78	16 hours	Carbon/Charcoal	Carbon Disulfide
FXF8TA	✓			✓	66	19 hours	Carbon/Charcoal	Carbon Disulfide
G9AA73	✓			✓	80	8 Hours	Carbon/Charcoal	Acetone
GGMRQ3	✓			✓	70	16.5 hrs	Carbon/Charcoal	Diethyl ether
GME8TB	✓			✓	64	20 hours	Carbon/Charcoal	CS2
GTH77L	✓			✓	80		SPME (CARBOXEN-PDMS)	Thermal
H36LAF								Extraction
H74699	✓			✓	70			
H99TPJ	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon disulfide
H9RG8D	✓			✓	70	16 hours	Carbon/Charcoal	CS2
HFUV4U	✓			✓	90	14 hours	Carbon/Charcoal	carbon disulfide
HHXDVG	✓			✓	65	16 hours	Carbon/Charcoal	CS2
HJR4YB		✓		✓	85	20 minutes	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Heated Headspace								
HLCWBD	✓			✓	76.2	2.25 hours	Carbon/Charcoal	CS2
HPC87D	✓			✓	76.4	2 hr. 55 min.	Carbon/Charcoal	Carbon Disulfide
HWVBDF	✓			✓	90	5 hours	Carbon/Charcoal	CS2
J2PMTC	✓			✓	90	30 min	PDMS-CARBOXEN	Thermal
Other Recovery Technique: Static or direct Headspace								
J4QR4C	✓			✓	78	3 hours	Carbon/Charcoal	carbon disulfide
J8UV6R	✓			✓	65	16 Hours	Carbon/Charcoal	Carbon Disulfide
J97RAW	✓			✓	65	16	Carbon/Charcoal	
JCKXWD	✓			✓	80	8 hours	Carbon/Charcoal	methylene chloride - Butanol
JDX3JU	✓			✓	70	16 hours	Carbon/Charcoal	Carbon Disulfide
JFNV86	✓			✓	60	6-16 hours	Carbon/Charcoal	CS2
JHC88B	✓			✓	66	4 hrs	Carbon/Charcoal	Pentane
JLXPQG	✓			✓	65	16 hours	Carbon/Charcoal	

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
JPBYNX	✓			✓	70	15 hours	Carbon/Charcoal	Carbon Disulfide
JQK9CP	✓			✓	70	48	Carbon/Charcoal	Diethyl ether
Other Recovery Technique: Solvent extraction - Diethyl ether								
JR2TCA	✓			✓	80	2 hrs.	Carbon/Charcoal	Carbon Disulfide
JU6NVC	✓			✓	65	~16 hours	Carbon/Charcoal	Carbon Disulfide
JX76HY	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
K239MQ	✓			✓	65	16	Carbon/Charcoal	Carbon Disulfide
K4QKLW	✓			✓	82	4 hrs	Carbon/Charcoal	1:1 CS2/C5
K88EGG	✓		✓			16 hours	Carbon/Charcoal	Carbon disulfide
K9HG4F	✓			✓	50	30 sec.	PDMS	Thermal
KHQHAT	✓			✓	~76	~17 hours	Carbon/Charcoal	
KKEU9Y	✓			✓	70	16	Carbon/Charcoal	carbon disulfide
Other Recovery Technique: Simple heated headspace								
KPQ7GF	✓			✓	60		Carbon/Charcoal	pentane
KZKT43	✓			✓	80	8 hours	Carbon/Charcoal	pentane
L3DA9P	✓			✓	70	12-16 Hours	Carbon/Charcoal	Carbon Disulfide
L7T64A	✓			✓	80/95	15 min	SPME fiber:65 µm DVB/PDMS	Thermal
LBJC8V	✓			✓	80	3 hours	Carbon/Charcoal	Carbon Disulfide
LFZ83F	✓			✓	80	21 hrs	Carbon/Charcoal	CS2
LH283D	✓			✓	79	16 hours	Carbon/Charcoal	Carbon Disulfide
LJEPHC	✓			✓	70	16 hours	Carbon/Charcoal	Carbon Disulfide
LR8PLN	✓			✓	65	16 HOURS	Carbon/Charcoal	CARBON DISULFIDE
LUJRMA								
Other Recovery Technique: Solvent Extraction using n-Pentane								
M4ZV8D	✓			✓	80	15HR	Carbon/Charcoal	Pentane
M7Q2N4	✓			✓	80	16 hours	Carbon/Charcoal	Carbon Disulfide
M9UW88	✓			✓	70	18 hrs	Carbon/Charcoal	CS2
MA72UP	✓			✓	65		Carbon/Charcoal	carbon disulfide
MHF2E8	✓			✓	60		Carbon/Charcoal	carbon disulfide
MK68VW	✓			✓	65	16h	Carbon/Charcoal	DCM
MK9P29	✓			✓	40	10 min	SPME (DVB/CAR/PDMS)	Thermal
MP3Q22	✓			✓	70	16 Hours	Carbon/Charcoal	Carbon Disulfide
MRQ3Z8	✓			✓	65	16 Hours	Carbon/Charcoal	Carbon Disulfide
MWHZBW	✓			✓	62	18 hours	Carbon/Charcoal	CS2
N4FERB		✓		✓	100	N/A	Tenax	Thermal

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
N4YVRQ				✓	60	15 hours	Carbon/Charcoal	carbon disulfide
NNMPR9	✓			✓	80			
NPDV9Y	✓					10 min		
NR4C4R	✓			✓	65	3 hrs	Carbon/Charcoal	carbon disulfide
NTYU8E	✓			✓	75	19 hours	Carbon/Charcoal	Carbon Disulfide
NURJQA	✓		✓			30s	SPME DCP	Thermal
Other Recovery Technique: liquid extraction with n-pentan								
NVKGZ3	✓			✓	60	16 hours	Carbon/Charcoal	CS2
NXCDMB								
Other Recovery Technique: Headspace-GC-MS								
NYKRRV	✓			✓	60	16 hours	Carbon/Charcoal	CS2
P2MHMU	✓			✓	70	16.5 hours	Carbon/Charcoal	TCE/ether
P6KYZN	✓			✓	70	16 hours	Carbon/Charcoal	Carbon disulfide
P72KK7	✓			✓	70	15 hours	Carbon/Charcoal	CS2
PET7MY	✓			✓	60	overnight	Carbon/Charcoal	Carbon Disulfide
PHRGHY	✓		✓	✓	120	15 min	SPME	Thermal
PLTHM2	✓			✓	80	16 hours (overnight)	Carbon/Charcoal	carbon disulfide
PNKG2Z	✓			✓	80	1:45	Carbon/Charcoal	CS2
PXM8RU	✓			✓	70	2 Hr	Carbon/Charcoal	CS2
Other Recovery Technique: simple heated headspace 10 min @ 70C								
PYY7NP	✓			✓	76	17 h	Carbon/Charcoal	CS2
Q4RXMT	✓			✓	66	16	Carbon/Charcoal	CS2
QDWE3H		✓	✓				Markes International C3-AAXX-5304 Material Emissio	Thermal
QEA8XK	✓			✓	70	12-16 hours	Carbon/Charcoal	Carbon Disulfide
QGE3WA	✓			✓	65	approx. 16 hours	Carbon/Charcoal	Carbon Disulfide
QGTTJZ	✓			✓	80		Carbon/Charcoal	Diethyl Ether
QJG6H6	✓			✓	65	~16 hrs	Carbon/Charcoal	Carbon Disulfide
QNVB6J	✓			✓	70	16 hours	Carbon/Charcoal	Carbon Disulfide
QQHU7G	✓			✓	70	12 h	Carbon/Charcoal	diethyl ether
QTB724	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon disulfide
QTRYLQ	✓			✓	78	4	Carbon/Charcoal	Carbon Disulfide
QUG73G								
Other Recovery Technique: Solvent extraction - Diethyl ether								
QUGV2R	✓			✓	69-77	20	Carbon/Charcoal	carbon disulfide

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
QVYHZA	✓		✓	✓	60	5min	SPME	Thermal
Other Recovery Technique: Solvent extraction with hexane								
QWPNFZ	✓			✓	80	16 hours	Carbon/Charcoal	Carbon Disulfide
QZ6F68	✓			✓	~80	Overnight	Carbon/Charcoal	Carbon Disulfide
R3A4KX	✓			✓	70	12 Hours	Carbon/Charcoal	Carbon Disulfide
R8M4JA	✓			✓	67	17 hours	Carbon/Charcoal	Carbon Disulfide
RB2EGQ	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
RDPDP3	✓			✓	90	16H	Carbon/Charcoal	CS2
REMQ9N	✓			✓	77	18 hours	Carbon/Charcoal	Carbon disulfide
RF3M3A	✓			✓	65	approx. 16 hours	Carbon/Charcoal	Carbon Disulfide
RN73K2	✓			✓	80	16 Hours	Carbon/Charcoal	Carbon Disulfide
RRNRUJ	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon Disulfide
RUC4UN		✓	✓	✓	130		Tenax TA 60/80 mesh	Thermal
RUWELP	✓			✓	90.8-91.9	2 hours	Carbon/Charcoal	Carbon disulfide
RVQ3XT	✓			✓	80	16	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Headspace Volatiles Analysis								
RXBLRG	✓			✓	60	16 hours	Carbon/Charcoal	Dichloromethane
RXG473		✓		✓	85	20 minutes	Carbon/Charcoal	Carbon Disulfide
Other Recovery Technique: Heated Headspace								
T3QCVQ	✓			✓	63	20 hours	Carbon/Charcoal	CS2
T4H9JK	✓		✓	✓	60		Carbon/Charcoal	toluene and CS2
T9CWRX	✓			✓	80	16 hours	Carbon/Charcoal	Carbon Disulfide
T9D3GL	✓			✓	70	10 hours	Carbon/Charcoal	Ethyl Ether
Other Recovery Technique: Static Headspace								
TE3AQZ	✓			✓	60	16 hours	Carbon/Charcoal	Carbon disulfide
TFBRXP	✓			✓	80		Carbon/Charcoal	Pentane
TKQUW2		✓		✓	95	25 minutes	Carbon/Charcoal	Carbon Disulfide
TXFNC2								
U4GX2L	✓			✓	70	24hrs	Carbon/Charcoal	Dichloromethane
UANQB6	✓			✓	90	10 minutes		n-Hexane
UBEXRV	✓			✓	66	16hr	Carbon/Charcoal	CS2
UBFJTL	✓		✓			2 days	Tenax	Thermal
UEUPF3	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
UHF7XN	✓			✓	65	16 hours	Carbon/Charcoal	CS2
UTXF9F	✓			✓	70	16 hours	Carbon/Charcoal	DCM
V3FJTK	✓			✓	63	~23 hours	Carbon/Charcoal	Carbon disulfide
V3JCZM	✓			✓	80	2 hours	Carbon/Charcoal	Carbon Disulfide

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
V4VBVW	✓	✓	✓			1 hour	Carbon/Charcoal	methylene chloride
V8VRGJ	✓			✓	76	~18 hours	Carbon/Charcoal	Carbon Disulfide
VBF8Z8	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon disulfide
VBTXQ3	✓			✓	80	More than 10 hours	Carbon/Charcoal	Carbon Disulfide
VC7DGW	✓	✓		✓	60	600 s	SPME CAR/PDMS	Diethyl ether
VCKW2U	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
VEDRN4	✓			✓	70	16 hours	Carbon/Charcoal	carbon disulfide
VETAM3	✓		✓			> 16 hours	Carbon/Charcoal	CS2
VHC4J3	✓			✓	80	5 hours	Carbon/Charcoal	CS2
Other Recovery Technique: heated headspace concentration								
VKYL2N	✓			✓	68	approximately 16 hours	Carbon/Charcoal	Carbon Disulfide
VLBKWW	✓			✓	50-80		Carbon/Charcoal, Tenax, DCP	carbon-disulfide, Thermal
W6KW2T	✓			✓	80	19 hours	Carbon/Charcoal	Carbon disulfide
W94R6K	✓			✓	89.3-91.4	~2 hours	Carbon/Charcoal	Pentane
W9ZYWG	✓			✓	60	16 hours	Carbon/Charcoal	methylene chloride / toluene
WAYA98	✓			✓	75	8 hours	Carbon/Charcoal	Carbon Disulfide
WC43ZK	✓	✓		✓	~80		Carbon/Charcoal	Pentane
Other Recovery Technique: lab also uses Carbon Disulfide as solvent but usually uses Pentane								
WENRKX		✓		✓	85	20 min	Carbon/Charcoal	CS2
Other Recovery Technique: heated headspace								
WLKEZG	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
WP44DL	✓			✓	76	18 hours	Carbon/Charcoal	Carbon Disulfide
WRWUJZ	✓			✓	70	16-18hrs	Carbon/Charcoal	CS2
WT92VL		✓		✓	80	5 min.	Carbon/Charcoal	Pentane
WUJC2L	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
WYUK7W	✓			✓	80	16 hours	Carbon/Charcoal	CS2
WZNKEL	✓				70	4 hours	Carbon/Charcoal	Carbon Disulfide
X3TRVJ	✓			✓	70	16 hours	Carbon/Charcoal	carbon disulfide
X3UXMU	✓			✓	63	18 hours	Carbon/Charcoal	CS2
X7CA7W				✓	90	10 minutes		Hexane
X9HHNP	✓			✓	80	2 hours	Carbon/Charcoal	carbon disulfide
XB3PQW	✓			✓	75.3	3.2 hours	Carbon/Charcoal	Carbon disulfide
XFXJPJ	✓			✓	60	16 hours	Carbon/Charcoal	Carbon disulfide
XKTAWV	✓			✓	80.0	14 hours	Carbon/Charcoal	Carbon disulfide

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		(°C)	Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated				
XMGLV2	✓			✓	80	Overnight	Carbon/Charcoal	CS2/C26
XQKPWG	✓			✓	60	16 hours	Carbon/Charcoal	CS2
XQXJ8B	✓			✓	90	16 hrs	Tenax TA	Thermal
XT8UK2	✓			✓	90	10		
XUDGVK	✓			✓	60	16 hours	Carbon/Charcoal	Carbon disulfide
XUZRUT	✓				60	16 hours	Carbon/Charcoal	carbon disulfide
XXEHX3	✓			✓	80	8hr	Carbon/Charcoal	CS2
XXXXXH		✓	✓	✓	130	N/A	Tenax TA	Thermal
Y4ZUCV	✓			✓	60	48 hours	Carbon/Charcoal	Pentane
Y78MBG	✓			✓	65	18 hours	Carbon/Charcoal	Carbon disulfide
Other Recovery Technique: Static Headspace - 60 deg C, ~10 min, 0.2mL inj vol								
Y7N7B2	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
Y9EDQR	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
YH34F6	✓			✓	90	1 hour	Tenax	Thermal
YH39NL	✓			✓	65	12 hours	Carbon/Charcoal	carbon disulfied
YHGXRY	✓			✓	80	4 hours	Carbon/Charcoal	CS2
YMDGX4	✓			✓	60	16 hours	Carbon/Charcoal	CS2
YNL4DA	✓		✓	✓	90	3 hrs (RT); 16 hrs (90C)	Tenax TA	Thermal
YP3MDU	✓			✓	69	16 hours	Carbon/Charcoal	Carbon Disulfide
YT32YX	✓			✓	60	<24 hours	Carbon/Charcoal	CS2
YUE7LF	✓			✓	60	16 hours	Carbon/Charcoal	Methylene Chloride and Toluene
YW2CVX	✓			✓	90	5 hours	Carbon/Charcoal	CS2
YYNUDJ	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
ZD3FC3	✓			✓	59	16 Hours	Carbon/Charcoal	Carbon Disulfide
ZHUEBB	✓			✓	65	18 hours	Carbon/Charcoal	CS2
ZM8YJH	✓			✓	68	10 hours	Carbon/Charcoal	CS2
ZNNJJ3	✓			✓	69	16.3 hours	Carbon/Charcoal	CS2
ZRMUF3	✓			✓	66	~16 hours	Carbon/Charcoal	Carbon Disulfide
ZTV8VH	✓			✓	60 - 70	approximately 16 hours	Carbon/Charcoal	carbon disulfide
ZUD2VT	✓		✓	✓	60		SPME	Thermal

Response Summary

Participants	Adsorption Headspace		Adsorption Temp		Adsorbent		Desorption	
	Passive	Dynamic	Rm Temp	Heated	Carbon/Charcoal	Other	Thermal	Solvent
311	278	25	24	289	259	34	31	263

Identification Techniques

TABLE 3

WebCode	GC	GC/MS	Other
23HM2X		✓	
2BW9A3		✓	
2D3WPR		✓	
2K2JGR		✓	
2MLDDR		✓	
2PRX2R		✓	
2RKMNU	✓	✓	
2Y3XXN	✓	✓	
322Q9Y		✓	
326MNG		✓	
34RWPP		✓	
37F9NU		✓	
39YMRV		✓	
3W673U		✓	
43BZWP		✓	
44K6CY		✓	
47BBTP	✓	✓	
48KF7D	✓	✓	
48M3MR		✓	
4C2L3M		✓	
4E4NNH		✓	
4L7QWP		✓	
4MFBPC		✓	GC-FID
4QDR37		✓	
4RQNMX		✓	
62AMPM		✓	
642DL7		✓	
679ZCC		✓	
67PPKC		✓	
68KXLN		✓	
6BXF2J		✓	
6D474T		✓	
6DNJUQ		✓	
6MDZ8E		✓	
734UAC		✓	
74WKFQ		✓	
79PRWD		✓	
7APMNW		✓	
7BEU4M		✓	
7MDP7P		✓	
7MMW3P		✓	
7NN2TD		✓	GC-FID
7PVG36	✓	✓	Odor assessment
7R6WPX		✓	
7RJT2A			GC/FID-MS
7RYCL8		✓	
7UQBZ7		✓	
7WU7J9		✓	
8DHG7B		✓	
8JAENU		✓	
8KYK4K		✓	
8NJ4X8		✓	
8PDU22		✓	
8TRWYD		✓	
8U7UJ3		✓	
8WT2TL		✓	
8YKZ8J		✓	
9239HA		✓	
92JWQB		✓	
9AWLVB		✓	
9H8FWB		✓	
9HPLW2		✓	
9NT2TJ		✓	
9YCETF			GC-FID
A2WQ7B		✓	
A3TRY2	✓	✓	
A6G4X8		✓	
A9EKB2	✓	✓	odor assessment
AH73PA		✓	
AHMMPT		✓	
AJX248		✓	TD-GC-MS
AMUCPE			Thermal Desorption GC/MS

TABLE 3

WebCode	GC	GC/MS	Other
ANDWYR		✓	
AQWNV8		✓	
AZ7KQK		✓	FID
B2XYUP		✓	
B6CGAK		✓	
B7Q3L8		✓	
B9E83Y		✓	
BE2UX4		✓	
BG6PG8		✓	
BJFUBH		✓	
BLFBGK		✓	
BYPNXL			ATD-GC/MS
C2AXMD		✓	
C34K4M		✓	
C7L3YD	✓	✓	
C8XABY	✓	✓	
C9AEXH		✓	
CBGWWE		✓	
CEZRY7		✓	
CHB2PF		✓	
CJRYHE		✓	
CNKV77	✓	✓	
CPDJCZ		✓	
CPYUB9		✓	
CQ7ZGN		✓	
CR2VB6		✓	
CVKHWK		✓	
CWB9T4		✓	
CWUKK6		✓	
CYJQ8M		✓	
CZFA6G		✓	
DDF3Y4		✓	
DDZJF7			GC/MS-FID
DGHZAW		✓	
DJ7CA2		✓	
DKZPKF		✓	
DLQV27		✓	
DNZ783		✓	
DU933J		✓	
DUMWTX		✓	
DVDR38	✓		
DWVCZ4		✓	
DYXABW		✓	
E4P2CL		✓	
EKECYN		✓	GC/ATD
ENGDYL		✓	
EUJJEN	✓	✓	
EYX2UK		✓	
EZ4JRF		✓	
F3V8YU		✓	
F4N4L4		✓	
F8MARF		✓	
F9CF87		✓	
FCECYL		✓	
FE6HFC		✓	
FGTUEH		✓	
FK8PUF		✓	
FP678A		✓	
FRATNK	✓	✓	
FWP2CJ		✓	
FXF8TA		✓	
G9AA73		✓	
GGMRQ3		✓	
GME8TB		✓	
GTH77L		✓	
H36LAF		✓	
H74699		✓	GC/FID
H99TPJ		✓	
H9RG8D		✓	
HFUV4U	✓	✓	
HHXDVG		✓	
HJR4YB		✓	
HLCWBD		✓	
HPC87D		✓	
HWVBDF		✓	

TABLE 3

WebCode	GC	GC/MS	Other
J2PMTC		✓	
J4QR4C		✓	
J8UV6R		✓	
J97RAW		✓	
JCKXWD		✓	
JDX3JU	✓	✓	odor assessment
JFNV86		✓	
JHC88B		✓	
JLXPQG		✓	
JPBYNX		✓	
JQK9CP		✓	
JR2TCA	✓	✓	
JU6NVC		✓	
JX76HY		✓	
K239MQ		✓	
K4QKLW		✓	
K88EGG		✓	
K9HG4F		✓	
KHQHAT		✓	
KKEU9Y		✓	
KPQ7GF		✓	
KZKT43		✓	
L3DA9P	✓	✓	
L7T64A	✓	✓	
LBJC8V		✓	
LFZ83F		✓	
LH283D		✓	
LJEPHC		✓	
LR8PLN		✓	
LUJRMA		✓	
M4ZV8D		✓	
M7Q2N4		✓	
M9UW88		✓	
MA72UP		✓	
MHF2E8		✓	
MK68VW		✓	
MK9P29		✓	
MP3Q22		✓	
MRQ3Z8	✓	✓	
MWHZBW		✓	
N4FERB		✓	
N4YVRQ		✓	
NNMPR9	✓	✓	
NPDV9Y		✓	
NR4C4R		✓	
NTYU8E		✓	
NURJQA		✓	
NVKGZ3		✓	
NXCDMB		✓	
NYKRRV		✓	
P2MHMU		✓	
P6KYZN	✓	✓	
P72KK7		✓	
PET7MY		✓	
PHRGHY		✓	
PLTHM2		✓	
PNKG2Z		✓	
PXM8RU		✓	
PYY7NP		✓	
Q4RXMT		✓	
QDWE3H		✓	
QEA8XK	✓	✓	
QGE3WA		✓	
QGTTJZ		✓	
QJG6H6		✓	
QNVB6J		✓	
QQHU7G		✓	
QTB724		✓	
QTRYLQ		✓	
QUG73G		✓	
QUGV2R		✓	
QVYHZA		✓	
QWPNFZ		✓	GC-FID
QZ6F68		✓	
R3A4KX		✓	

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
R8M4JA		✓		UHF7XN		✓		WUJC2L		✓	
RB2EGQ		✓		UTXF9F		✓		WYUK7W		✓	
RDPDP3		✓		V3FJTK		✓		WZNKEL		✓	
REMQ9N		✓		V3JCZM		✓		X3TRVJ		✓	
RF3M3A		✓		V4VBVW		✓		X3UXMU		✓	
RN73K2		✓		V8VRGJ		✓		X7CA7W		✓	
RRNRUJ		✓		VBF8Z8		✓		X9HHNP		✓	
RUC4UN		✓		VBTXQ3		✓		XB3PQW		✓	
RUWELP		✓		VC7DGW		✓		XFXJPJ		✓	
RVQ3XT		✓		VCKW2U		✓		XKTAWV		✓	
RXBLRG		✓		VEDRN4		✓		XMGLV2		✓	
RXG473		✓		VETAM3		✓		XQKPWG		✓	
T3QCVQ		✓		VHC4J3		✓		XQXJ8B		✓	
T4H9JK		✓		VKYL2N		✓		XT8UK2		✓	
T9CWRX		✓		VLBKWW	✓	✓		XUDGVK		✓	
T9D3GL		✓		W6KW2T		✓		XUZRUT		✓	
TE3AQZ		✓		W94R6K		✓		XXEHX3		✓	
TFBRXP		✓		W9ZYWG		✓		XXXXXH		✓	
TKQUW2		✓		WAYA98		✓		Y4ZUCV		✓	
TXFNC2			Headspace GC/MS	WC43ZK		✓		Y78MBG		✓	
U4GX2L		✓		WENRKX		✓		Y7N7B2		✓	
UANQB6		✓		WLKEZG		✓		Y9EDQR		✓	
UBEXRV		✓		WP44DL		✓		YH34F6		✓	
UBFJTL		✓	GC/FID	WRWUJZ		✓		YH39NL		✓	
UEUPF3		✓		WT92VL		✓		YHGXRY		✓	

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
YMDGX4		✓									
YNL4DA		✓									
YP3MDU		✓									
YT32YX		✓									
YUE7LF		✓									
YW2CVX		✓									
YYNUDJ	✓	✓									
ZD3FC3		✓									
ZHUEBB		✓									
ZM8YJH		✓									
ZNNJJ3		✓									
ZRMUF3		✓									
ZTV8VH		✓									
ZUD2VT		✓									

Response Summary

Participants	GC	GC/MS
311	24	304

Conclusions

TABLE 4

WebCode	Conclusions
23HM2X	In Conclusion sample 1 - Cloth remnant from the sheet sealed in a nylon evidence bag, resulted with a positive response for the presence of an Ignitable Liquid. This ignitable liquid was identified as an Isoparaffinic product, falling under the class 0.2. Sample 2- Cloth remnant from the pillowcase sealed in a nylon evidence bag, resulted in a positive response for the presence of an ignitable liquid. this ignitable liquid was identified as a Normal Alkane product, falling under the class 0.3.
2BW9A3	[No Conclusions Reported.]
2D3WPR	Item #1 - Cloth Remnant: A de-aromatized heavy miscellaneous product was detected in Item #1 based on the ASTM 1618 classification scheme. Item #1 is narrow (~C13-C15) blend of normal alkanes, isoalkanes and naphthenes. Item #1 contained C15 (Farnesane) and C16 (isoC16) which are isoprenoid hydrocarbons found in petroleum sourced products. Blended products of saturates including isoalkanes, naphthenes and normal alkanes are placed in the Miscellaneous category in ASTM 1618-14. Examples of products which contain these miscellaneous distillates include charcoal starter and lamp oil products. Item #2 - Cloth Remnant: A heavy normal alkane product was detected in Item #2 based on the ASTM 1618 classification scheme. The carbon range of Item # 2 was found to extend from about nC14 to C18. Examples of products which contain these distillates include some types of candle oils, carbonless forms and copier toners. Control Samples - Cloth Remnant: Items #3 was provided for background substrate patterns and appeared negative for the presence of accelerants.
2K2JGR	Item 1 contains a heavy miscellaneous ignitable liquid. Examples of a heavy miscellaneous product include lamp oils, insecticides, citrus cleaners, automotive parts cleaners, and kerosene fuel additives. This sample compared favorably to the product Goo Gone. Item 2 contains a heavy normal alkane ignitable liquid. Examples of a heavy normal alkane product include candle oils, lamp oils, carbonless forms, and copier toners. No ignitable liquid was detected in item 3.
2MLDDR	Item 1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 1: Limonene; Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. It is unknown if the ignitable liquids found in Item 1 represent a single product as manufactured or a subsequent mixture. Item 2: Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners Item 3: No ignitable liquids found.
2PRX2R	Item 1: An ignitable liquid classified as a heavy miscellaneous product was detected. Examples of heavy miscellaneous products include some blended products and some specialty products. Item 2: An ignitable liquid classified as a heavy n-alkane product was detected. Examples of heavy n-alkane products include some candle oils, carbonless forms, and some copier toners. Item 3: An ignitable liquid was not detected.
2RKMNU	Item 1 contains; heavy petroleum distilates, n-alkans, siklo alkans and limonene. Item 2 contains;heavy n-alkans. Item 3 doesn't have any ignitable liquid.
2Y3XXN	Description of Evidence: Item #1 - Item 1- Cloth remnant from the sheet sealed in a nylon evidence bag. Item #2 - Item 2- Cloth remnant from the pillowcase sealed in a nylon evidence bag. Item #3 - Item 3- Cloth substrate intended as a comparison blank in a nylon evidence bag. Results/Opinions/Interpretations of Fire Debris Analysis 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 heavy petroleum product (e.g. cleaning solvents , kerosene , fuel oil , 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 heavy petroleum product (e.g. lamp oils , kerosene , fuel oil , 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

Updated to include results for participant ZUD2VT

TABLE 4

WebCode	Conclusions
	spectrometry. The item was analyzed as a comparison sample. Disposition of Evidence: The unanalyzed portion of the activated charcoal strip is being returned to the submitting agency along with the submitted evidence.
322Q9Y	Item 1, Cloth Remnant from the Sheet, C-11 to C-16 Petroleum Distillate. Chromatogram consistent with Goo-Gone commercial cleaning product. Item 2, Cloth Remnant from the Pillowcase, C-13-C-18 Normal Alkanes. Item 3, Comparison Blank, Negative The identification of an ignitable liquid from a fire scene alone does not necessarily prove that the fire was an incendiary act and negative results do not preclude the possibility that ignitable liquids were present at the fire scene.
326MNG	Item 001-001: Limonene and heavy petroleum distillate (C12 to C15) residues were identified. Examples of this combination of components include Goo-gone, and other similar specialty solvents. Item 001-002: Normal alkane product residues in the range of C13 - C19 were identified. Item 001-003: No ignitable liquid residues were identified.
34RWPP	A heavy petroleum distillate and Limonene were identified in Lab Item 1. A heavy n-alkanes product was identified in Lab Item 2. No ignitable liquids were identified in Lab Item 3.
37F9NU	Gas Chromatographic Mas Spectral (GC-MS) analysis of item 1 and Item 2 revealed the presence in high amounts of ignitable liquid residues in both items. Item1 : Miscellaneous (Heavy Petroleum Distillates + terpenes) - The heavy petroleum distillates includes products such as diesel fuel, fuel oil, barbecue lighter and heater fuel. They are moderately flammable products at room temperature and they can be easily obtained commercially. - Limonene has also been found in item 1. It is a moderately flammable product . It is used as a solvent for cleaning, painting and a component of perfumes and flavors. Commercial products with a combination of terpene and HPD are sold as “cleaning solvent. Item2 : Normal alkanes (subclass heavy) The normal alkanes product (subclass heavy) includes a class of flammable products with various applications (paraffins for candles, lamp oil etc.). They are more or less flammable depending on the product. These are readily available on the market for some. Item3 (blank) : no ignitable liquids were detected in the control bag. The results of research for flammable liquid must be replaced in the context of discovery and confronted with the observations done on the fire scene.
39YMRV	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). A heavy petroleum distillate was identified in Item 1 (Identification). Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some charcoal starters, and some lamp oils. A heavy normal alkane product was identified in Item 2 (Identification). Examples of heavy normal alkane products include, but are not limited to, some candle oils, lamp oils, and copier toners. There were no ignitable liquids detected in Item 3 (Not Detected).
3W673U	In Item 1 an ignitable liquid is present, belonging to the class “Others Miscellaneous”, subclass “Heavy”. The ingredients of this liquid are: de-aromatized Heavy Petroleum Distillate (range C12-C15) and Limonene. Such liquid might available for sale as, e.g. lamp oil or stain remover. In Item 2 an ignitable liquid is present, belonging to the class: “Normal Alkanes Products”, subclass “Heavy”. It is composed solely with n-alkanes, within range C13-C17. Such liquids are available for sale as, e.g. lamp oils.
43BZWP	In the Item 1 is detected myrcene, limonene, C12, branched alkanes, C13, branched alkanes, C14, branched alkanes and C15. This is the typical composition of petroleum distillates (Medium). In the Item 2 is detected C13, C14, C15, C16, C17 and C18. N-Alkanes (Heavy). This is the typical composition of N-Alkanes.
44K6CY	the cloth remnant from the sheet sealed in nylon evidence bag (Item 1) was found to contain an ignitable liquid composed mainly of D-limonen, medium product n-alkane and other terpines. the cloth remnant from the pillowcase sealed in nylon evidence bag (item 2) was found to contain an ignitable liquid consistent with normal alkanes.
47BBTP	Item 1: contains limonene along with ion profile of a petroleum distillate (C12-C15; heavy) and was classified as miscellaneous. These constituents may be found in some products such as citrus cleaners. Item 2: contains a n-alkane product with ion profile C13-C16 (heavy). These constituents may be found in some products such as candle oils, lamp oil, carbonless forms, copier toners. Item 3: no

TABLE 4

WebCode	Conclusions
	ignitable liquids detected
48KF7D	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). The Item 1 extract was further examined using Gas Chromatography (GC). The Item 1 extract contained a mixture of limonene (a medium miscellaneous product) and a heavy petroleum distillate. Limonene can be found in, but is not limited to, some paint thinners and cleaning products. The heavy petroleum distillate can be found in, but is not limited to, some insect sprays. This mixture is classified as a medium to heavy miscellaneous product which can be found in, but is not limited to, some adhesive removers. The Item 2 extract contained a mixture of tetradecane, pentadecane, and hexadecane (a heavy normal alkanes product), which can be found in, but is not limited to, some lamp oils. No ignitable liquids were identified in the Item 3 extract.
48M3MR	A miscellaneous product containing limonene and a heavy petroleum distillate was present in Item 1. Please note: This could be a result of a blended product or a mixture of two products. A example of a blended product would include cleaning solvents such as Goo Gone. Products in the range of a heavy petroleum distillate includes, but are not limited to, some types of wood stains/sealers and some types of automotive oils, some types of charcoal starters lamp oils, kerosenes and other proprietary formulations. Products containing Limonene can be both flammable and non-flammable products such as cleaning products concentrates, solvents and lighter fluids. A heavy normal alkane product was present in Item 2. Products in this range include, but are not limited to, some types of lamp oils, torch fuels and candle oils. No ignitable liquid residues were detected in the comparison sample, Item 3.
4C2L3M	Item 1 consists of a miscellanous product. Item 2 consists of a nonmal alkane product. Item 3 nothing of significance was detected.
4E4NNH	A heavy Miscellaneous profile was detected in Item 1. A heavy n-Alkane profile was detected in Item 2. No ignitable liquid profile was detected in Item 3. Item 1: The profile for Item 1 contained limonene, n-alkanes (e.g. dodecane, tridecane, tetradecane, pentadecane), cycloalkanes, and some branched alkanes, with a notable lack of aromatics. The profile appears to have a de-aromatized narrow-range heavy petroleum distillate component (C12-C15) and limonene. Due to the presence of limonene, I classified the overall profile as Miscellaneous (heavy range). The miscellaneous profile could be from a mixture of products, or it could be from a blended/specialty product. Limonene can be found in a variety of products, some ignitable, some non-ignitable. Some examples of heavy miscellaneous products can include: lamp oils, insecticides, citrus cleaners, and automotive parts cleaners. Item 2: The profile for Item 2 contained n-alkanes (e.g. tridecane, tetradecane) in the heavy range (C13-C18). I classified the profile as a heavy n-alkane (C13-C18). Some examples of heavy n-alkane products can include: candle oils, lamp oil, and copier toners. Item 3: No ignitable liquid profile was detected in Item 3. Only caprolactam was detected; this compound is known to be associated with nylon fire debris bags (the item was packaged in fire debris bags), and, therefore, I determined it's presence to not be significant. The analysis cannot determine how or when the product came to be part of the item – the analysis simply detects the presence of the components. Note 1: The analysis includes testing for the presence of the following classes of ignitable liquids/residues: gasoline; light, medium, and heavy subclasses of petroleum distillates, isoparaffinic products, naphthenic-paraffinic products, aromatic products, normal alkane products, oxygenated solvents (including light volatile organic compounds such as methanol, ethanol, isopropanol, and acetone), and miscellaneous/other (ASTM E1618). Note 2: For clarification, a "C" followed by a number indicates a n-alkane containing that number of carbons (i.e. "C8" corresponds to octane, etc.).
4L7QWP	An ignitable liquid classified as a heavy range, miscellaneous product was detected from the cloth remnant from the sheet (Item 1). Examples of these types of product may include, but are not limited to: lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. An ignitable liquid classified as a heavy range, n-alkanes product was detected from the cloth remnant from the pillowcase (item 2). Examples of these types of products may include, but are not limited to: candle oils, lamp oil, carbonless forms, and copier toners.
4MFBPC	CTS Item 1 contained a medium to heavy petroleum distillate class ignitable liquid (C12 to C14) and D-Limonene. Examples of medium petroleum distillate products include, but are not limited to, some

TABLE 4

WebCode	Conclusions
	charcoal starters, some paint thinners, and some dry cleaning solvents. D-Limonene can be found in citrus cleaners. CTS Item 2 contained a normal alkanes product. Examples of normal alkanes products include, but are not limited to, some candle oils, carbonless forms, and copier toners. CTS Item 3 contained no ignitable liquid.
4QDR37	This report refers to the exhibit by Lab Number. Exhibit 1 contained a heavy petroleum distillate (HPD) and limonene. Examples of HPDs include some torch fuels, some lamp oils, and some polishes. HPDs are ignitable liquids. Limonene is a common terpene in nature and is a major component in several citrus oils. Limonene is an ignitable liquid. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 contained a heavy range normal alkane product. Examples of heavy range normal alkane products include some polishes, some candle oils and some copier toners. Heavy range normal alkane products are ignitable liquids. No ignitable liquids were identified in Exhibit 3.
4RQNMX	i. A heavy petroleum distillate was detected in Item 1. ii. Heavy normal alkanes were detected in Item 2.
62AMPM	Heavy Petroleum Distillate found: Some examples include kerosene, diesel fuel, and some charcoal starters Heavy Petroleum Distillate found (Dearomatized)
642DL7	Exhibit 1 contained limonene and a heavy petroleum distillate, both of which are ignitable liquids. Limonene is a terpene and is commonly found in cleaning products and cosmetics. Examples of HPDs include kerosene, diesel fuel, some paint thinners, and some lamp oils. It could not be determined if Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 contained a heavy n-alkane product, which is an ignitable liquid. Examples of this type of product include some candle oils, some polishes, and some insecticide vehicles. No ignitable liquids were identified in Exhibit 3.
679ZCC	Item 1 was not analyzed. Item 1.1, 1.2 and 1.3 were extracted by passive adsorption/elution and analyzed by gas chromatography-mass spectrometry. Item 1. Not analyzed. Item 1.1. A miscellaneous mixture consisting of two products was identified in the heat-sealed fire debris bag containing a 2" square of white cloth. The products identified were a) Limonene and b) heavy petroleum distillate. Limonene is a naturally occurring wood product and is also found in some environmentally friendly cleaning products. Examples of heavy petroleum products are kerosene, diesel fuel, jet fuels charcoal starters. Item 1.2. A heavy normal alkane product was identified in the heat-sealed fire debris bag containing a 2" square of white cloth. Examples of heavy normal alkane products are candle oils. Item 1.3. No ignitable liquids were identified in the heat-sealed fire debris bag containing a 2" square of white cloth. (Comparison sample)
67PPKC	After comparison with the result of the comparison blank's analysis (item 3): - an heavy miscellaneous/other product was detected in item 1. This ignitable products class includes some blended products and some specialty products. It could correspond, in particular, to some cleaning solvents; - an heavy normal alkane product was detected in item 2. This ignitable products class includes some candle oils, carbonless forms and some copier toners. Considering the nature of the sample, a candle oil may be preferred.
68KXLN	An ignitable liquid residue in the Heavy Miscellaneous Product category was detected in the plastic bag containing the cloth remnant from the sheet (Item 1). This ignitable liquid was found to contain both a dearomatized heavy petroleum distillate and an aromatic component. Examples of commercial products containing miscellaneous ignitable liquids include some lamp oils, some insecticides, some citrus cleaners, some kerosene, and some fuel additives. An ignitable liquid residue in the Heavy Normal Alkane (n-Alkane) Product category was detected in the plastic bag containing the cloth remnant from the pillowcase (Item 2). Examples of commercial products containing normal alkanes include some lamp oils, some candle oils, some carbonless forms, and some copier toners. No ignitable liquid residue was detected within the plastic bag containing the cloth substrate intended as a comparison blank (Item 3).
6BXF2J	Item #1: The presence of a Medium/Heavy Petroleum Distillate and a Miscellaneous Ignitable liquid were detected in this sample. Item #2: The presence of a Heavy Normal Alkane Product was detected in this sample. Item #3: No ignitable liquid was detected in this sample.

TABLE 4

WebCode	Conclusions
6D474T	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). A heavy miscellaneous product (carbon range: C10-C15) including a heavy petroleum distillate and limonene was identified in Item 1. Examples include, but are not limited to; lamp oils, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. A heavy normal alkane product (carbon range: C14-C16) was identified in Item 2. Examples include, but are not limited to; candle oils, lamp oil, carbonless forms, and copier toners. No ignitable liquid residues were detected in Item 3 (Not Identified).
6DNJUQ	Item 1 was found to contain a heavy miscellaneous product consisting of a petroleum distillate and limonene. Products that can be found to contain a heavy miscellaneous product include (but are not limited to) lamp oils and kerosene. Item 2 was found to contain a heavy normal alkane product. Products that can be found to contain a heavy normal alkane product include (but are not limited to) lamp and candle oils. No ignitable liquid residue was detected in Item 3.
6MDZ8E	Analysis by Gas Chromatography/Mass Spectrometry of the white cloth (Item 1A) reveals the presence of a heavy miscellaneous product. Examples of heavy miscellaneous products include: Some specialty products and some blended products. Analysis by Gas Chromatography/Mass Spectrometry of the white cloth (Item 1B) reveals the presence of a heavy normal alkane product. Examples of heavy normal alkane products include: Some lamp oils, some candle oils, carbonless forms and some copier toners. Analysis by Gas Chromatography/Mass Spectrometry of the white cloth (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.
734UAC	A mixture of a heavy petroleum distillate and terpenes was identified in item 1. Heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, and some brands of charcoal starters. Terpenes are natural byproducts of wood. A heavy normal alkane product was identified in item 2. Heavy normal alkane products include, but are not limited to, some brands of copier toners, candle oils, and carbonless forms. 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.
74WKFQ	The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: some blended products and various specialty products. The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy N-Alkane product was identified. Examples of this type ignitable liquid include: some candle oils, carbonless forms and copier toners.
79PRWD	Item 1: GC-MS analysis identified residues of a heavy miscellaneous ignitable liquid. Item 2: GC-MS analysis identified residues of a heavy normal alkane product. Item 3: GC-MS analysis did not identify any ignitable liquid residues.
7APMNW	1. A dearomatized heavy petroleum distillate and limonene (approximate flash point 45°C) was detected in Exhibit 1. Dearomatized heavy petroleum distillates and limonene are ignitable liquids and could act as fire accelerants. Uses of dearomatized heavy petroleum distillates include, but are not limited to, some low odour solvents, some lamp oils and some charcoal starters. Limonene has a strong citrus odour and its uses include, but are not limited to, a solvent for some resins and waxes, some citrus-scented cleaning solutions, a flavouring compound, some fragrance and perfume materials, some firefighting foams, and some floor waxes and furniture polishes. It should be noted that the fire accelerant capability of limonene is reduced in the presence of water and aqueous-based solutions. Dearomatized heavy petroleum distillates and limonene can be found together in some commercially available blended products including, but not limited to, some Goo Gone® formulations. It cannot be determined whether the dearomatized heavy petroleum distillate and limonene detected in Exhibit 1 originate from a single blended product or from a mixture of two or more separate products. 2. A heavy normal-alkane product was detected in Exhibit 2, uses of which include, but are not limited to, some candle/ lamp oils, some lubricating oils and some copier toners. Heavy normal-alkane products are ignitable liquids and could act as a fire accelerant. 3. No ignitable

TABLE 4

WebCode	Conclusions
	liquid, or its residue, was detected in Exhibit 3.
7BEU4M	Item 1: Findings: Limonene, Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. It is unknown if the ignitable liquids found in Item 1 represent a single product as manufactured or a subsequent mixture. Item 2: Findings: Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners Item 3: No ignitable liquids were found
7MDP7P	Two samples were analyzed for the presence of ignitable liquids through analysis of their headspace vapors using gas chromatography-mass spectrometry. Item 1 was found to contain a mixture of a heavy petroleum distillate with significant amounts of limonene. The presence of significant amounts of limonene in conjunction with the HPD classifies the material as a miscellaneous ignitable liquid. Examples of ignitable liquids in this class include specialty products such as cleaning solvents (e.g., Goo Gone®). Item 2 was found to contain a heavy (c13 c16) normal alkane product. Examples of ignitable liquids in this class include candle oils and torch/lamp fuels.
7MMW3P	ITEM 1 : The analyzes revealed the presence of a mixture composed of a heavy petroleum distillate (C12-C15 range) and d-limonene. According to the ASTM E1618-14 norm, this mixture can be classified as a heavy miscellaneous product. This product may concern some specialty products or some blended products like cleaning solvents (adhesive remover ...) ITEM 2 : The analyzes revealed the presence of a series of n-alkanes (C13-C18). According to the ASTM E1618-14 norm, it can be classified as a heavy normal alkanes product. This product may concern some lamp oils, torch fuel and specialty or industrial solvents. ITEM 3 : No ignitable products were detected.
7NN2TD	A heavy miscellaneous product residue was detected in Item 001-1. A heavy normal alkane product residue was detected in Item 001-2. No common ignitable liquid residues were detected in Item 001-3.
7PVG36	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 heavy petroleum distillate and Limonene. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item 2 revealed the presence of a normal alkane product. Normal alkane products include some candle oils and some copier toners. Examination of Item 3 failed to reveal the presence of ignitable liquids.
7R6WPX	Limonene and a heavy petroleum distillate were each detected in Item 1. Heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, some charcoal starters and lamp oils, aviation fuels, some insecticide solvents, some fuel additives and automotive parts cleaners and other specialty application solvents and thinners. Limonene is a cyclic monoterpene and is the major component of the oil citrus fruit peels. Limonene is commonly used as a fragrance in household products, in flavorings, cleaning products and is considered a botanical insecticide and herbicide. A homologous series of normal alkanes ranging from C13 (tridecane) to C19 (nonadecane) was detected in Item 2. Normal alkane products in this ranges include, but are not limited to, some lamp and candle oils, copier toners, wax cleaners, industrial solvents, some water repellents, as a solvent in some inks and numerous other specialty application solvents and thinners. No ignitable liquids were detected in Item 3.
7RJT2A	A heavy range (C10 – C15) miscellaneous product residue was detected in Item 001-1. A heavy range (C13 – C17) normal alkane product residue was detected in Item 001-2. No common ignitable liquid residues were detected in Item 001-3.
7RYCL8	Analysis of exhibit [Participant Code] Item 1 detected the presence of a heavy range miscellaneous product (examples: some speciality cleaners, some citrus-based cleaners, some lamp oils, etc). Analysis of exhibit [Participant Code] Item 2 detected the presence of a heavy range normal alkane product (examples: some lamp oils, some candle oils, some copier toners, etc). Analysis of exhibit [Participant Code] Item 3 failed to detect the presence of an ignitable liquid.
7UQBZ7	Exhibit 1 contained limonene and a heavy petroleum distillate (HPD), which are ignitable liquids. Limonene may be found in some cleaners, some degreasers and some specialty solvents. Examples of HPDs include kerosene, diesel fuel, some charcoal starters, and some paint thinners. There are some

TABLE 4

WebCode	Conclusions
	commercial products, such as some degreasers and adhesive removers, which contain such a mixture. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of individual products. Exhibit 2 contained a heavy normal alkane product, which is an ignitable liquid. Examples of this classification include some candle oils, some insecticide vehicles, and some polishes. No ignitable liquids were identified in Exhibit 3.
7WU7J9	An ignitable liquid classified as a heavy miscellaneous product was identified in Item 1. Examples of ignitable liquids that contain a heavy miscellaneous product include, but are not limited to, some adhesive removers. An ignitable liquid classified as a heavy normal-alkane product was identified in Item 2. Examples of ignitable liquids that contain a heavy normal-alkane product include, but are not limited to, some candle oils. No recognizable ignitable liquid was identified in Item 3.
8DHG7B	Item 1 was analyzed for the presence of ignitable liquid residues. A Heavy Miscellaneous product was detected. Examples include some lamp oils and some citrus cleaners. Item 2 was analyzed for the presence of ignitable liquid residues. A Heavy Normal Alkane was detected. Examples include some candle oils and some copier toners. Item 3 was a control sample submitted for comparison.
8JAENU	Item 1 was found to contain a heavy petroleum distillate fraction of carbon range C12 to C15 and the terpenes limonene, alpha-pinene and beta-myrcene which are common to wood-based materials. Item 2 was found to contain a heavy normal-alkane fraction of carbon range C14 to C18. No ignitable liquids were detected in Item 3.
8KYK4K	Both items show evidence of presence of ignitable fluid. The ignitable fluids in Item 1 and Item 2 are of a different kind.
8NJ4X8	An ignitable liquid classified as a heavy miscellaneous product was identified in Item 1. Examples of heavy miscellaneous products, include, but are not limited to, some specialty solvents such as adhesive removers. An ignitable liquid classified as a heavy normal alkane product was identified in Item 2. Examples of heavy normal alkane products include, but are not limited to, some lamp oils. No recognizable ignitable liquids were identified in Item 3.
8PDU22	Item 1: A medium-heavy petroleum distillate was detected on the fabric. The presence of limonene suggested the solvent was probably a cleaning solvent, or similar type of product. Item 2: An oil was detected on the fabric, probably a lamp oil, such as a paraffin lamp oil, or similar type of product. Item 3: No ignitable or combustible liquid was detected on the fabric. This may mean that there was none present, or that any liquid had evaporated below the detectable limit.
8TRWYD	Item 1 was found to contain compounds classified as Miscellaneous according to ASTM E1618-14. Item 2 was found to contain compounds classified as Normal Alkanes Products according to ASTM E1618-14. Item 3 No Ignitable liquid residue were identified (Not Identified)
8U7UJ3	Item 1 consists of a white fabric cutting. This item was found to contain a mixture of D-Limonene and a heavy petroleum distillate. This miscellaneous mixture may be a commercially available product. Examples of a heavy petroleum distillate may include but are not limited to kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2 consists of a white fabric cutting. This item was found to contain a heavy normal alkane product. Examples may include but are not limited to some candle oils, some NCR papers, and some copier toners.
8WT2TL	Item 1 - Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene Item 2 - Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners. Item 3 - No ignitable liquids were found.
8YKZ8J	On analysis: i. A petroleum distillate (de-aromatized) product (subclass: C12-C15) was detected on Item 1. ii. A normal alkanes product (subclass: heavy) was detected on Item 2. iii. No ignitable liquid was detected on Item 3.
9239HA	A Heavy Miscellaneous Product was identified in Item 1. An example of a Heavy Miscellaneous Product is adhesive remover. A Heavy Normal-Alkane Product was identified in Item 2. Examples of Heavy Normal-Alkane Products include, but are not limited to, some lamp and candle oils. No ignitable liquid residues were detected in Item 3. Items 1, 2, and 3 were examined visually and using gas chromatography/mass spectroscopy (GC/MS). Headspace analysis and passive adsorption/elution extraction was performed on Items 1, 2, and 3. The activated charcoal strips used

TABLE 4

WebCode	Conclusions
	to collect volatile organic compounds with an adsorption/elution technique are contained in separate plastic vials, placed in separate, heat-sealed fire debris bags, and were repackaged inside the original items.
92JWQB	Item 1: GC-MS analysis identified residues of a heavy miscellaneous ignitable liquid. Miscellaneous liquids are products of unusual composition that do not fit into a prescribed classification. This sample consisted of a heavy petroleum distillate residue with a significant terpene component, and was therefore classified as a miscellaneous ignitable liquid. The terpene component consisted of limonene. Item 2: GC-MS analysis identified residues of a heavy normal alkane product. Normal alkane products are highly refined, petroleum-based liquids.
9AWLVB	Item 1: A mixture containing a heavy petroleum distillate and limonene was found. This can be from a blended product or from a physical mixture. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene can be a natural or synthetic product. Commercial sources include some cleaning products. The source of the limonene in this sample may be flammable or non-flammable. Item 2: A heavy normal alkane product found. Examples of heavy normal alkane products include, but are not limited to, some candle oils, carbonless forms, and some copier toners. Item 3: No ignitable liquids found.
9H8FWB	1. Volatile residues from Exhibits 1 (cloth remnant from the sheet), 2 (cloth remnant from the pillowcase), and 3 (cloth 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 heavy-range miscellaneous product was identified in the concentrated headspace vapors from Exhibit 1 consisting of limonene and a heavy petroleum distillate (HPD). Some examples of commercial products in this classification would include some blended products and specialty products. 3. A heavy-range normal alkane product was identified in the concentrated headspace vapors from Exhibit 2. Some example of commercial products in this ignitable liquid classification would include some candle oils, carbonless forms, and copier toners. 4. No ignitable liquid residues were identified in the concentrated headspace vapors from Exhibit 3.
9HPLW2	Item 1- Cloth remnant from the sheet sealed in a nylon evidence bag. Analysis Result: A heavy petroleum distillate was detected in the Item 1 cloth. Examples of heavy petroleum distillates of this type include some insecticides and some specialty cleaning solvents. Item 2- Cloth remnant from the pillowcase sealed in a nylon evidence bag. Analysis Result: A heavy normal alkane product was detected in the Item 2 pillowcase. Examples of heavy normal alkane products include some candle oils and some lamp oils. Item 3- Cloth substrate intended as a comparison blank in a nylon evidence bag. Analysis Result: No ignitable liquid was identified in the Item 1.3 comparison sample. Analysis performed using passive headspace concentration with activated charcoal and gas chromatography with mass spectrometry.
9NT2TJ	A miscellaneous product in the heavy range was identified in item 1. Examples of miscellaneous product in the heavy range include, but are not limited to, citrus cleaners, lamp oils and automotive parts cleaners. A normal-alkane product in the heavy range was identified in item 2. Examples of normal-alkane products in the heavy range include, but are not limited to, candle oils, lamp oils and copier toners. No ignitable liquid was identified in item 3.
9YCETF	The presence of a hydrocarbon accelerant was indicated in Test 20-5436 Item 1 and Test 20-5436 Item 2. The accelerants indicated were not of similar chromatographic retention times and pattern to any of the reference samples we currently hold, therefore no further comment is possible. No accelerants were detected in Test 20-5436 Item 3. A control bag was not submitted with the items, and so a nylon bag from our laboratory was used as a bag control in accordance with our GC-FID/headspace analysis method. No accelerants were detected in the laboratory bag control. It shall be noted that FEL does not have a confirmatory technique for accelerants analysis, therefore all results are indicative only. Where highly detailed analysis is required, FEL's customer would be advised to submit the sample to a laboratory specialising in analysis of accelerants.
A2WQ7B	Residues of a heavy miscellaneous product were identified on Item 1. These residues specifically contained D-limonene and a de-aromatized heavy petroleum distillate and is consistent with some

TABLE 4

WebCode	Conclusions
	citrus cleaners. Residues of a heavy normal alkane product were identified on Item 2. Examples of a heavy normal alkane product include, but are not limited to, candle oils and lamp oils. No ignitable liquid residues were identified on Item 3.
A3TRY2	Items 1.1, 2.1, and 3.1 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 1.1 was found to contain a heavy petroleum distillate* and limonene. A heavy petroleum distillate and limonene may also be the result of a blended product. Examples include, but are not limited to, some cleaning solvents. *Examples include, but are not limited to, kerosene, diesel fuel, some charcoal starters, some fuel additives, some lamp oils. Item 2.1 was found to contain a heavy normal-alkane product. Examples include, but are not limited to, some candle oils, some lamp oils, carbonless forms, copier toners. Item 3.1 was used as a control.
A6G4X8	Item 1 contained a heavy miscellaneous product. Item 2 contained a heavy normal alkane product. No ignitable liquids were detected in item 3.
A9EKB2	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 comprised of a heavy petroleum distillate and limonene. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item #2 revealed the presence of a normal alkane product. Normal alkane products include some candle oils and some copier toners. Examination of Item #3 failed to reveal the presence of ignitable liquids.
AH73PA	A mixture of a heavy petroleum distillate and d-limonene (a naturally occurring terpene found in ignitable and non-ignitable products) was identified in Item 1. Examples of heavy petroleum distillates include kerosene, diesel fuel and some charcoal starters, aviation fuels, insecticide vehicles, fuel additives, lamp oils and automotive parts cleaners. A heavy n-alkane product was identified in Item 2. Examples of heavy n-alkane products include some candle oils, lamp oils, carbonless forms and copier toners. No ignitable liquids were detected in Item 3 comparison sample.
AHMMPT	Item (1) : contain Kerosene which is one of ignitable petroleum distillates. Item (2) : does not contain any ignitable petroleum distillates or accelerated . NOTE THAT in our local technical report the consideration of results is focusing on petroleum distillates and Gasoline classes mainly , because it is our major products of the local refinery which usually causes arson affenses accidents .
AJX248	Item 1: The results of examination extremely strongly support that Item 1 contain ignitable liquid (Level +4). Item 2: The results of examination extremely strongly support that Item 2 contain ignitable liquid (Level +4), which is considered to be of Fire-lighting fluid type. Examples of Fire-lighting fluid type: Lamp oil, Fire-lighting fluid, Charcoal starter
AMUCPE	ITEM1 Petroleum Distillate-de aromatized product, in the range C12-C15,was detected in item 1.Possible products which may contain item 1, are some charcoal starters, e.t.c. ITEM 2 Normal alkane product in the range C13-C16,was detected in item 2.Possible products which may contain item 2, are some candle oils, e.t.c.
ANDWYR	Item 1, a piece of white cloth remnant from the sheet was found to contain a medium to heavy range miscellaneous product. According to ASTM E1618-14 Ignitable Liquid Classification Scheme, examples of these medium to heavy range miscellaneous includes some blended products and various specialty products. Item 2, a piece of white cloth remnant from the pillowcase was found to contain a heavy range Normal Alkane product. According to ASTM E1618-14 Ignitable Liquid Classification Scheme, examples of these heavy range normal alkane includes some candle oils, carbonless forms and copier toners. No ignitable liquid was detected in Item 3, a piece of white cloth substrate that is intended as a comparison blank in a nylon evidence bag.
AQWNV8	Item #1 An ignitable liquid consistent with a heavy (C11-C15) miscellaneous product was identified. Examples of heavy miscellaneous products include lamp oils, citrus cleaners, and various specialty products. Item #2 An ignitable liquid consistent with a heavy (C13-C18) normal alkane product was identified. Examples of a heavy normal alkane product include candle oils, copier toners, and lamp oils.
AZ7KQK	Item 1: Heavy Petroleum Distillate and limonene was found. Heavy Petroleum Distillate and limonene

TABLE 4

WebCode	Conclusions
	may includes cleaning or paint solvents or charcoal lighters. Item 2: Heavy Normal alkanes was found. Heavy Normal alkanes includes candel or lamp oil, wax paraffin.
B2XYUP	Sample #1 Analysis indicates the presence of a heavy petroleum distillate and D-limonene. Sample #2 Analysis indicates the presence of a normal alkane product. Sample #3 No ignitable liquids were detected.
B6CGAK	Item 1 was found to contain both a heavy-range petroleum distillate and limonene. This combination could be two separate products, or a specialty product containing a blend of a heavy-range petroleum distillate and limonene. Accidental or purposeful blending of products cannot be discounted. Examples of heavy-range petroleum distillate products include, but are not limited to, kerosene and some charcoal starters. Limonene is naturally occurring in citrus fruit peels and is commonly used as a flavoring agent, as a fragrance ingredient, or in some cleaning solvents. Products containing limonene may or may not be associated with ignitable liquids. Item 2 was found to contain a heavy-range normal alkane product. Examples of heavy-range normal alkane products include, but are not limited to, some candle oils and some copier toners. Item 3 was submitted for comparison purposes only; no ignitable liquids were detected.
B7Q3L8	Item 1: A mixture containing a heavy petroleum distillate and limonene was found. This can be from a blended product or from a physical mixture. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene can be a natural or synthetic product. Commercial sources include some cleaning products. The source of the limonene in this sample may be flammable or non-flammable. Item 2: A heavy normal alkane product found. Examples of heavy normal alkane products include, but are not limited to, some candle oils, carbonless forms, and some copier toners. Item 3: No ignitable liquids found.
B9E83Y	Item 1 (Exhibit 1) A heavy miscellaneous product was detected. Examples of this class of ignitable liquids include lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. Item 2 (Exhibit 2) A heavy normal alkane product was detected. Examples of this class of ignitable liquids include candle oils, lamp oils, carbonless forms and copier toners. Item 3 (Exhibit 3) No ignitable liquid was detected.
BE2UX4	Results/Conclusions: Analysis of Item 1 revealed the presence of a heavy others - miscellaneous class. Examples of this class are lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. Analysis of Item 2 revealed the presence of a heavy n-alkane product. Examples of this class are candle oils, lamp oil, carbonless forms, and copier toners. The activated charcoal strip (ACS) used in the analysis of each item is retained in the original instrument vial used in the analysis and re-packaged with the item. 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's internal policy and procedures.
BG6PG8	A heavy miscellaneous product was identified in Item 1. Examples of a heavy miscellaneous product include but are not limited to, some citrus scented solvent/removers. A heavy normal alkane product was identified in Item 2. Examples of a heavy normal alkane product include but are not limited to, some specialty/industrial solvents. No ignitable liquids were identified in Item 3.
BJFUBH	Item #1 - Cloth Remnant. A heavy miscellaneous product was detected in Item #1. Examples of products include blended or specialty products. Item #2 - Cloth Remnant. A heavy Normal alkane product was detected in Item #2. Examples of products include some candle oils, carbonless forms, and some copier toners. Item #3 - Cloth remnant. No ignitable liquids were detected in Item #3. Conclusion and report above are based on ASTM E1618-14.
BLFBGK	Item 1 was found to contain a miscellaneous product consisting of a mixture of a heavy-range petroleum distillate and limonene. Examples of products known to contain this mixture include, but are not limited, lamp oils and citrus cleaners. Item 2 was found to contain a heavy-range normal alkane product. Examples of products containing heavy-range normal alkane products include, but are not limited to, candle oils and lamp oils. No ignitable liquid residues were detected in item 3, which was reported to be a comparison blank.
BYPNXL	Items 1, 2 and 3 were examined for the presence of hydrocarbon fire accelerants e.g. petrol, white spirit, paraffin oil, diesel oil. Item 1 was found to contain partly evaporated medium to heavy

TABLE 4

WebCode	Conclusions
	petroleum distillate vapour. Item 1 was also found to contain partly evaporated limonene vapour and partly evaporated pinene vapour. Limonene is a flammable hydrocarbon solvent found in a variety of commercial products such as some paint removers and some cleaners and degreasers. Pinene is a flammable hydrocarbon solvent found in a variety of commercial products including insecticides and fragrances. Pinene is a known component of soft woods such as pine. Item 2 was found to contain partly evaporated normal-alkanes products vapour, examples of which include lamp oil, barbeque fluid and candle oils. No such hydrocarbon fire accelerants were detected in item 3.
C2AXMD	Heavy Miscellaneous (C12-C15)containing D-Limonene and Heavy Petroleum Distillate was identified in Item#C2AXMD.1 (Item# 1) such as some blended products and various specialty products. Heavy Normal Alkane (C14-C16) was identified in Item#C2AXMD.2 (Item# 2) such as some candle oils, carbonless forms and copier toner. No ignitable liquid was identified Item#C2AXMD.3 (Item# 3).
C34K4M	1.1) A Heavy (C9-C20+) Miscellaneous Product was identified in the sample. 1.2) A Heavy (C9-C20+) N-Alkanes Product was identified in the sample. 1.3) No ignitable liquids/or ignitable liquid residues were identified in the sample.
C7L3YD	Results/Opinions/Interpretations of Fire Debris Analysis 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 heavy petroleum product (e.g. some specialty solvents, blended products, some cleaning 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 heavy petroleum product (e.g. some candle oils, some lamp fuels, copier toners, 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. No ignitable residues were identified. The item was analyzed as a comparison sample. Disposition of Evidence: The unanalyzed portions of the activated charcoal strips are being returned to the submitting agency along with the submitted evidence.
C8XABY	A miscellaneous product was identified in Item 1-1. Some examples of a miscellaneous product would include some brands of cleaning products, degreaser's, and specialty solvents. Normal alkanes were identified in Item 1-2. Some examples of normal alkanes would include some brands of candle and lamp oils, and some brands of specialty solvents. No ignitable liquids were detected in Item 1-3.
C9AEXH	1-1 Miscellaneous product (Heavy): Limonene and Heavy Petroleum Distillate. 1-2 Heavy Normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners. 1-3 No flammable or combustible liquids were found. Used for comparison to Items 1-1 and 1-2.
CBGWWE	Item 1 contains limonene and a evaporated HPD(no aromatics). This product belongs to the class : Other-Misc. product - heavy. It could be De-Solv-It Citrus Solution,De-Solv-It Contractor's Solvent or Goo Gone(Other-Misc. product). Item 2 contains n-alcanes(no terpenes/no aromatics). This product belongs to the class : n-alcanes product-heavy. It could be Tiki Citronella Lamp Oil Candle, Northern Lights Lamp Fuel, Goo Gone Candle Wax Lifter, Goo Gone Candle Wax Remover or a Exxon Norpar product (n-alcanes product).
CEZRY7	1. A heavy petroleum distillate and limonene were identified in item 1. Heavy petroleum distillate products include, but are not limited to, diesel fuel, some jet fuels, and some charcoal starters. Limonene is an ignitable liquid and is commonly found in personal care products, cleaners, and food products. 2. A heavy normal-alkane product was identified in item 2. Heavy normal-alkane products include, but are not limited to, some copier toners, candle oils and carbonless forms. 3. 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. 4.The activated charcoal strips prepared by the laboratory for the analysis of items 1, 2, and 3 were packaged for return in items 1, 2, and 3, respectively.
CHB2PF	Item 1: Other-micellaneous(subclass: Heavy) Item 2: Normal alkanes products(subclass: Heavy)

TABLE 4

WebCode	Conclusions
CJRYHE	Item 1: An ignitable liquid in the heavy miscellaneous class was identified. Item 2: An ignitable liquid in the heavy normal-alkanes class was identified. Examples of products in the heavy normal-alkanes class include some candle oils, carbonless forms and some copier toners. Item 3: No ignitable liquids were identified.
CNKV77	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 extract was examined using Gas Chromatography (GC). The Item 1 extract contained a mixture of limonene and a heavy petroleum distillate. Limonene can be found in, but is not limited to, some cleaning solvents. The heavy petroleum distillate can be found in, but is not limited to, some lamp oils and commercial solvents. This mixture can be classified as a heavy miscellaneous product which can be found in, but is not limited to, some cleaning solvents. The Item 2 extract contained a mixture of tetradecane, pentadecane, and hexadecane (a heavy normal alkanes product), which can be found in, but is not limited to, some lamp oils. No ignitable liquids were identified in the Item 3 extract.
CPDJCZ	Exhibit 1 contained limonene and a heavy petroleum distillate (HPD), both of which are ignitable liquids. Limonene may be found in some cleaning products. Examples of HPDs include kerosene, some lamp oils, and diesel fuel. There are some commercial products, such as some brands of cleaning solvents and lamp oils, which contain such a mixture of limonene and HPD. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 contained a heavy normal alkane product, which is an ignitable liquid. Examples of heavy normal alkane products include some candle oils, insecticide vehicles, and polishes. No ignitable liquids were identified in Exhibit 3.
CPYUB9	Analysis by Gas Chromatography/Mass Spectrometry of the white cloth (item 1A) detects the presence of a miscellaneous product. Examples of miscellaneous products include: some specialty products, turpentine products and some blended products. Analysis by Gas Chromatography/Mass Spectrometry of the white cloth (item 1B) detects the presence of a N-alkane product. Examples of N-alkane product include: some candle oils, carbonless forms and some copier toners. Analysis by Gas Chromatography/Mass Spectrometry of the white cloth (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.
CQ7ZGN	there are flammable liquids
CR2VB6	Item #1-Ignitable liquid residues containing a Naphthenic-paraffinic product and Limonene Naphthenic-Paraffinc products in this range include, but are not limited to, some lamp oils, some charcoal starters, and some solvents in feed stocks. Limonene is also an ignitable liquid marketed in some charcoal lighter fluids, some orange clean concentrates, and some orange oils. In small quantities, Limonene is found in pine wood as a naturally occurring Terpene. Item #2- Ignitable liquid residues containing a Normal Alkane product. Normal alkane products include, but are not limited to, some paint thinners, some automotive waxes and sealers, some fuel system cleaners, some caulk adhesives and some insecticides. Item #3- No ignitable liquid residues detected.
CVKHWK	The analysis revealed the presence of two different ignitable liquids in item 1 and item 2. An Others-Miscellaneous class product was recovered from item 1 consisting of a mix of a petroleum distillate and limonene. The components identified in item 1 are consistent with the ingredients found in cleaning solvents such as a Goo Gone brand product by example. A normal alkane product in the range C13 to C18 was recovered from item 2. Examples of this product include some candle oils. No ignitable liquids were detected in item 3.
CWB9T4	The cloth remnant from the sheet (item 1) was found to contain heavy others-miscellaneous product class ignitable liquid residues. Examples of heavy others-miscellaneous products include some blended products including lamp oils and speciality cleaning formulations. The cloth remnant from the pillowcase (item 2) was found to contain heavy normal alkane product class ignitable liquid residues. Examples of heavy normal alkane products include some lamp/candle oils and speciality paraffin products. The cloth substrate (item 3) was found not to contain any detectable ignitable liquid residues.

TABLE 4

WebCode	Conclusions
CWUKK6	Items #1, #2, and #3 were submitted to passive headspace desorption onto activated carbon at 65C for approximately 16 hours. The activated carbon was then extracted with carbon disulfide and analyzed using gas chromatography with mass selective detection. RESULTS and INTERPRETATIONS: A miscellaneous product was detected in the extract of Item #1. This particular miscellaneous product is comprised of limonene and a medium-heavy petroleum distillate. Examples of such miscellaneous products include some de-greasers, some specialty products and some blended products. It should be noted that limonene occurs naturally in citrus fruits, can be found in ignitable liquids such as some de-greasers, and in non-ignitable liquids such citrus-based household cleaners. A normal-alkane product was detected in the extract of Item #2. Examples of normal-alkane products include some specialty solvents and some candle oils. No ignitable liquids were detected in the extract of Item #3.
CYJQ8M	Item 1 contained two kinds of ignitable liquids, one is petroleum distillates (including De-Aromatized), in the range of C9-C20+ and the other is a medium miscellaneous (limonene), in the range of C8-C13. Item 2 contained normal alkanes products, in the range of C9-C20+. Item 3 was examined as a comparison blank for Item 1 and Item 2.
CZFA6G	Item 1: Limonene Medium petroleum distillate, examples of which are some charcoal starters, some paint thinners, and some dry cleaning solvents. Remarks: Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. It is unknown if the ignitable liquids found in Item 1-1 represent a single product as manufactured or a subsequent mixture. Item 2: Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners Item 3: No ignitable liquids were found.
DDF3Y4	A residue of a heavy miscellaneous ignitable liquid was detected in ITEM 1. Examples of items in the miscellaneous category of ignitable liquids include some turpentine products, some blended products, and some specialty products. A residue of a heavy normal alkane product was detected in ITEM 2. Examples of heavy normal alkane products include some candle and lamp oils, carbonless forms, and some copier toners. No ignitable liquids were detected in ITEM 3. The samples were extracted by passive adsorption-elution techniques and analyzed by gas chromatography with mass spectrometry.
DDZJF7	I detected heavy miscellaneous product residues in the square piece of white cloth (Item 001-1). Some examples that may contain this class of compounds are lacquer thinners and specialty solvents. I detected heavy normal alkane product residues in the square piece of white cloth (Item 001-2). Some examples that may contain this class of compounds are lamp oils and specialty solvents. I did not detect any common ignitable liquid residues in the square piece of white cloth (Item 001-3).
DGHZAW	The above items were examined in accordance with [State] Forensic Science Services methods and procedures based upon ASTM International standard test methods and practices. The samples were extracted using passive headspace sampling and analyzed via gas chromatography - mass spectrometry. An extract generated from each item will be returned with the evidence (Items 1A, 2A and 3A). Item 1: An ignitable liquid residue was detected- a heavy miscellaneous product, consisting of a heavy petroleum distillate and D-limonene. Heavy petroleum distillates (HPDs) may originate from some kerosenes, diesel fuel, some jet fuels, and some charcoal starters. D-Limonene is a natural product of citrus fruits which can be found in ignitable liquids such as cleaning solvents and paint/varnish strippers as well as in non-flammable products such as citrus cleaners and fragrances. Item 1 is comparable to Goo Gone, which is an ignitable liquid. Item 2: An ignitable liquid residue was detected - a heavy normal alkanes product (norpar). Heavy normal alkanes products may originate from some candle oils. Item 3: No ignitable liquid residues were detected. Item 3 was submitted as a comparison sample for Items 1 and 2.
DJ7CA2	An ignitable liquid classified as a heavy miscellaneous product was identified in Item 1. Examples of products that contain heavy miscellaneous products include, but are not limited to, some cleaners and adhesive removers. An ignitable liquid classified as a heavy n-Alkane product was identified in Item 2. Examples of products that contain heavy n-Alkane products include, but are not limited to, some candle and lamp oils. No recognizable ignitable liquids were identified in Item 3.
DKZPKF	A heavy miscellaneous ignitable liquid was detected in item 1. Examples of heavy miscellaneous ignitable liquids include blended products, adhesive removers, or specialty products. An ignitable liquid classified as a heavy normal alkane was detected in item 2. Examples of heavy normal alkanes

TABLE 4

WebCode	Conclusions
	include candle or lamp oils, carbonless form papers, or copier toners. No ignitable liquid was detected in item 3.
DLQV27	A heavy petroleum distillate (HPD) and D-Limonene were identified in Item 1. HPDs are classified as ignitable liquids. Examples of materials containing HPDs include kerosene, diesel fuel, some charcoal starters, some aviation fuels, some fuel additives, some lamp oils, and some automotive parts cleaners. Examples of commercial products containing the combination of an HPD with D-Limonene include some specialty cleaners. A normal alkane product (carbon range C13 to C17) was identified in Item 2. Normal alkane products are classified as ignitable liquids. Examples of materials containing normal alkane products in this range include some candle oils, some lamp oils, carbonless forms, and some copier toners. No ignitable liquid residues were identified in Item 3.
DNZ783	Item 1 contained a section of cloth which was found to contain a heavy petroleum distillate in the range C13-C15. Limonene was also indicated to be present in this item. Examples of heavy petroleum distillates with limonene include some speciality products including some lamp oils and some stain removers etc. Item 2 contained a section of cloth which was found to contain a normal alkane product in the range C13-C17. Examples of normal alkane products include some candle oils and some copier toners. Item 3 contained a section of cloth. No accelerant was detected in this item.
DU933J	Item 1 Sealed nylon bag with cloth remnant from the sheet. Miscellaneous Product Identified. The miscellaneous product contains a Heavy Petroleum Distillate and Limonene. Limonene is an ignitable liquid. Examples include some blended products and some specialty products. Item 2 Sealed nylon bag with cloth remnant from the pillowcase. Normal Alkanes in the Heavy range Identified. Examples include some candle oils, carbonless forms and some toners.
DUMWTX	Lab Item 1: Cloth remnant from the sheet. Analysis confirmed a heavy miscellaneous ignitable liquid. Lab Item 2: Cloth remnant from the pillowcase. Analysis confirmed a heavy normal alkane product. Lab Item 3: Cloth substrate. Submitted as a control sample and tested for substrate background products and interferences.
DVDR38	Examination and analysis performed on item 1 revealed the presence of a heavy petroleum distillate. Examination and analysis performed on item 2 revealed the presence of lamp oil (an ignitable liquid). Examination and analysis performed on item 3 did not reveal the presence of ignitable liquids.
DWVCZ4	Item 1 - An ignitable liquid was identified. This liquid is a heavy miscellaneous product, containing limonene and petroleum distillates. An example of a commercial product containing this type of liquid includes some adhesive removers. Item 2 - An ignitable liquid was identified. This liquid is a heavy normal-alkane product. Examples of commercial products containing this type of liquid include some candle oils and copier toners.
DYXABW	Item 1 was determined to contain the following: A Heavy Miscellaneous Ignitable Liquid, examples of which include lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene and fuel additives. Item 2 was determined to contain the following: A Heavy Normal-Alkanes Product Ignitable Liquid, examples of which include some candle oils, lamp oil, carbonless forms and some copier toners. Item 3 was submitted as a comparative sample. This sample was analyzed and the results were used in evaluating possible matrix influences on Items 1 and 2. For comparison purposes only.
E4P2CL	Instrumental analysis revealed limonene and heavy petroleum distillate in item #1. Instrumental analysis revealed heavy normal alkane product in item #2. No ignitable liquid detected in item #3.
EKECYN	Item No.1: Others Miscellaneous class with Heavy HC range (C12-C15) including Limonene. Item No.2: Normal Alkanes Products class with Heavy HC range (C13-C18). Item No.3: No ignitable liquid product detected.
ENGDYL	Item2 contains a ignitable liquid(petroleum) but, not Item1.
EUJJEN	Flammable liquids were detected in the samples labelled Item 2 and Item 3. In item 2 the detected compounds is primarily straight-chain and branched hydrocarbons C13-C16 and terpenes originating from eg an oil containing some fragances. In Item 3 the detected compounds is primarily hydrocarbons C10-C19 originating from eg a lampoil. The detected content in Item 2 and Item 3 are not identical.
EYX2UK	Item 1: The submitted sample was analyzed using a passive headspace technique and gas

TABLE 4

WebCode	Conclusions
	chromatography-mass spectrometry (GC-MS). A Heavy Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: some citrus cleaners, some blended products and various specialty products. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy N-Alkane product was identified. Examples of this type ignitable liquid include: some candle oils, carbonless forms and copier toners. 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.
EZ4JRF	Item 1: Volatile components have been identified wich originate from a heavy petroleum destillate (de-aromatized). Item 2: Volatile components have been identified wich originate from a normal alkane product.
F3V8YU	Item 1: An ignitable liquid residue was detected- a medium-heavy miscellaneous product containing d-Limonene and a petroleum distillate. Medium-heavy miscellaneous products may originate from some blended products and some specialty products such as the ignitable liquid Goo Gone. Item 2: An ignitable liquid residue was detected - a heavy normal alkanes product (norpar). Heavy normal alkanes products may originate from some candle oils. Item 3: No ignitable liquid residues were detected. Item 3 was submitted as a comparison for Items 1 and 2.
F4N4L4	A heavy miscellaneous product was identified in Item 1. Examples of heavy miscellaneous products include, but are not limited to, some citrus cleaners and some specialty solvents. A heavy normal alkane product was identified in Item 2. Examples of heavy normal alkane products include, but are not limited to, lamp oils, candle oils and some specialty solvents. No ignitable liquids were detected in Item 3. Items 1, 2, and 3 were examined visually and using gas chromatography/mass spectroscopy (GC/MS). Passive adsorption/elution extraction was performed on Items 1, 2, and 3. The activated charcoal strips used to collect volatile organic compounds with the adsorption/elution technique are contained in separate plastic vials, placed in separate, heat sealed fire debris bags, and each was repackaged in the original item.
F8MARF	A miscellaneous product in the heavy range was identified in Item 1, examples of which include some blended products and some specialty products. A normal-alkane product in the heavy range was identified in Item 2, examples of which include some candle oils, carbonless forms, and some copier toners. There were no ignitable liquids identified in Item 3.
F9CF87	The profile obtained for item 1 contained a series of n-alkanes (C12-C15), isoparaffinic compounds, cycloalkanes, and limonene. I concluded the profile meets the ASTM E1618 requirements for a medium-heavy miscellaneous product. Examples of a medium-heavy miscellaneous products include but are not limited to citrus cleaners, automotive parts cleaners, and fuel additives. The profile obtained for item 2 contained a series of n-alkanes (C13-C16). I concluded the profile meets the ASTM E1618 requirements for a heavy normal alkane product. Examples of heavy normal alkanes products include but are not limited to candle oils, lamp oils, and copier toners.
FCECYL	A Miscellaneous Product was detected in Specimen # 1. It was a mixture of an aromatic (limonene) and a heavy petroleum distillate. Examples of Miscellaneous products include blended products and specialty products. A Normal Alkane Product was detected in Specimen #2. Examples of Normal Alkanes include candle oils and copier toner. No ignitable liquids were detected in Specimen #3. All three specimens were extracted by passive concentration headspace extraction with activated charcoal and analyzed by gas chromatography-mass spectrometry. 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.
FE6HFC	A miscellaneous product in the heavy range was identified in item 1. Examples of miscellaneous product in the heavy range include, but are not limited to, some lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene and fuel additives. A normal-alkane product in the heavy range was identified in item 2. Examples of normal-alkane product in the heavy range include, but are not limited to, candle oils, lamp oils, carbonless forms, and copier toners. No ignitable liquid residues were identified in item 3.

TABLE 4

WebCode	Conclusions
FGTUEH	Exhibit 1 was analyzed and determined to contain a heavy miscellaneous product. Examples of heavy miscellaneous products include, but are not limited to, some blended products and various specialty products. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 was analyzed and determined to contain a heavy n-alkane product. Examples of heavy n-alkane products include, but are not limited to, some candle oils, carbonless forms, and copier toners. Exhibit 3 was analyzed, and no common ignitable liquid residue was identified. This conclusion is based upon gas chromatography-mass spectrometry (GC-MS) analysis of concentrated headspace vapors from each sample.
FK8PUF	An ignitable liquid residue identified as a heavy-range miscellaneous product was found in Item 1. It consisted of a narrow heavy-range petroleum distillate with limonene. Commercially available products that may have this formulation include, but are not limited to, some adhesive removers. An ignitable liquid residue identified as a heavy-range normal alkane product was identified in Item 2. Commercially available products that may have this formulation include, but are not limited to, some lamp and candle oil. No ignitable liquid residues were identified Item 3, which was examined as a comparison blank.
FP678A	A Miscellaneous product was present on item 1. A Normal Alkane product was present on item 2.
FRATNK	Item 1 contains a heavy petroleum distillate. Item 2 contains a heavy normal alkane solvent.
FWP2CJ	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 Heavy Others – Miscellaneous Products. Examples of the product detected are: cleaning solvent. 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 Heavy Normal Alkanes Products. Examples of the product detected are: candle and lamp oil. 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 Heavy Others-Miscellaneous Products and Heavy Normal Alkanes Products are ignitable liquids. Ignitable liquid may start or accelerate a fire.
FXF8TA	Items 1, 2 and 3 were analyzed by gas chromatography / mass spectrometry for the presence of ignitable liquids. A miscellaneous product containing a heavy petroleum distillate and limonene was detected in item 1. Examples include some blended and specialty products. A heavy normal-alkane product was detected in item 2. Examples include some candle oils, copier toners and specialty fluids/solvents. No ignitable liquids were detected in item 3.
G9AA73	An ignitable liquid classified as Petroleum Distillates (including De-Aromatized) in the Heavy range (C11- C15) was identified in Item 1. Item 2 contained Normal Alkanes Products in the heavy range (C13 - C17). No ignitable liquids were identified in Item 3.
GGMRQ3	Analysis by Gas Chromatography/Mass Spectrometry of the cloth sample (Item 1) reveals the presence of a heavy petroleum distillate (HPD) and limonene. Examples of HPD's include: some specialty products, Kerosene, Diesel fuel, Fuel Oil No. 1, Fuel Oil No. 2, Jet fuel, some paint thinners, some torch fuels, some lamp oils and some solvents for insect sprays and polishes. Analysis by Gas Chromatography/Mass Spectrometry of the cloth sample (Item 2) reveals the presence of a heavy Normal-Alkane product. Examples of Normal-Alkane products include: some candle oils, some carbonless forms and some copier toners. Analysis by Gas Chromatography/Mass Spectrometry of the cloth sample (Item 3) 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.
GME8TB	A heavy petroleum distillate and Limonene were identified in Lab Item 1. A heavy normal alkane was identified in Lab Item 2. No ignitable liquids were identified in Lab Item 3.
GTH77L	[No Conclusions Reported.]
H36LAF	On analysis, I found Item 1 to bear traces of Petroleum Distillates (including De-Aromatized) subclass medium to heavy. I also found Item 2 to bear traces of Normal Alkanes Products subclass heavy. I did not found any hydrocarbon traces on Item 3.
H74699	Compounds detected in item 1 can be assigned to some blended products or some specialty products according to ASTM E1618-14. Compounds detected in item 2 can be assigned to some candle oils,

TABLE 4

WebCode	Conclusions
	carbonless form or some copier toners according to ASTM E1618-14.
H99TPJ	Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Item 1.1: Heavy (C9-C20+) miscellaneous product. Examples of a heavy (C9-C20+) miscellaneous product include some citrus cleaners, lamp oils and automotive parts cleaners. Item 1.2: Heavy (C9-C20+) n-alkane product. Examples of a heavy (C9-C20+) n-alkane product include some candle oils, lamp oils, carbonless forms, and copier toners. Item 1.3: 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.
H9RG8D	Items 1 through 3 were examined using passive headspace adsorption. The extracts recovered from Items 1 through 3 were examined by gas chromatography/mass spectrometry. The extract from item 1 was found to contain a volatile mixture which was identified to contain both limonene and a heavy petroleum distillate. It is unable to be determined if the mixture observed is from two separate sources or is a commercial blend. Examples of uses of limonene include products such as cleaning solvents and paint strippers. Examples of heavy petroleum distillates include some charcoal lighters, diesel fuel, and some lamp oils. The extract from item 2 was found to contain a volatile mixture which was identified as a heavy normal alkane product, also known as a norpar. Examples of products containing norpars include some carbonless forms, copier toners, and candle oils. No common ignitable liquid residues were detected in the extract from item 3. This does not preclude the possibility that an ignitable liquid may have been present at an earlier time.
HFUV4U	A miscellaneous product was identified in Item 1-1, cloth remnant from the sheet sealed in a nylon evidence bag. Some examples of a miscellaneous product would include Goo Gone, some brands of paint thinners, and other specialty products. A normal alkanes product was identified in Item 1-2, cloth remnant from the pillowcase sealed in a nylon evidence bag. Some examples of normal alkanes products would include some brands of lamp oils and other specialty products. No ignitable liquids were detected in Item 1-3, cloth substrate intended as a comparison blank in a nylon evidence bag.
HHXDVG	Sample 1 - Analysis indicates the presence of a heavy petroleum distillate. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels and some charcoal starters. Sample 2 - Analysis indicates the presence of a normal alkane product. Examples of normal alkane products include, but are not limited to, solvents, some candle oils, some copier toners and carbonless forms. Sample 3 - No ignitable liquids were detected.
HJR4YB	Item 1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene Item 2: Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners Item 3: No ignitable liquids were found
HLCWBD	Results and Conclusions: Item 1 contains a heavy-range petroleum distillate and limonene, which may be a miscellaneous product containing these components or a serendipitous mixture. Examples of heavy-range petroleum distillates include, but are not limited to, some automotive parts cleaners, some charcoal starters, and some lamp oils. Limonene is a common, naturally-occurring compound and a solvent, and is found in many household and industrial products. Examples of miscellaneous products that may contain the aforementioned blend include, but are not limited to, some automotive parts cleaners and some citrus cleaners. Item 2 contains a heavy-range normal alkane product. Examples of heavy-range normal alkane products include, but are not limited to, some candle oils, some copier toners, and some lamp oils. No ignitable liquids were detected in item 3, reported to be a comparison blank.
HPC87D	Item 1 contains limonene and a heavy-range petroleum distillate. This combination may be the result of a blended specialty product or a mixture of two individual products. Examples include, but are not limited to, citrus cleaners, automotive parts cleaners, and lamp oils. Item 2 contains a heavy-range normal alkane product. Examples include, but are not limited to, candle oils, lamp oils, and copier toners. No ignitable liquids were detected in item 3, which was evaluated as a comparison blank.
HWVBDF	The analysis performed in our laboratory on item 01 enabled the detection of a blend of a limonene and a Distillate Petroleum (Subclass Heavy). This could be found, for example, in certain cleaning solvents, etc. The analysis performed in our laboratory on item 02 enabled the detection of a normal

TABLE 4

WebCode	Conclusions
	alkane products (subclass Heavy). It could be found, for example, in certain lamp oils, etc. The analysis performed in our laboratory on item 03 did not show the presence of any ignitable liquid in the sample.
J2PMTC	Item 1 and item 2 were extracted by passive Solid phase microextraction (SPME) method with heating. The headspace above the sample adrorbed on the polymer-coated fused fiber was then analyzed by gas chromatography-mass spectrometry. A Medium to heavy Other/Miscellaneous, which is on ignitable liquid, was detected in item 1. The Analysis of item2, indicates the presence of a heavy Normal Alkanes Products. We had also used other technique, the static or direct headspace, this method consists of extracting a quantity 1 ml of the vapor phase directly with a gas syringe, and analyzed by GC-MS. Note: further research in specific database (NCFS) indicate that the chemical composition of the item1, is similar to cleaning solvent called GOO GONE
J4QR4C	Item 1 contained a heavy range miscellaneous product consisting of limonene and a petroleum distillate. Examples include citrus cleaners and lamp oils. Item 2 contained a heavy normal alkane product. Examples include candle oils and lamp oil. Item 3 was analyzed for comparison purposes only.
J8UV6R	GC/MS analysis of Item 001 disclosed the presence of a heavy miscellaneous product. Examples of a heavy miscellaneous product include, but are not limited to, some blended products, and some specialty products. GC/MS analysis of Item 002 disclosed the presence of a heavy normal alkane product. Examples of a heavy normal alkane product include, but are not limited to, some candle oils, copier toners, and carbonless forms.
J97RAW	RESULTS/INTERPRETATION: Methods used: Passive adsorption and GCMS. Item #1- An ignitable liquid classified as a heavy miscellaneous ignitable liquid was detected. The heavy miscellaneous ignitable liquid consists of a mixture of the chemical limonene (a medium miscellaneous ignitable liquid) and a heavy petroleum distillate. Examples of heavy miscellaneous products include some scented cleaning products and mixtures of different classes of ignitable liquids. Item #2- An ignitable liquid classified as a heavy normal alkane product was detected. Examples of heavy normal alkane products include candle oils and copier toners. Item #3- No ignitable liquid was detected.
JCKXWD	A Medium miscellaneous product has been identified in item1. This produt is a mix of a Medium Pétroleum Distillate with terpenes. Some cleaning solvents have such a composition. A heavy N Alkanes product has been identified in item2. Some Lamp oils have such a composition
JDX3JU	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 containing limonene and a heavy petroleum distillate. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item #2 revealed the presence of a normal alkane product. Normal alkane products include some candle oils and some copier toners. Examination of Item #3 failed to reveal the presence of ignitable liquids.
JFNV86	An ignitable liquid residue consistent with a heavy petroleum distillate was identified in Item #1. Examples of the heavy petroleum distillate class of ignitable liquids include kerosene, diesel fuel, some jet fuels, and some charcoal starters. An ignitable liquid residue consistent with a heavy normal-alkane product was identified in Item #2. Examples of the heavy normal-alkane product class of ignitable liquids include some candle oils, carbonless forms, and some copier toners. No ignitable liquid residues were detected in Item #3.
JHC88B	Item 1 (LIMS#1-1): An ignitable liquid classified as a heavy miscellaneous product was detected. Examples of heavy miscellaneous ignitable liquids include single-component products, turpentine, blended products, or specialty products. Item 2 (LIMS#1-2): An ignitable liquid classified as a heavy normal alkane product was detected. Examples of heavy normal alkanes include candle oils, lamp oils, carbonless form paper, or copier toners. Item 3 (LIMS#1-3): An ignitable liquid was not detected. Carbon strips, for archive, produced from items 1 - 3 and from a bag blank were booked as item 4.
JLXPQG	Analysis indicates the presence of a heavy petroleum distillate and limonene in Item 1. Analysis indicates the presence of a normal alkane product in Item 2.
JPBYNX	Item 1 - Ignitable liquid residue containing a Naphthenic-Paraffinic product and Limonene.

TABLE 4

WebCode	Conclusions
	Naphthenic-Paraffinic products in this range include, but are not limited to, some lamp oils, some charcoal starters, some insecticide vehicles, and some solvent in feedstocks. Limonene is also an ignitable liquid marketed in some charcoal lighter fluids, some orange clean concentrates, and some orange oils. In small quantities, Limonene is found in pine wood as a naturally occurring Terpene. Item 2 - Ignitable liquid residue containing a normal alkane product. Normal alkane products in this range include, but are not limited to, some lamp oils, some lamp fuels, and some solvents. Item 3 - No ignitable liquid residues were detected.
JQK9CP	Item 1: a medium-heavy petroleum distillate was detected on the fabric. The presence of limonene suggested that the solvent was a cleaning agent or a similar type of product. Item 2: an oil was detected on the fabric which was probably a lamp oil, such as paraffin lamp oil. Item 3: no flammable or combustible liquid was detected on the fabric. This could mean that there was none present, or any originally present may have evaporated to below the detectable level.
JR2TCA	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 heavy petroleum product (e.g. specialty solvents, cleaning solvents, blended 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 heavy petroleum product (e.g. lamp fuels, candle oils, fuel oils, 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.
JU6NVC	A miscellaneous product in the heavy range was identified in Item #1. Examples of this include some blended products and some specialty products. A normal alkane product in the heavy range was identified in Item #2. Examples of this include some candle oils, some carbonless forms, and some copier toners. There were no ignitable liquids identified in Item #3.
JX76HY	A heavy miscellaneous product was detected in Item 1. Examples of heavy miscellaneous product include, but are not limited to, some adhesive removers and some citrus cleaners. A heavy normal alkane product was detected in Item 2. Examples of heavy normal alkane products include, but are not limited to, some lamp oils and some candle oils. No ignitable liquid residues were detected in Item 3.
K239MQ	Exhibit 1 contained limonene and a heavy petroleum distillate (HPD). Examples of HPDs include some cleaning solvents, kerosene, and some charcoal starters. An example of products that contain limonene include some citrus based cleaning products. Both limonene and HPDs are ignitable liquids. It should be noted that it could not be determined if Exhibit 1 contained a single commercial product or a combination of two individual products. Exhibit 2 contained a normal alkane product. Examples of normal alkane products include some lamp and candle oils, some copier toners, and some insecticide vehicles. Normal alkane products are ignitable liquids. No ignitable liquid was identified in Exhibit 3.
K4QKLW	Item #1 contained a mixture of a heavy petroleum distillate and terpenes and is therefore consistent with the miscellaneous class of ignitable liquids. Examples of the miscellaneous class of ignitable liquids include: some blended products, and some specialty products. Item #2 contain residues consistent with the normal-alkane class of ignitable liquids. Examples of this class of ignitable liquids include: specialty products formulated from normal alkanes, some candle oils and copier toner. No ignitable liquid residues were detected in Item #3.
K88EGG	Item 1: Analysis identified the presence of a Medium Miscellaneous Product. Some examples of a Medium Miscellaneous Products include Goo Gone Goo and Adhesive Remover, some turpentine products, some blended products and various specialty products. Item 2: Analysis identified the presence of a Medium Normal Alkane Product. Some examples of a Medium Normal Alkane Products include some candle oils and some copier toners. Item 3: No ignitable liquids detected.

TABLE 4

WebCode	Conclusions
K9HG4F	Item #1: medium-heavy naphthenic-paraffinic hydrocarbons + monoterpenes (mainly limonene). Item #2: heavy normal alkane product (peak at C14-15). Items do not match each other.
KHQHAT	Evidence addressed in this report was received into the laboratory on August 5, 2020. Analysis for ignitable liquid residues using Diffusive Flammable Liquid Extraction trapping, followed by Gas Chromatography / Mass Selective Detection: Item #1: Limonene and Heavy Petroleum Distillate. Examples of products containing Limonene include (but are not limited to) cleaning solvents, citrus cleaners, adhesives removers, and some specialty products. Examples of products containing Heavy Petroleum Distillate, include (but are not limited to) kerosene, fuel oils, diesel fuels and some brands of charcoal starter fluids. Caution: Unable to determine if this is a mixture or a single source miscellaneous petroleum product. Item #2: Heavy Normal Alkane Product, examples of which include (but are not limited to) candle oils, lamp oils, carbonless forms, and copier toners. Item #3: No ignitable liquid residues identified. All evidence will be returned to the PT vault. Ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. In addition, negative results do not preclude the possibility that ignitable liquids were present.
KKEU9Y	1. A heavy-range miscellaneous product was identified in Exhibit 1 (cloth remnant from the sheet). This miscellaneous product consisted of limonene and a heavy petroleum distillate. Ignitable liquids belonging to this classification are commercially available as some blended products and some specialty products. 2. A heavy-range normal alkane product was identified in Exhibit 2 (cloth remnant from the pillowcase). Ignitable liquids belonging to this classification are commercially available as some candle oils, some carbonless forms, and some copier toners. 3. No ignitable liquid residue classification was identified in Exhibit 3 (control sample for Exhibits 1 and 2).
KPQ7GF	Item 1 was found to contain a medium to heavy miscellaneous product. Examples may include but are not limited to some specialty solvents. Item 2 was found to contain a heavy normal alkane product (a petroleum product). Examples may include but are not limited to some oil lamps and some specialty solvents. No ignitable liquids were identified in Item 3.
KZKT43	[No Conclusions Reported.]
L3DA9P	Items 1.1, 2.1, and 3.1 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 1.1 was found to contain limonene and a heavy petroleum distillate*. This could be the result of a blended product.** *Examples include, but are not limited to, kerosene, diesel fuel, some charcoal starters. **Examples include, but are not limited to, some specialty cleaners. Item 2.1 was found to contain a heavy normal-alkane product. Examples include, but are not limited to, some candle oils, some lamp oils, carbonless forms Item 3.1 was used as a control.
L7T64A	-Ignitable liquid was identified in the Item 1 and its ASTM E1618-14 classification is: Heavy Others-Miscillaneous, Exemple of this class include: Some Specially Products. -Ignitable liquid was identified in the Item 2 and its ASTM E1618-14 classification is: Heavy Normal-Alkane Products, Exemple of this class include: Some Candle Oils. - No ignitable liquid was detected in the Item 3 (comparaison blank).
LBJC8V	Item 1 - An ignitable liquid was identified. The ignitable liquid is a Heavy Miscellaneous product. Examples of these products include some fuel additives and some commercial cleaning products. Item 2 - An ignitable liquid was identified. The ignitable liquid is a Heavy Normal Alkane product. Examples of these products include some candle oils. The sample(s) were prepared using passive heated headspace and analyzed with a gas chromatograph-mass spectrometer.
LFZ83F	Item #1 showed the presence of a miscellaneous class ignitable liquid (Heavy Petroleum Distillate + Limonene). The ignitable liquid product may be composed of the product "Goo-Gone" or another ignitable liquid with similar chemical components. Item #2 showed the presence of a heavy range n-alkane product. The ignitable liquid product may be composed of a chemical solvent, such as Exxon Norpar 15, or another product with similar chemical components.
LH283D	A heavy petroleum distillate was detected in item 1. A heavy normal alkane product was detected in item 2. No ignitable liquid residues were detected 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.

TABLE 4

WebCode	Conclusions
LJEPHC	Exhibit 1 was analyzed and determined to contain limonene and a heavy petroleum distillate. Limonene may be found in ignitable and non-ignitable commercial products including, but not limited to, turpentine products, some cleaning products, and some paint strippers. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products. Exhibit 2 was analyzed and determined to contain a heavy n-alkane product. Examples of heavy n-alkane products include, but are not limited to, some candle oils, carbonless forms, and copier toners. Exhibit 3 was analyzed, and no common ignitable liquid residue was identified. These conclusions are based upon gas chromatography-mass spectrometry (GC-MS) analysis of concentrated headspace vapors from each sample.
LR8PLN	GCMS analysis of Item 1 disclosed the presence of a Heavy Range Miscellaneous Product. Examples of a Heavy Range Miscellaneous Product include, but are not limited to, some blended products and some specialty products. GCMS analysis of Item 2 disclosed the presence of a Heavy Range Normal Alkane Product. Examples of a Heavy Range Normal Alkane Product include, but are not limited to, some candle oils, some copier toners and carbonless forms.
LUJRMA	Results and Conclusions: - A mixture of medium Others - Miscellaneous (turpentine products e.g. alpha pinene, beta-phellandrene, beta-myrcene and D-limonene) and heavy petroleum distillate (including de-aromatized) was identified in Item-1. Examples of heavy petroleum distillate include but not limited to Kerosine, charcoal starters, lamp oils and automotive part cleaners. - A heavy normal alkane product was identified in Item-2. Examples of heavy normal alkane product include but not limited to some candle oils, lamp oils and copier toners. - No ignitable liquid residue was identified in Item-3.
M4ZV8D	[No Conclusions Reported.]
M7Q2N4	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Others-Miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are some blended products and some citrus cleaners. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Normal Alkane ASTM class ignitable liquid. Examples of this ASTM class are some candle oils and some copier toners. Item 3 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
M9UW88	Item 1 - a heavy petroleum distillate & limonene were identified. Item 2 - a heavy normal alkane product was identified. Item 3 - no ignitable liquid was identified. Heavy petroleum distillates are ignitable liquids and include, but are not limited to, kerosene, diesel fuel, some charcoal starters, and some jet fuels. Limonene is an ignitable liquid. It is used as an ingredient in commercial products such as citrus-scented cleaners and in flavoring, fragrance and perfume materials, as well as solvent and wetting agent. Heavy normal alkane products are ignitable liquids and include, but are not limited to, some candle oils, some copier toners, and may come from carbonless forms. The heavy petroleum distillate and the limonene identified in item 1 may or may not share the same origin.
MA72UP	Exhibit 1 contained limonene and a heavy petroleum distillate (HPD), both of which are ignitable liquids. It could not be determined whether Exhibit 1 contained a single commercial product, such as a cleaning solvent, or a mixture of two individual products. Examples of HPDs include some paint thinners, some polishes and some solvents. Limonene can be found in some citrus based cleaners and some degreasers. Exhibit 2 contained a heavy normal alkane (n-alkane) product, which is an ignitable liquid. Examples of heavy n-alkane products include some candle oils, some polishes and some insecticide vehicles. No ignitable liquids were identified in Exhibit 3.
MHF2E8	Item 1A was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid in the other ignitable liquid class. Examples of products in the other ignitable liquid class include some blended products and some specialty products. The results apply only to the sample(s) received. 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 in the heavy normal alkane class. Examples of products in the heavy normal alkane class include some candle oils, carbonless forms and some copier toners. The results apply only to the sample(s) received. The evidence, including the sample used in analysis, will

TABLE 4

WebCode	Conclusions
	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 results apply only to the sample(s) received. The evidence, including the sample used in analysis, will be returned to the submitting agency.
MK68VW	Item 1 - GC-MS analysis identified residues of a heavy miscellaneous ignitable liquid. Item 2 - GC-MS analysis identified residues of a heavy normal alkane product.
MK9P29	The samples were analyzed by gas chromatography-mass spectrometry for presence of ignitable liquids. Item 1: Instrumental analysis detected normal alkanes (C11-C15), isoalkanes, cycloalkanes. This part is identifed as medium to heavy, dearomatized petroleum distillates product. But in the sample terpentine (a- and b-pinene, high level of limonene)was detected, so the ignitable liquid is identified as other-miscellaneous product. Item 2:Instrumental analysis detected the presence of normal alkane type compounds (nC13-nC17). The ignitable liquid identified as heavy n-alkanes products, examples of which include some candle oils, carbonless forms and some copier toners. Item 3: No ignitable liquids were detected in the sample.
MP3Q22	Item 1: 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 heavy miscellaneous ignitable liquid. Examples of heavy miscellaneous ignitable liquids include (but are not limited to): lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene and fuel additives. 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 heavy normal alkane product ignitable liquid. Examples of heavy normal alkane product ignitable liquids include (but are not limited to): candle oils, lamp oil, carbonless forms and copier toners. Item 3: Item 3 was subjected to adsorption - elution extraction followed by gas chromatographic / mass spectrometric (GC/MS) analysis. No ignitable liquids were identified.
MRQ3Z8	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 include some blended products and some specialty products. Item 2: A normal alkane product was identified. Examples of normal alkane products include some candle oils, carbonless forms, and some copier toners. Item 3: No ignitable liquids were identified.
MWHZBW	Item 1: Contains a mixture of a heavy petroleum distillate, examples of which include some charcoal starters, lubricating solvents, and specialty solvents and limonene, a terpene found in both ignitable and non-ignitable commercial products. Item 2: Contains a heavy n-alkane product, examples of which include candle oils, ink solvents, and speciality solvents. Item 3: No ignitable liquids were detected/identified.
N4FERB	Item 1 was in my opinion found to bear residues of a heavy de-aromatised petroleum distillate in the presence of limonene. Item 2 was in my opinion found to bear residues of a heavy normal alkane series of compounds. I consider the residues associated with both of these items to be residues of ignitable liquids, particularly when soaked into cloth to act as a wick. No residues of an ignitable liquid were detected on item 3
N4YVRQ	Analysis of Item 1 revealed the presence of an others - miscellaneous class. Examples of this class are lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. Analysis of Item 2 revealed the presence of a n-alkane product. Examples of this class are candle oils, lamp oil, carbonless forms, and copier toners.
NNMPR9	In sample 1 was detected heavy petroleum distillate (HPD) and terpentines, which are classified as ignitable liquids. Commercial products are forexample cleaning solvents. In sample 2 was detected normal alkanes, which are classified as ignitable liquids. Commercial products are forexample lampoils. Sample 3 was taken into account when making the interpretation.
NPDV9Y	[No Conclusions Reported.]
NR4C4R	Items #1, #2, and #3 were submitted to passive headspace desorption onto activated carbon at 65C

TABLE 4

WebCode	Conclusions
	for approximately three hours. The activated carbon was then extracted with carbon disulfide and analyzed using gas chromatography with mass selective detection. RESULTS and INTERPRETATIONS: A miscellaneous product was detected in the extract of Item #1. This particular miscellaneous product is comprised of limonene and a medium-heavy petroleum distillate. Examples of such miscellaneous products include some de-greasers, some specialty products and some blended products. It should be noted that limonene occurs naturally in citrus fruits, can be found in ignitable liquids such as some de-greasers, and in non-ignitable liquids such citrus-based household cleaners. A normal-alkane product was detected in the extract of Item #2. Examples of normal-alkane products include some specialty solvents and some candle oils. No ignitable liquids were detected in the extract of Item #3.
NTYU8E	Limonene and a heavy petroleum distillate were each detected in Item 1. Limonene is a monoterpene and is the major component of citrus fruits. It is frequently used as an active ingredient in cleaning products and because of its citrus odor, as a fragrance in many household products. Heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, charcoal starters and lamp oils, aviation fuels, insecticide solvents, fuel additives and automotive parts cleaners and other specialty application solvents and thinners. Commercially available products similar to this are adhesive removers, cleaning solvents, lamp oils, fabric and furniture protectors and other specialty products. A homologous series of normal alkanes ranging from C13 to C19 (tridecane to nonadecane) was detected in Item 2. Normal alkane products in this range include, but are not limited to, some lamp and candle oils, copier toners, wax cleaners, industrial solvents, some water repellents, a constituent in some carbonless papers and products, a constituent in some polymer floor coverings, a solvent in some inks and numerous other specialty application solvents and thinners. No ignitable liquids were detected in Item 3.
NURJQA	Item 1 Findings: Limonene, pinene, alkanes (n C10- n C16) and further aliphatics. Assessment: Due to the findings it is most probable that the cloth samples contained a product as a cleaning solvent. Item 2 Finding: alkanes (SPME = n C13 -n C16) (Extraction = n C13- n C20). Assessment: Due to the findings it is most probable that the cloth samples contained a product as a lamp oil. Item 3 No ignitable liquids were detected. Conclusion: Cleaning solvent (Item 1) as well as lamp oil (item 2) are ignitable liquids. Therefore, both ignitable liquids are suitable for arson.
NVKGZ3	Items 2-1-1-1-2, 2-2-1-1-2, and 2-3-1-1-2 (ACS sample extracts) from the cloth remnant from the sheet (item 2-1-1-1), cloth remnant from the pillowcase (item 2-2-1-1), and the cloth substrate intended as a comparison blank (item 2-3-1-1) were not analyzed. A heavy Others-Miscellaneous ignitable liquid residue was detected in the ACS sample extract (item 2-1-1-1-1) from the cloth remnant from the sheet (item 2-1-1-1). Examples of heavy Others-Miscellaneous ignitable liquids are lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene and fuel additives. A heavy Normal Alkane ignitable liquid residue was detected in the ACS sample extract (item 2-2-1-1-1) from the cloth remnant from the pillowcase (item 2-2-1-1). Examples of heavy Normal Alkane ignitable liquids are candle oils, lamp oils, carbonless forms, and copier toners. No ignitable liquid residues were detected in the ACS sample extract (item 2-3-1-1-1) from the cloth substrate intended as a comparison blank (item 2-3-1-1).
NXCDMB	The results obtained in ITEM 1 show the presence of n-alkanes from C11 to C15 and terpenes (2-pinene, beta-myrcene, d-limonene). As established by the ASTM E1618 classification, it can be classified as turpentine, which is found within the group of miscellaneous. The results obtained in ITEM 2 show the presence of n-alkanes from C11 to C15, and terpenes (2-pinene, beta-myrcene).
NYKRRV	A miscellaneous solvent was detected in Item 1. This class includes a narrow range heavy petroleum distillate (C12-C16) and Limonene in products like Goo Gone cleaning solvents or other similar blended proprietary products. It could also be some charcoal starters and lamp oils that mixed together independently from manufacturing. A heavy normal alkane solvent was present in Item 2. This class includes candle oils and some lamp oils. No ignitable liquids were detected in Item 3.
P2MHMU	Analysis by Gas Chromatography/Mass Spectrometry of the white cloth and bag (Item 1A) reveals the presence of a heavy miscellaneous product. Examples of miscellaneous products include: some specialty cleaning products, some blended products, and some specialty products. Analysis by Gas Chromatography/Mass Spectrometry of the white cloth and bag (Item 1B) reveals the presence of a heavy n-alkane product. Examples of n-alkane products include: some candle oils, carbonless forms,

TABLE 4

WebCode	Conclusions
	and some copier toners. Analysis by Gas Chromatography/Mass Spectrometry of the white cloth and bag (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.
P6KYZN	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 comprised of limonene and a heavy petroleum distillate. Miscellaneous products include some blended products and some specialty products. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item # 2 revealed the presence of a normal alkane product. Normal alkane products include some candle oils and some copier toners. Examination of Item # 3 failed to reveal the presence of ignitable liquids.
P72KK7	Items 1 through 3 were examined using passive headspace adsorption. The extracts recovered from Items 1 through 3 were examined by gas chromatography/mass spectrometry. Item 1 was found to contain a volatile mixture containing a heavy petroleum distillate (HPD) and limonene. It cannot be determined whether this is a commercial blend or two separate components. Examples of HPDs include kerosene, fuel oil, some lamp oils and some organic solvents. Limonene is a compound that can be used in commercial products as a fragrance, flavoring or solvent. Item 2 was found to contain a volatile mixture identified as a heavy normal alkane product (norpar). Examples of such mixtures include some lamp oils and some organic solvents. No common ignitable liquid residues were detected in the comparison sample (Item 3).
PET7MY	A heavy miscellaneous product consisting of limonene and a heavy petroleum distillate were identified in item 1. A heavy normal alkanes product was identified in item 2. No ignitable liquids were identified in item 3.
PHRGHY	Other Miscellaneous was determined in item 1. In item 2 normal alkane was detected . No ignitable was determined in item 3
PLTHM2	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Others-Miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are some blended products and some specialty products. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Normal Alkane ASTM class ignitable liquid. Examples of this ASTM class are some candle oils, carbonless forms, and some copier toners. Item 3 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
PNKG2Z	RESULTS: An ignitable liquid, identified as a mixture of limonene and a dearomatized medium petroleum product in the range of C12 – C15, was isolated on sample 1. It is not known if that isolated originated with a single product, or is a result of a mixture of products. Some examples of consumer products that may contain limonene are, but are not limited to, citrus cleaners, and adhesive removers (e.g. Goo Gone). Some examples of consumer products that may contain such a medium petroleum product are, but are not limited to, dry cleaning solvents, mineral spirits, lamp oils, and charcoal lighter fluids, all of which may, or may not, be labeled as “odorless”. An ignitable liquid, identified as a medium-heavy normal alkane product in the range of C14 – C15, was isolated on sample 2. Some examples of consumer products that may contain such a normal alkane product are, but are not limited to, candle oils, lamp oils, parts cleaners and insecticide formulations. Volatile chemical residues were isolated on samples 3 and the system blank. The volatile chemical residues isolated on sample 3 and the system blank do not compare favorably to current laboratory standards of ignitable liquids. There are other possible ignition sources to consider at the site of a spa. Some massage and body oils are known to have a propensity to self-heat. Additional analyses for the presence of materials with a propensity to self-heat may be of interest. Please contact the laboratory to discuss this further. CONCLUSIONS: Based upon the samples that were submitted and analyzed as described, the laboratory holds the following opinions; That an ignitable liquid was isolated on sample 1. The ignitable liquid isolated on sample 1 has been identified as a mixture of limonene and a dearomatized medium petroleum product in the range of C12 – C15. It is not known if that isolated originated with a single product or is a result of a mixture of products. That an ignitable liquid was isolated on sample 2. The ignitable liquid isolated on sample 2 has been identified as a medium-heavy normal alkane product in the range of C14 – C15. That no ignitable liquids were

TABLE 4

WebCode	Conclusions
	isolated on sample 3 or the system blank. Further analysis for the presence of residues with a propensity to self-heat may be of interest. Please contact the laboratory to discuss further.
PXM8RU	1. Volatile residues from Exhibits 1 (cloth remnant from the sheet sealed in a nylon evidence bag), 2 (cloth remnant from the pillowcase sealed in a nylon evidence bag), and 3 (cloth substrate intended as a comparison blank 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 heavy range miscellaneous product was identified in the concentrated headspace vapors of Exhibit 1. Ignitable liquids belonging to this class are commercially available as some specialty products and some blended products. 3. A heavy range normal alkane product was identified in the concentrated headspace vapors of Exhibit 2. Ignitable liquids belonging to this class are commercially available as some candle oils, some copier toners, and carbonless forms. 4. No ignitable liquid residues were identified in the concentrated headspace vapors of Exhibits 3.
PYY7NP	Evidence addressed in this report was received into the laboratory on August 5, 2020. Analysis for ignitable liquid residues using Diffusive Flammable Liquid Extraction trapping,followed by Gas Chromatography / Mass Selective Detection: Item #1: Mixture of Limonene and a Heavy Petroleum Distillate. Some products that contain limonene include (but are not limited to) candle oils, general cleaning solvents,dry cleaning solvents as well as solvents for paints. Examples of heavy petroleum distillates include(but are not limited to) lamp oils, kerosene, fuel oils, diesel fuels and some brands of charcoal starter fluids. *Unable to determine if this is a mixture of ignitable liquids or a single source miscellaneous product. Item #2: Heavy Petroleum Product (Norpar), examples of which include (but are not limited to)candle oils, lamp oils, carbonless forms and copier toners. Item #3: No Ignitable Liquid Residues Identified. All Evidence has been returned to the PT Vault. Ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. In addition, negative results do not preclude the possibility that ignitable liquids were present.
Q4RXMT	Item 1: A mixture containing limonene and a heavy petroleum distillate was found. This can be from a blended product or from a physical mixture. Limonene can be a natural or synthetic product. Commercial sources include some cleaning products. The source of the limonene in this sample may be flammable or non-flammable. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: A heavy normal alkane product found. Examples of heavy normal alkane products include, but are not limited to, some candle oils, carbonless forms, and some copier toners. Item 3: No ignitable liquids found.
QDWE3H	Item 1 was found to contain limonene. Limonene is commonly added as a fragrance or cleaning agent in cleaning products. Depending on its concentration, limonene can be considered flammable in either liquid or vapour state. Flammable hydrocarbons were detected as a minor component of the sample, but a definitive source for these or the limonene cannot be attributed. Item 2 was found to contain a normal alkane product. Normal alkane products are considered flammable and can include sources such as lamp oils. No common ignitable liquid residue was detected in Item 3. Although an ignitable liquid type or class has been nominated, it must be noted that some commercial products incorporate similar liquids into their products – either within their specific formulation (e.g. degreasers, carburettor cleaners, etc), or as “carrier” for the key component (e.g. some aerosol or liquid products).
QEA8XK	Items 1.1, 2.1, and 3.1 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 1.1 was found to contain limonene and a heavy petroleum distillate*. Limonene and a heavy petroleum distillate may also be the result of a blended product. Examples include, but are not limited to, some cleaning solvents. *Examples include, but are not limited to, kerosene, diesel fuel, some charcoal starters, some lamp oils. Item 2.1 was found to contain a heavy normal alkane product**. **Examples include, but are not limited to, some candle oils, some lamp oils, carbonless forms, copier toners. Item 3.1 was used as a control.
QGE3WA	Item 1 extract contained a Medium to Heavy Miscellaneous product. The data contained Limonene, and a pattern consistent with a Medium to Heavy Petroleum Distillate. Examples of Heavy Miscellaneous Products include but are not limited to some blended products and some specialty

TABLE 4

WebCode	Conclusions
	products. Item 2 extract contained a Heavy Normal Alkane. Examples of Heavy Normal Alkane Products include but are not limited to some candle oils, carbonless forms, and some copier toners.
QGTTJZ	Item I contains components identifiable as a short range heavy petroleum distillate characteristic of some lamp oils, some torch fuels, some charcoal starters, etc. Item II contains components identifiable as a heavy normal alkane product characteristic of some candle oils, etc.
QJG6H6	A miscellaneous product in the heavy range was identified in Item #01.001 (Item #1), examples of which include some blended products and some specialty products. A normal-alkane product in the heavy range was identified in Item #01.002 (Item #2), examples of which include some candle oils, carbonless forms, and some copier toners. There were no ignitable liquids identified in Item #01.003 (Item #3).
QNVB6J	Item 1 was determined to contain the following: A Heavy Miscellaneous Ignitable Liquid, examples of which include some lamp oils, insecticides, citrus cleaners, automotive parts cleaners, and fuel additives. Item 2 was determined to contain the following: A Heavy Normal-Alkanes Product Ignitable Liquid, examples of which include some candle oils, lamp oil, carbonless forms, and copier toners.
QQHU7G	The first piece of white cloth (Item 1) was found to contain a medium to heavy petroleum distillate. The presence of limonene suggested that this was a cleaning agent, but it may have been a degreaser or other solvent. The second piece of white cloth (Item 2) contained an oil, probably a lamp or torch oil, deodourised, tentatively identified as a Lamplighter deodourised lamp oil. The third piece of white cloth (Item 3) did not contain any flammable or combustible liquid
QTB724	Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Heavy (C9-C20+) Miscellaneous Product. Examples of a Heavy (C9-C20+) Miscellaneous Product include some citrus cleaners, some blended products and some specialty products. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Heavy (C9-C20+) n-Alkane Product. Examples of a Heavy (C9-C20+) n-Alkane Product include some candle oils and some lamp oils. 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.
QTRYLQ	Item 1.1 contained a heavy petroleum distillate and Limonene. Examples of heavy petroleum distillates include Kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene is a component of citrus peels and is used as a fragrance for many household products and cleaners. Item 1.2 contained a heavy normal-alkanes product (C13-18). Examples of which include some candle oils, carbonless forms, and some copier toners. No ignitable liquids were detected in Item 1.3.
QUG73G	A medium-heavy petroleum distillate was detected on the material from Item 1. The presence of limonene suggested that the product was a solvent, probably a cleaning agent, or similar type of product. A heavy petroleum distillate was detected on the fabric from Item 2, possibly a lamp oil or similar type of product. No flammable liquid was detected on the material from Item 3. This may mean that there was no flammable liquid originally present or that any flammable liquid had evaporated to below the detectable level.
QUGV2R	Analysis of item 1 revealed the presence of a heavy petroleum distillate. Products in this range include, but are not limited to: kerosene, diesel fuel, fuel oils No. 1 and 2, Jet-A (aviation) fuel, some charcoal starters, some torch fuels, some paint thinners some solvents for insecticides and polishes, and some lamp oils. Analysis of item 2 revealed the presence of a normal alkane product. Products in this range include, but are not limited to: some lamp oils, some solvents for insecticides and polishes, and other specialty products. Analysis of item 3 did not reveal the presence of any ignitable liquid residue. This result does not eliminate the possibility that an ignitable liquid was used. Results were confirmed by the following instrumentation: Gas Chromatograph-Mass Spectrometer (GC-MS)
QVYHZA	Item 1 contains C12 to C15 and limonene. Item 2 contains C13 to C18.
QWPNFZ	General description of exhibits “Item 1”: A piece of cloth in two layers of clear sealed bags. “Item 2”: A piece of cloth in two layers of clear sealed bags. “Item 3”: A piece of cloth in two layers of clear

TABLE 4

WebCode	Conclusions
	sealed bags, submitted as a control to exhibits marked “Item 1” and “Item 2”. Findings "Item 1" 1.The exhibit was analysed for the presence of ignitable liquid residues and a.Terpenes including limonene and dimethylstyrene could be present. b.Straight-chain alkanes and branched alkanes in the heavy product range were also detected. "Item 2" 2.The exhibit was analysed for the presence of ignitable liquid residues and heavy normal alkanes product was detected. "Item 3" 3.The exhibit was analysed for the presence of ignitable liquid residues and none was detected. 4.Note: a.According to literature, terpenes including limonene and dimethylstyrene can be used as flavourings as well as in fragrance and perfume materials, among other applications. b.According to ASTM1618 Ignitable Liquid Classification Scheme, a mixture of terpenes including limonene and dimethylstyrene as well as straight-chain alkanes and branched alkanes in the heavy product range can be classified as heavy others-miscellaneous. c.Examples of heavy others-miscellaneous include citrus cleaners and kerosene. d.Examples of heavy normal alkane products include some candle oils and some lamp oils.
QZ6F68	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: some blended products and various specialty products. Date of receipt of evidence: 08/05/20 Date(s) of performance of the laboratory activity: 08/31/20, 09/01/20, 09/02/20, 09/24/20 The evidence will be returned to the submitting agency. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy N-Alkane product was identified. Examples of this type ignitable liquid include: some candle oils, carbonless forms and copier toners. Date of receipt of evidence: 08/05/20 Date(s) of performance of the laboratory activity: 08/31/20, 09/01/20, 09/02/20, 09/24/20 The evidence will be returned to the submitting agency.
R3A4KX	Item 1: 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 heavy miscellaneous ignitable liquid. Examples of heavy miscellaneous ignitable liquids include (but are not limited to): lamp oils, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. 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 heavy normal alkane ignitable liquid. Examples of heavy ignitable liquids include (but are not limited to): candle oils, lamp oils, carbonless forms, and copier toner. Note: The laboratory glass vials were repacked with the evidence. Note: 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 the ignitable liquids.
R8M4JA	A Miscellaneous Product was identified in Specimen #1. Examples of Miscellaneous Products include some blended products, some turpentine products, and some specialty products. A Heavy Normal Alkane Product was identified in Specimen #2. Examples of Heavy Normal Alkane Products include some candle oils, carbonless forms, and some copy toners. No ignitable liquids were detected in Specimen #3. The specimens were extracted by Passive Concentration Headspace extraction with activated charcoal and analyzed by Gas Chromatography/ Mass Spectrometry. 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.
RB2EGQ	An ignitable liquid in the heavy others-miscellaneous class was identified in Item 1. Some citrus cleaners are examples of this class. A heavy normal alkane product was identified in Item 2. Examples of heavy normal alkanes products are some candle oils, some lamp oils and some copier toners. No ignitable liquids were identified in Item 3 (comparison blank).
RDPDP3	Item1: Analysis indicate the presence of a miscellaneous product corresponding to a mixture containing limonene and a C12-C15 heavy pretroleum distillate. Examples of products include but are not limited to, some odorless cleaning solvants, some contractor solvants, ahesive remouvers... Item2: Analysis indicate the presence of a C13-C18 normal alkane product. Exemples of products include but are not limited to, somme candle oils, lamp oils, some industrial solvants... Item3: No ignitable liquids were detected.

TABLE 4

WebCode	Conclusions
REMQ9N	Instrumental analysis of exhibit 001a revealed the presence of a heavy petroleum distillate. Products in this range include, but are not limited to: kerosene, diesel fuel, fuel oils No. 1 and 2, Jet-A (aviation) fuel, some charcoal starters, some torch fuels, some paint thinners, some solvents for insecticides and polishes, and some lamp oils. Instrumental analysis of exhibit 002a revealed the presence of a normal alkane product. Products in this range include, but are not limited to: some lamp oils, some solvents for insecticides and polishes, and other specialty products.
RF3M3A	Item 1 extract contained a Medium-Heavy Miscellaneous Product. The data contained a pattern consistent with a narrow-range Heavy Petroleum Distillate and Limonene. Examples of Medium-Heavy Miscellaneous Products include but are not limited to some blended products and some specialty products. Item 2 extract contained a Heavy Normal Alkane Product. Examples of Heavy Normal Alkane Products include but are not limited to some candle oils, carbonless forms, and some copier toners.
RN73K2	1. Laboratory item #1: A mixture of a heavy petroleum distillate and limonene was identified. Examples of heavy petroleum distillates include, but are not limited to, some charcoal starters, some jet fuels and kerosene. Limonene is found in some fragrances, some solvents, and some cleaning products. The ignitable liquids identified in Laboratory item #1 could have originated from either two independent sources or a single commercial product such as Goo Gone, which is a heavy range miscellaneous product. 2. Laboratory item #2: A heavy normal alkane product was identified. Examples of normal alkane products include, but are not limited to, some candle oils, some copier toners, and carbonless forms. 3. Laboratory item #3 (Comparison Sample for Items #1 and #2): No ignitable liquids were identified.
RRNRUJ	Analysis of item 1 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 identified is further classified as a heavy range product. Analysis of item 2 revealed the presence of a normal-alkanes product, examples of which include solvents, some candle oils, some copier toners, and carbonless forms. The product identified is further classified as a heavy range product.
RUC4UN	Limonene and a heavy petroleum distillate identified in item 1. A heavy normal-alkane product identified in item 2. No ignitable liquid identified in item 3.
RUWELP	Item 1: Limonene was chromatographically detected. Heavy petroleum distillate was chromatographically detected. Examples of limonene include naturally occurring oils of citrus fruit peels (which can be used in the manufacturing of certain adhesive, tacking, and cleaning products), flavorings for food and medicines, fragrances for perfumery and cleaning products, and some specialty solvents. Examples of heavy petroleum distillates include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: A normal alkane product (C13 to C17) was chromatographically detected. Examples of normal alkane products include specialty solvents, candle and lamp oils, copier toners, and carbonless paper. Item 3: Negative - no ignitable liquids were chromatographically detected. The absence of detectable levels of of ignitable liquid residues can be due to several factors, including destruction by the inherent nature of fire, evaporation prior to collection and analysis, fire suppression activities, improper packaging of sample, or lack of use of ignitable liquids.
RVQ3XT	Residues of a heavy miscellaneous product were identified on Item 1. These residues specifically contained D-limonene and a de-aromatized heavy petroleum distillate and is consistent with some citrus cleaners. Residues of a heavy normal alkane product were identified on Item 2. Examples of a heavy normal alkane product include, but are not limited to, candle oils and lamp oils. No ignitable liquid residues were identified on Item 3.
RXBLRG	The following results were obtained; Item 1 - A miscellaneous ignitable liquid, similar to a cleaning solvent, identified. Item 2 - A heavy normal alkane ignitable liquid, similar to lamp oil, identified. Item 3 - Nil ignitable liquids identified.
RXG473	Item 1- Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene Item 2- Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners Item 3- No ignitable liquids were found
T3QCVQ	Item 1: Contains a mixture of limonene, a terpene found in both ignitable and non-ignitable

Updated to include results for participant ZUD2VT

TABLE 4

WebCode	Conclusions
	commercial products and a heavy petroleum product, examples of which include kerosene, diesel fuel and some speciality products. Item 2: Contains a heavy n-alkane product, examples of which include candle oils, ink solvents, and speciality solvents. Item 3: No ignitable liquids were detected/identified.
T4H9JK	Item 1 White cloth. Examination reveals the presence of an ignitable liquid residue in the Heavy Range of the Miscellaneous Class. Refer to the attached Ignitable Liquid Classification System. Item 2 White cloth. Examination reveals the presence of an ignitable liquid residue in Heavy Range of the Normal Alkane Class. Refer to the attached Ignitable Liquid Classification System. Item 3 White cloth (comparison sample). No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected.
T9CWRX	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Others - Miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are some citrus cleaners and automotive parts cleaners. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Normal Alkane ASTM class ignitable liquid. Examples of this ASTM class are some candle oils and copier toners. Item 3 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
T9D3GL	Analysis of exhibit [Participant Code], Item 1 detected the presence of a medium to heavy range miscellaneous product (examples: some specialty cleaning products, some lamp oils, etc.). Analysis of exhibit [Participant Code], Item 2 detected the presence of a heavy normal alkane product (examples: some liquid candles, some lamp oils, etc.). Analysis of exhibit [Participant Code], Item 3 failed to detect the presence of an ignitable liquid.
TE3AQZ	Item 1A was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid in the other/miscellaneous class. Examples of other/miscellaneous products include some specialty adhesive removers and cleaners and some blended products. Item 1B was analyzed utilizing Gas Chromatography/Mass Spectrometry (GC/MS). This item contains an ignitable liquid in the heavy normal-alkane class. Some examples of heavy normal-alkane products include some candle oils and some copier toners. 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 results apply only to the sample(s) received. The evidence, including the sample used in analysis, will be returned to the submitting agency.
TFBRXP	A heavy miscellaneous product was identified in Item 1. Examples of a heavy miscellaneous product include but are not limited to some cleaning solvents. A heavy normal-alkane product was identified in Item 2. Examples of a heavy normal-alkane product include but are not limited to some lamp oils and some specialty solvents. No ignitable liquids were detected in Item 3. Items 1 – 3 were examined visually and using gas chromatography/mass spectroscopy (GC/MS). Passive adsorption/elution extraction was performed on Items 1 – 3. The activated charcoal strips used to collect volatile organic compounds with an adsorption/elution technique are contained in separate plastic vials, placed in separate, heat-sealed fire debris bags, and each was repackaged inside the original item.
TKQUW2	Item #1-1: Limonene identified Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item #1-2: Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners.
TXFNC2	Ignitable liquids were detected on both Item 1 and Item 2. Item 1 appears to be classified as Miscellaneous (contains limonene and heavy petroleum distillate). Item 2 appears to be classified as heavy n-alkane product.
U4GX2L	Examination of item 1: The item comprised a nylon bag containing a 5cm x 5cm section of cloth. A heavy miscellaneous product was detected from the item. Heavy miscellaneous products include blended products and various specialty products. Examination of item 2: The item comprised a nylon bag containing a 5cm x 5cm section of cloth. A heavy normal alkane product was detected from the item. Heavy normal alkane products include some candle oils and copier toners. Examination of item 3: The item comprised a nylon bag containing a 5cm x 5cm section of cloth. No ignitable liquid residues were not detected from the item.
UANQB6	On examination and analysis, I found that Item 1 was found to contain Petroleum Distillate (including

TABLE 4

WebCode	Conclusions
	de-aromatized)(subclass medium to heavy) while Item 2 was found to contain Normal Alkane Products (subclass heavy).
UBEXRV	Item #1- The presence of a Medium/Heavy Petroleum Distillate and a Miscellaneous Ignitable liquid were detected in this sample. Item #2- The presence of a Heavy Normal Alkane product was detected in this sample.
UBFJTL	1. Traces of an organic mixtures containing mainly limonene were recovered from item 1. 2. Traces of normal alkane (C13-C16) were recovered from item 2. 3. Nothing of significance was found with respect to the recovery of ignitable liquid residues.
UEUPF3	It was determined utilizing passive headspace concentration extraction with activated charcoal strip and gas chromatography/mass spectrometry that 1 exhibited the presence of a miscellaneous class ignitable liquid in the heavy petroleum range and item 2 exhibited the presence of a normal alkane class ignitable liquid in the heavy petroleum range.
UHF7XN	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). The Item 1 extract contained a mixture of limonene (a medium miscellaneous product) and a heavy petroleum distillate. The limonene can be found in, but is not limited to, some fragrances and household cleaning products. The heavy petroleum distillate can be found in, but is not limited to, some automotive parts cleaners and fuel additives. This mixture is classified as a medium to heavy miscellaneous product which can be found in, but is not limited to, some adhesive removers and commercial solvents. The Item 2 extract contained a mixture of tridecane, tetradecane, pentadecane, and hexadecane (heavy normal alkanes product), which can be found in, but is not limited to, some lamp oils. No ignitable liquids were identified in the Item 3 extract. Date(s) of testing: 08/11/2020 - 09/11/2020
UTXF9F	Item 1: This item was found to contain a mixture of D-Limonene and a heavy petroleum distillate. This mixture may be a commercially available product. Examples of a heavy petroleum distillate may include but are not limited to kerosene, diesel fuel and some charcoal starters. Item 2: This item was found to contain a normal alkane product. Examples of a normal alkane product may include but are not limited to candle oils, NCR papers and copier tonors.
V3FJTK	RESULTS: Item 1: The square piece of white fabric contains a heavy petroleum distillate ignitable liquid residue. Examples of this type of liquid can include, but are not limited to, some kerosene, diesel fuels, jet fuels, and some charcoal starters. Item 2: The square piece of white fabric contains a heavy normal alkane ignitable liquid residue. Examples of this type of liquid can include, but are not limited to, some candle oils, carbon-less forms, and some copier toners. Item 3: An ignitable liquid residue was not detected on the square piece of white fabric.
V3JCZM	A mixture of limonene and a heavy petroleum distillate product was identified in item 1. Limonene is an ignitable liquid that is commonly used as, but not limited to, a fragrance, flavoring and solvent. Heavy petroleum distillate products include, but are not limited to, diesel fuel, some jet fuels and charcoal starters. A heavy normal-alkane product was identified in item 2. Heavy normal-alkane products include, but are not limited to, some copier toners, candle oils and carbonless forms. 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.
V4VBVW	Item 1 showed similar peaks patterns with that of 'petroleum distillates', but it also presented significant limonene peaks along with other products such as alkanes, cycloalkanes, and aromatics. Since Item 1 contains a carbon range from C12 to C16, it classified to 'heavy'. Item 2 contains normal alkanes products a carbon range from C13 to C19, which can be classified to 'heavy'.
V8VRGJ	Evidence addressed in this report was received into the laboratory on August 05, 2020. Analysis for ignitable liquid residues using Diffusive Flammable Liquid Extraction trapping,followed by Gas Chromatography / Mass Selective Detection: Item #1: Mixture of Heavy Petroleum Distillate and Limonene. Examples of heavy petroleum distillate include (but are not limited to) kerosene, fuel oils, diesel fuels, some brands of charcoal starter fluids and lamp oils. Examples of Limonene include (but are not limited to) cleaning solvents,manufactured resins, wetting and dispersing agent. Caution: It

TABLE 4

WebCode	Conclusions
	cannot be determined if this is a mixture of ignitable liquids or a single source miscellaneous product. Item #2: Heavy Normal Alkane Product, examples of which include (but are not limited to) candle oils, lamp oils, carbonless forms and copier toners. Item #3: No ignitable liquid residues identified. All Evidence will be returned to the vault for PT. Ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. In addition, negative results do not preclude the possibility that ignitable liquids were present.
VBF8Z8	Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Heavy (C9-C20+) Miscellaneous Product. Examples of a Heavy (C9-C20+) Miscellaneous Product include some blended products and some specialty products. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Heavy (C9-C20+) n-Alkane Product. Examples of a Heavy (C9-C20+) n-Alkane Product include some candle oils, carbonless forms, and some copier toners. 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.
VBTXQ3	By means of physical study and chemical analysis: - A flammable/combustible substance was detected in Item 1 within the classification of Miscellaneous product, medium to heavy. Examples of this classification includes some Specialty Products. - A flammable/combustible substance was detected in Item 2 within the classification of Normal Alkane product, heavy. Examples of this classification includes some candle oils. - No flammable/combustible substance was detected in the control Item 3.
VC7DGW	Item 1 : predominate homologous C12~15 alkanes and additional branched C13~16 alkanes with limonene presented. Item 2 : C13~19 normal alkane presented.
VCKW2U	Item 1: A miscellaneous ignitable liquid was detected. Examples: Single compounds, turpentines and specialty mixtures. Item 2: A normal alkane ignitable liquid was detected. Examples: Normal alkane specialty products, some candle oils and copier toners. Item 3: Comparison Sample
VEDRN4	Item #1 Item tested positive for the presence of a medium range Miscellaneous product. Items in this classification include but are not limited to some turpentine products, some blended products, and some specialty products. Item #2 Item tested positive for the presence of a heavy range Normal Alkane Product. Items in this classification include but are not limited to some candle oils, some carbonless forms, and some copier toners.
VETAM3	1) By means of physical study and chemical analysis an ignitable substance was detected on Item #1 within the classification of Heavy Miscellaneous. This classification may include: Adhesive Remover, Blended Products and Specialty Products. 2)By means of physical study and chemical analysis an ignitable substance was detected on Item #2 within the classification of Heavy Normal Alkane Product. This classifications may include: Lamp Oil, Candle Oil and Copier Toners.
VHC4J3	Gas chromatographic analysis (GC-MS; heated headspace concentration and passive headspace concentration) was performed and yielded the following: Item #01.01: A heavy range naphthenic paraffinic was identified. Examples of naphthenic paraffinics of the type identified may include: some lamp oils, some solvents, and some insecticides. Limonene was also identified. Limonene is a commercially available solvent and is a major component of other commercial products, such as adhesive removers, some oil removers and some cleaning products. Additionally, the combination of the limonene and the naphthenic paraffinic can be a result of the mixture of the two or a commercially available product that contains the two, including some lamp oils, some adhesive removers and some insecticides. Item #01.02: a heavy range normal alkane was identified. Examples of normal alkanes of the type identified may include: some candle oils, some copier toners and some carbonless forms. Item #01.03: An ignitable liquid residue was not identified. Date range of testing: 8/13/2020-8/31/2020. All items were forwarded to PT long term storage. Note: the identification of an ignitable liquid residue does not necessarily lead to the conclusion that a fire was incendiary in nature. The absence of an ignitable liquid residue does not preclude the possibility that ignitable liquids were present.
VKYL2N	1. A mixture containing limonene and a heavy petroleum distillate found. This can be from a blended

TABLE 4

WebCode	Conclusions
	product or from a physical mixture. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. 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. 2. A heavy normal alkane product found. Examples of heavy normal alkane products include, but are not limited to, some candle oils, carbonless forms, and some copier toners. 3. No ignitable liquids found.
VLBKWW	From Item 1 we detected HPD and terpenes. From Item 2 we detected heavy normal alkalnes.
W6KW2T	A heavy petroleum distillate product was detected in the sample from Item 1. Examples of such a product would include some lamp oils and charcoal starters. A heavy n-alkane product was detected in the sample from Item 2. Examples of such a product would include some lamp oils and copier toners.
W94R6K	Item 1: Heavy petroleum distillate was chromatographically detected. Limonene was chromatographically detected. Item 2: A normal Alkane product was chromatographically detected. Item 3: Negative: No ignitable liquids were chromatographically detected. Heavy Petroleum Distillate: Examples of heavy petroleum distillates include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene: Examples of Limonene include naturally occurring oils of citrus fruit peels (which can be used in the manufacturing of certain adhesive, tacking, and cleaning products), flavorings for food and medicines, fragrances for perfumery and cleaning products, and some specialty solvents. Normal Alkane Product, C13-C17: Examples of normal alkane products include specialty solvents, candle and lamp oils, copier toners and carbonless paper. Negative: The absence of detectable levels of ignitable liquid residues can be due to several factors, including destruction by the inherent nature of fire, evaporation prior to collection and analysis, fire suppression activities, improper packaging of sample, or lack of use of ignitable liquids.
W9ZYWG	Lab item 1: Heavy Miscellaneous Product residue was identified. Examples of this include but are not limited to some blended products and some specialty products. Lab item 2: Heavy Normal-Alkane Product residue was identified. Examples of this include but are not limited to some candle oils, carbonless forms, and some copier toners. Lab item 3: No Ignitable Liquids were identified. This item is listed as a comparative sample. This comparative sample was analyzed and the results were used in evaluating possible matrix influences on other submitted sample(s).
WAYA98	Limonene and a heavy petroleum distillate were each detected in Item 1. Limonene is a monoterpene and is the major component of citrus fruits. It is commonly used as an active ingredient in cleaning and other household products. Heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, charcoal starters and lamp oils, aviation fuels, insecticide solvents, fuel additives and automotive parts cleaners and other specialty application solvents and thinners. Commercially available products similar to this are adhesive removers, cleaning solvents, lamp oils, fabric and furniture protectors and other specialty products. A homologous series of normal alkanes ranging from C13 to C19 (tridecane to nonadecane) was detected in Item 2. Normal alkane products in this range include, but are not limited to, some lamp and candle oils, copier toners, wax cleaners, industrial solvents, some water repellents, a constituent in some carbonless papers and products, a constituent in some polymer floor coverings, a solvent in some inks and numerous other specialty application solvents and thinners. No ignitable liquids were detected in Item 3.
WC43ZK	#1 A Heavy Petroleum Distillate was chromatographically detected. #2 A Normal Alkane product was chromatographically detected. #3 Negative: No ignitable liquids were chromatographically detected. Heavy Petroleum Distillate: Examples of heavy petroleum distillates include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Normal Alkane Product, C13-C17: Examples of normal alkane products include specialty solvents, candle and lamp oils, copier toners and carbonless paper. Negative: The absence of detectable levels of ignitable liquid residues can be due to several factors, including destruction by the inherent nature of fire, evaporation prior to collection and analysis, fire suppression activities, improper packaging of sample, or lack of use of ignitable liquids.
WENRKX	1-1 Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters Limonene 1-2 Heavy normal alkane product, examples of which are some candle oils, carbonless forms, and some copier toners 1-3: No ignitable liquids were found

TABLE 4

WebCode	Conclusions
WLKEZG	Item 1: A heavy others-miscellaneous ignitable liquid was identified in Item 1. Examples of heavy others-miscellaneous products include some citrus cleaners and various specialty products. Item 2: A heavy normal alkanes product ignitable liquid was identified in Item 2. Examples of heavy normal alkanes products include some candle oils, some lamp oils, carbonless forms and some copier toners.
WP44DL	Instrumental analysis of Item 1 revealed the presence of a heavy petroleum distillate. Products in this range include, but are not limited to: kerosene, diesel fuel, fuel oils No. 1 and 2, Jet-A (aviation) fuel, some charcoal starters, some torch fuels, some paint thinners, some solvents for insecticides and polishes, and some lamp oils. Instrumental analysis of Item 2 revealed the presence of a normal alkane product. Products in this range include, but are not limited to: some lamp oils, some solvents for insecticides and polishes, and other specialty products. Instrumental analysis of Item 3 did not reveal the presence of any ignitable liquid residue. This result does not eliminate the possibility that an ignitable liquid was used. Results were confirmed by the following instrumentation: Gas Chromatograph/Mass Spectrometer
WRWUJZ	Exhibit 1 was analyzed and determined to contain a heavy petroleum distillate and limonene. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene may be found in ignitable and non-ignitable commercial products including, but not limited to, turpentine products, some cleaning products, and some paint strippers. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two products. Exhibit 2 was analyzed and determined to contain a heavy n-alkane product. Examples of heavy n-alkane products include, but are not limited to, some candle oils, carbonless forms, and copier toners. Exhibit 3 was analyzed, and no ignitable liquid residue was identified. This conclusion is based upon gas chromatography-mass spectrometry (GC-MS) analysis of concentrated headspace vapors from each sample.
WT92VL	Item 001-001: Residues of a heavy others-miscellaneous product were identified. Item 001-002: Residues of a heavy normal alkane product were identified. Item 001-003: No ignitable liquid residues were identified.
WUJC2L	Item 1. A heavy miscellaneous ignitable liquid product consisting of limonene and a heavy petroleum distillate was identified in the heat-sealed fire debris bag containing a piece of white cloth. Examples of these miscellaneous ignitable liquids are blended and specialty products. Item 2. A heavy normal alkane product was identified in the heat-sealed fire debris bag containing a piece of white cloth. Examples of heavy normal alkane products are some candle oils and some copier toners. Item 3. No identifiable hydrocarbons were identified in the heat-sealed fire debris bag containing a piece of white cloth. (Comparison)
WYUK7W	Item # 1 - Cloth Remnant from the sheet. A Heavy Miscellaneous product was detected in Item #1. Item #1 mainly contains normal and branched Alkanes and cycloalkanes. Examples of products include blended products or specialty products. Item # 2 - Cloth Remnant from the pillowcase. A Heavy Normal-Alkanes products was recovered in Item #2. Examples of commercial products in this range include some candle oils, Carbonless Forms or copier toners. Item # 3 - Cloth Remnant. No Ignitable liquids were identified in Item #3. Conclusion and report above are based on ASTM E1618-14.
WZNKEL	Item 1 contained a heavy petroleum distillate, C11 to C15, examples include some charcoal starters, some pain thinners, and some dry cleaning solvents. Item 1 also contains limonene. Item 2 contains a heavy normal alkanes product. Examples of which include some candle oils, carbonless forms, and some copier toners. No ignitable liquids were detected in Item 3.
X3TRVJ	Item 1, a piece of unburnt white cloth reportedly from a sheet: A heavy petroleum distillate product was identified. Examples of heavy petroleum distillate products are kerosene, insecticides, fuel additives, and automotive parts cleaners. Item 2, a piece of unburnt white cloth reportedly from a pillowcase: A heavy n-alkane product was identified. Examples of heavy n-alkane products are candle oils, lamp oil, carbonless forms, and copier toner.
X3UXMU	A heavy petroleum distillate and limonene were identified in Lab Item 1. A heavy n-alkane product was identified in Lab Item 2. No ignitable liquids were identified in Lab Item 3.
X7CA7W	Item 1 was subjected to headspace technique followed by Gas Chromatography Mass Spectrometer

TABLE 4

WebCode	Conclusions
	analysis show presence of ignitable liquid residue of aromatic product class and medium subclass. Item 2 was subjected to headspace technique followed by Gas Chromatography Mass Spectrometer analysis show presence of ignitable liquid residue of Normal Alkanes Product class and heavy subclass.
X9HHNP	An ignitable liquid classified as a heavy miscellaneous product was detected in item 1. The ignitable liquid contained a dearomatized heavy petroleum distillate and limonene. Limonene is a terpene and is a natural component of citrus fruit and some softwoods. Examples of heavy miscellaneous products include some lamp oils, some insecticides, some citrus cleaners, some automotive parts cleaners, some kerosene, and some fuel additives. An ignitable liquid classified as a heavy normal alkane product was detected in item 2. Examples of heavy normal alkane products include some candle oils, some lamp oils, some carbonless forms, and some copier toners. No ignitable liquids were detected in item 3.
XB3PQW	Item 1 contains a heavy-range miscellaneous product comprised, in part, of a petroleum distillate and limonene. Examples of heavy-range miscellaneous products include, but are not limited to, some lamp oils, some insecticides, and some citrus cleaners. Limonene is naturally occurring terpene that is found in many common household and industrial products which may include citrus cleaners, air fresheners, pesticides, perfumes, as some degreasers, or adhesive removers. Item 2 was found to contain a heavy-range normal alkane product, including tridecane through heptadecane (C13-C17). Examples of heavy-range normal alkane products include, but are not limited to, some lamp oils and candle oils. No ignitable liquids were detected in item 3 (comparison blank).
XFXJPJ	Items 1, 2, and 3 were extracted by passive adsorption/elution and analyzed by gas chromatography-mass spectrometry. Item 1. A miscellaneous mixture consisting of limonene and a heavy petroleum product was identified in the heat-sealed fire debris bag. Examples of products containing this specialty mixture are some blended and specialty products. Item 2. A heavy normal alkane product was identified in the heat-sealed fire debris bag. Examples of heavy normal alkane products include some candle oils, carbonless forms, and some copier toners. Item 3. No ignitable liquids were identified in the heat-sealed fire debris bag. (Comparison)
XKTAWV	Item 1 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Others-Miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are some lamp oils and some citrus cleaners. Item 2 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy Normal Alkane ASTM class ignitable liquid. Examples of this ASTM class are some candle oils and some lamp oils. Item 3 was analyzed by gas chromatography/mass spectrometry; however,ignitable liquids could not be detected.
XMGLV2	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: some blended products and various specialty products. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy N-Alkane product was identified. Examples of this type ignitable liquid include: some candle oils, carbonless forms and copier toners. 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.
XQKPWG	Item #1: A heavy range miscellaneous product was detected. Examples of heavy range miscellaneous products include some lamp oils, some insecticides, and some citrus cleaners. Item #2: A heavy normal-alkane product was detected. Examples of heavy normal-alkane products include some candle oils, some lamp oils, and some copier toners. Item #3: No ignitable liquids were detected.
XQXJ8B	Item 1: A heavy petroleum distillate was detected in the contents of this item. Limonene was also detected. Examples of commercially available products that may contain a heavy petroleum distillate and limonene include some specialty cleaning solvents. Item 2: A mixture of normal alkanes in the range of C13-C19 was detected in the contents of this item. Examples of commercially available products that may contain a mixture of normal alkanes include specialty solvents and some candle and lamp oils.
XT8UK2	for item 2, I found the traces of normal alkanes product (subclass: heavy)

TABLE 4

WebCode	Conclusions
XUDGVK	EXHIBIT #, AGENCY #, DESCRIPTION. 1, 1, Nylon bag with white cloth. Examination reveals the presence of a Heavy Range ignitable liquid residue in the Petroleum Distillates Class. Refer to the attached Ignitable Liquid Classification System. 2, 2, Nylon bag with white cloth. Examination reveals the presence of a Heavy Range ignitable liquid residue in the Normal Alkane Products Class. Refer to the attached Ignitable Liquid Classification System. 3, 3, Nylon bag with white cloth (comparison). No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected.
XUZRUT	It was determined utilizing passive headspace concentration extraction with activated charcoal strip and Gas Chromatography/Mass Spectrometry that item 001 exhibits the presence of a miscellaneous ignitable liquid in the heavy range. It was determined utilizing passive headspace concentration extraction with activated charcoal strip and Gas Chromatography/Mass Spectrometry that item 002 exhibits the presence of a normal alkane product in the heavy range. It was determined utilizing passive headspace concentration extraction with activated charcoal strip and Gas Chromatography/Mass Spectrometry that item 003, control sample, did not exhibit the presence of an ignitable liquid.
XXEHX3	[No Conclusions Reported.]
XXXXXH	1) Cloth remnant from the sheet. Terpene-based product and heavy petroleum distillate identified. (ASTM class: Others-Miscellaneous). 2) Cloth remnant from the pillowcase. Heavy normal alkane product identified. 3) Cloth substrate (comparison blank sample for items 1 and 2). No ignitable liquids identified.
Y4ZUCV	Items 1 through 3 were examined using passive headspace adsorption, and the extracts recovered were examined by Gas Chromatography/Mass Spectrometry. An ignitable liquid classified as Heavy Petroleum Distillate (including De-Aromatized) was detected in Item 1. An ignitable liquid classified as Normal-Alkane Product was detected in Item 2. No ignitable liquids were detected in Item 3.
Y78MBG	Limonene and a Heavy Petroleum Distillate were identified in Item 1. Limonene is found in several products, including ignitable liquids, such as some cleaning products and air fresheners, and is also found naturally in citrus oils. Heavy petroleum distillates are ignitable liquids which include kerosene, aviation fuels, lamp oils, and automotive parts cleaners. It cannot be determined whether this is a single product or a mixture of multiple products. Examples of commercial products that contain such a mixture include specialty cleaning products. A Heavy Normal Alkane Product was identified in Item 2. Heavy normal alkane products are ignitable liquids which include some candle oils, carbonless paper, and copier toners. No ignitable liquid residues were identified in Item 3.
Y7N7B2	A heavy petroleum distillate was detected in item 1. A heavy normal alkane product was detected in item 2. No ignitable liquids were detected in item 3. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels and some charcoal starters. Examples of normal alkane products include, but are not limited to, solvents, some candle oils, some copier toners and carbonless forms.
Y9EDQR	Items 1-1-1-1-2, 1-2-1-1-2, and 1-3-1-1-2 (ACS sample extracts) from the cloth remnant from the sheet (item 1-1-1-1), the cloth remnant from the pillowcase (item 1-2-1-1), and the cloth substrate-comparison blank (item 1-3-1-1) were not analyzed. A Heavy Miscellaneous ignitable liquid residue was detected in the ACS sample extract (item 1-1-1-1-1) from the cloth remnant from the sheet (item 1-1-1-1). Examples of Heavy Miscellaneous ignitable liquids are lamp oils, insecticides, citrus cleaners, automotive parts cleaners, kerosene, and fuel additives. A Heavy Normal Alkane ignitable liquid residue was detected in the ACS sample extract (item 1-2-1-1-1) from the cloth remnant from the pillowcase (item 1-2-1-1). Examples of Heavy Normal Alkane ignitable liquids are candle oils, lamp oils, carbonless forms, and copier toners. No ignitable liquid residues were detected in the ACS sample extract (item 1-3-1-1-1) from the cloth substrate-comparison blank (item 1-3-1-1).
YH34F6	Item 1: Flammable liquid detected. Serie of n-alkane with interstitial peaks of isoalkanes with gaussian distribution from C12 to C15, identified as Heavy Petroleum Distillate. Présence of Limonene. According to ASTM standard, HPD and limonène can be classified as Miscellaneous. Possibly used as lamp oil. Item 2: Flammable liquid detected. Serie of n-alkanes from C13 to C17, mainly C14 and C13, without any other compounds. Product identified as a heavy n-alkanes product. Possibly used as candle oil, lamp oil.

Updated to include results for participant ZUD2VT

TABLE 4

WebCode	Conclusions
YH39NL	Item #1 revealed the presence of a heavy petroluem distillate which include but not limited to kerosene, diesel fuel, jet fuels, some lamp oils and some charcoal fluids. Item #2 revealed the presence of a heavy Normal-Alkane Product which include but not limited to some candle oils, some lamp oils and copier toners. Item #3 revealed no ignitable liquid resides were detected in the comparison sample.
YHGXRY	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 heavy miscellaneous product that consisted of a heavy petroleum distillate (HPD) and limonene was identified in Item 1 (Identification). These components could originate from a single product or a combination of products. Examples include, but are not limited to, citrus scented lamp oils, adhesive removers, and cleaners. Other examples that include HPDs include, but are not limited to torch fuels, kerosene, and some charcoal starters. Limonene is found in some citrus scented products. A heavy normal alkane product was identified in Item 2 (Identification). Examples include, but are not limited to, some candle oils, lamp oils, and copier toners. No ignitable liquid residues were identified in Item 3 (Not Identified).
YMDGX4	1. A narrow range de-aromatized heavy petroleum distillate and limonene (flash point 46oC) were detected in Item 1. Uses of narrow range de-aromatized heavy petroleum distillates include, but are not limited to, some adhesive/stain removers, some lamp oils and a variety of specialty solvents. As a result of its citrus smelling scent, uses of limonene include, but are not limited to, flavouring, fragrance and perfume materials. It is not known whether these two ignitable liquids originate from a single, blended product or from two separate sources. A commercially available formulation of the adhesive/stain remover Goo Gone® was found to consist of a blend of a narrow range de-aromatized heavy petroleum distillate and limonene. Narrow range de-aromatized heavy petroleum distillates and limonene are ignitable liquids and could act as fire accelerants. 2. A heavy normal-alkane product was detected in Item 2, uses of which include, but are not limited to, some lamp and candle oils, some specialty solvents, carbonless copy forms and some copier toners. Heavy normal-alkane products are ignitable liquids and could act as a fire accelerant. 3. No ignitable liquid, or its residue, was detected in Item 3.
YNL4DA	Item 1: A mixture of volatile substances including limonene and a heavy petroleum distillate in the range of C12-C15 was detected in the contents of this item. Examples of commercially available products reported to contain these substances include some specialised cleaning solvents. Item 2: A low volatility hydrocarbon fraction, consisting of normal alkanes in the range of C13-C19, was detected in the contents of this item. Examples of commercially available products reported to contain these substances include some candle/lamp oils, and some insecticides. Item 3: The contents of this item were examined for the presence of ignitable liquid residues, and none were found.
YP3MDU	001Q1: Limonene and a heavy petroleum distillate were identified. It could not be determined whether this item contained a single commercial product or a mixture of two individual products. Examples of product which contain such a mixture include, but are not limited to, some cleaning solvents. Examples of a heavy petroleum distillate include, but are not limited to, some charcoal starters and some jet fuels. 002Q2: A heavy normal-alkane product was identified. Examples of a heavy normal-alkane product include, but are not limited to, some candle oils, carbonless forms, and some copier toners. 003K1: Analyzed for comparison.
YT32YX	ITEMS: 1 a sealed cardboard box identified as "2020 CTS Forensic Testing Program Test No. 20-5436: IGNITABLE LIQUID IDENTIFICATION Sample Pack: IL" containing: 1-1 a heat sealed nylon bag containing an unburned piece of white cloth identified as "Test No. 20-5436 Item 1" 1-2 a heat sealed nylon bag containing an unburned piece of white cloth identified as "Test No. 20-5436 Item 2" 1-3 a heat sealed nylon bag containing an unburned piece of white cloth identified as "Test No. 20-5436 Item 3" RESULTS: Gas chromatography and mass spectrometry were used to analyze the samples in items #1-1, #1-2, and #1-3. A heavy range petroleum distillate was present in item #1-1. Common products containing a heavy range petroleum distillate are: kerosene, diesel fuel, some jet fuels, and some charcoal starters. A heavy range normal alkane was present in item #1-2. Common products containing a heavy range normal alkane are: some candle oils, carbonless forms, and some copier toners. No ignitable liquids were identified in item #1-3.

TABLE 4

WebCode	Conclusions
YUE7LF	The above item was extracted using passive adsorption/elution and analyzed using Gas Chromatograph/Mass Spectrometer (GC/MS). Item 1: A heavy miscellaneous product residue was identified. Examples of this include but are not limited to some blended products and some specialty products. Item 2: A heavy normal-alkane product residue was identified. Examples of this include but are not limited to some candle oils, carbonless forms, and some copier toners. Item 3: 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). No ignitable liquids were identified.
YW2CVX	The analysis performed in our labotory on item 1 enabled yhe detection of a miscellaneous others (cleaning solvent (limonene and HPD)). The analysis performed onitem 2 enabled the detection of a normal alkanes products C14 - C17 (Lamp oils) and item 3 did not show the presence of any ignitable liquid in the sample.
YYNUDJ	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 extract was examined using Gas Chromatography (GC). The Item 1 extract contained a mixture of limonene and a heavy petroleum distillate. This mixture is classified as a heavy miscellaneous product and can be found in, but is not limited to, some cleaning solvents. Limonene can be found in, but is not limited to, some fragrance and cleaning products. The heavy petroleum distillate can be found in, but is not limited to, some lamp oils and insect sprays. The Item 2 extract contained a mixture of tetradecane, pentadecane and hexadecane (a heavy normal alkanes product), which can be found in, but is not limited to, some lamp oils. No ignitable liquids were identified in the Item 3 extract.
ZD3FC3	1. A heavy miscellaneous product based on a mixture of limonene (flash point 48oC) and a de-aromatized heavy 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 separate products. Heavy miscellaneous products are ignitable liquids and could act as fire accelerants (see Comment 1). 2. A heavy normal-alkanes product was detected in Item 2. Heavy normal-alkanes products are ignitable liquids and could act as fire accelerants (see Comment 2). 3. No ignitable liquid, or its residue, was detected in Item 3.
ZHUEBB	Exhibit 1 contained limonene, which is an ignitable liquid. Limonene can be found in various citrus scented products. Exhibit 1 also contained a heavy petroleum distillate (HPD), which is also an ignitable liquid. Examples of HPDs include some cleaning products, some fuel oils, and some insecticides. It cannot be determined whether the limonene and the HPD are part of the same commercial product or if they were originally two separate products. Exhibit 2 contained a heavy normal alkane product, which is an ignitable liquid. Examples of heavy normal alkane products include some copier toners, some ink products, and some specialty solvents. No ignitable liquids were identified in Exhibit 3.
ZM8YJH	Item 1 was analyzed for the presence of ignitable liquid residues. A Heavy Miscellaneous product was detected. Examples include citrus cleaners and lamp oils. Item 2 was analyzed for the presence of ignitable liquid residues. A Heavy Normal Alkane product was detected. Examples include candle oils and lamp oils. Item 3 was a comparison sample and no ignitable liquid residues were detected.
ZNNJJ3	A Miscellaneous Product was identified in Specimen # 1. Examples of Miscellaneous Products include some blended products, turpentine products, and specialty products. A Heavy Normal Alkane was identified in Specimen # 2.Examples of Heavy Normal Alkanes include Solvent include carbonless forms, some candle oils, and some copier toners. No ignitable liquids were detected in Specimen # 3. The specimen was extracted by Passive Concentration Headspace extraction with activated charcoal and analyzed by Gas Chromatography/Mass Spectrometry. 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. The specimens were extracted by Passive Concentration Headspace extraction with activated charcoal and analyzed by Gas Chromatography/Mass Spectrometry.

TABLE 4

WebCode	Conclusions
ZRMUF3	A Miscellaneous Product was identified in Specimen #01. Examples of Miscellaneous products include some blended products, some turpentine products and some specialty products. A Heavy Normal Alkane product was found in Specimen #02. Examples of Heavy Normal Alkane products include some candle oils, carbonless forms, and some copier toners. No ignitable liquids were detected in Specimen #03. The specimens were extracted by Passive Concentration Headspace extraction with activated charcoal and analyzed by Gas Chromatography/ Mass Spectrometry. *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.
ZTV8VH	Item 1: A mixture containing limonene and a heavy petroleum distillate was found. This can be from a blended product or from a physical mixture. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. Limonene can be a natural or synthetic product. Commercial sources include some cleaning products. The source of the limonene in this sample may be flammable or non-flammable. Item 2: A heavy normal alkane product found. Examples of heavy normal alkane products include, but are not limited to, some candle oils, carbonless forms, and some copier toners. Item 3: No ignitable liquids found.
ZUD2VT	Item 1 contained terpenes, naphthalenes and normal alkanes (C12 - C15). Therefore, we concluded that item 1 was others-miscellaneous. Item 2 contained normal alkanes (C11 - C19). Item 3 did not contain any ignitable liquids.

Additional Comments

TABLE 5

WebCode	Additional Comments
2D3WPR	Conclusions and caveats below are based on ASTM 1618-14. The identification of an ignitable liquid residue in 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 of ignitable liquids. The absence of an ignitable liquid residue does not preclude 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 materials. Chain of Custody records and details of the GC-MS analysis may be provided upon request. Test No. 20-5436 Data Sheet, continued Participant Code: [Participant Code] WebCode: 2D3WPR
37F9NU	we're using ASTM E-1618 scheme for the interpretation of the analysis results. In a real case we would take a substrate for each matrice.
4E4NNH	Note regarding CTS result submissions/requirements: In the test, it requires that ASTM E 1618-14 (not the most current version/version laboratory technical procedure is based on, although no significant change to the classifications has occurred) be used to "indicate the class for any ignitable liquid(s) detected in the submitted items." This seems to imply that in reporting a classified profile, it is also an ignitable liquid. Without testing the liquid itself, I can't determine if it is ignitable or not. In the context of analysis, I see volatiles that may or may not have a profile similar to known ignitable liquids, however, from the appearance of just a profile, I cannot determine ignitability without having a liquid sample that I can directly test. I can compare profiles obtained to known ignitable liquid profiles for similarity, but this doesn't necessarily mean there is an ignitable liquid present. A liquid may have components that on their own are ignitable, but there may be other components (e.g. water) that affect the overall ignitability of the liquid itself. Limonene can be present in some ignitable liquids, but could also be present in some liquids that are not ignitable (e.g. cleaners (citrus or pine-based)). Only items 1 and 2 can have results input to the test (does not include Item 3 – provided as the comparison sample).
4QDR37	Nylon bags are not the best to use, as they often leak.
4RQNMX	Limonene was also detected in Item 1.
6BXF2J	Item #1: Limonene was identified and categorized as the Miscellaneous Ignitable liquid in the sample.
6MDZ8E	Agency item 1 is my item 1A. Agency item 2 is my item 1B. Agency item 3 is my item 1C.
79PRWD	Item 1: Miscellaneous liquids are products of unusual composition that do not fit into a prescribed classification. Examples are listed in our interpretive guidance document. The residue detected in the sample comprised of a mixture of a Heavy Petroleum Distillate (HPD) and limonene. The analysis noted a particular absence of aromatic compounds in the HPD residue, indicating that the HPD was specifically de-aromatised. Limonene is an ignitable liquid in its pure form and a common component of citrus scented oils, fragrances and cleaning products. The residue detected may be from one product that contains a mixture of a de-aromatised HPD and limonene, or from two separate products. Item 2: Normal alkane products are highly refined, petroleum-based liquids. Examples are listed in our interpretive guidance document. Item 3: This sample was used as a substrate comparison for Item 1 and Item 2. The substrate was determined to contain no ILR or other volatile organic compounds that could potentially interfere with the interpretation of those results.
8U7UJ3	These items were processed using passive headspace concentration with activated charcoal strips and analyzed using a gas chromatograph / mass spectrometer.
8WT2TL	Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. It is unknown if the ignitable liquids found in Item 1A represent a single product as manufactured or a subsequent mixture.
92JWQB	No ignitable liquid residues were detected in item 3 (comparison sample). A link to our laboratory's

TABLE 5

WebCode	Additional Comments
	interpretive guidance document is included on all reports, which explains the ASTM E1618-19 classification system and lists examples of liquids in each class. [Report not attached.]
AH73PA	Item number 1 was a de-aromatized heavy petroleum distillate.
AHMMPT	Item (2) contains hydrocarbons (Alkanes) product ranged from (C13-23)
AQWNV8	Item #1 was limonene + HPD
AZ7KQK	Item 1 could be defined as HPD with D-limonene or as miscellaneous product.
B7Q3L8	When "Others - Miscellaneous" is chosen as an option, it would also be pertinent to ask the analyst what their ignitable liquid was, for example, limonene or HPD/limonene.
BG6PG8	Item 1, Item 2 and Item 3 were examined visually and using gas chromatography/mass spectroscopy (GC/MS). Passive adsorption/elution extraction was performed on Item 1, Item 2 and Item 3. The compounds were then analyzed with a gas chromatograph/mass spectrometer. The activated charcoal strips used to collect volatile organic compounds with an adsorption/elution technique are contained in separate plastic vials, placed in separate heat-sealed fire debris bags and were repackaged inside the original item.
BJFUBH	Positive Result: A “positive” result should be considered in context with all available information, and does not automatically lead to the conclusion that a fire was incendiary in nature. Negative Result: A “negative” result does not preclude the possibility that ignitable liquid residue is present at a concentration lower than the method can detect, or that ignitable liquid residues were present at the fire scene.
BLFBGK	Item 1 was a sealed plastic bag holding a sealed plastic bag containing an approximately two inch square piece of white cloth. Item 2 was a sealed plastic bag holding a sealed plastic bag containing an approximately two inch square piece of white cloth. Item 3 was a sealed plastic bag holding a sealed plastic bag containing an approximately two inch square piece of white cloth. The volatile materials of items 1, 2, and 3 were sampled using passive adsorption on activated charcoal strips. Each strip was split in two. One half of each strip was eluted with solvent and the recovered volatile material was analyzed by gas chromatography / mass spectrometry. The second half of each strip was preserved for long term storage. Following analysis, the second half of the sample and blank activated charcoal strips were placed into a padded bag and sealed in a brown envelope labeled [Initials]1.
C34K4M	1.1 is a HPD with limonene
C9AEXH	ITEM 1-1: It is unknown if the ignitable liquids found in ITEM 1-1 represent a single product as manufactured or a subsequent mixture. An example of a product manufactured with this blend is "Goo Gone."
CPYUB9	Item 1A is agency item 1. Item 1B is agency item 2. Item 1C is agency item 3.
CWB9T4	Item 1 - Limonene present along with a homologous series of n-alkanes from nC12-nC15 with nC13-15 dominating. Iso-paraffinic compounds present. Absence of aromatic compounds indicating a de-aromatised distillate. Commercial products containing a mixture of limonene and heavy petroleum distillate are known. Classified as a heavy others-miscellaneous product. Item 2 - homologous series of n-alkanes present from nC13-nC19 with nC14-nC15 dominating. No isoparaffins, cycloalkanes or aromatics present. Classified as a heavy normal alkane product.
DLQV27	Items 1 through 3 were examined by heated headspace extraction with gas chromatography/mass spectrometry (GC/MS) analysis and by passive headspace concentration with GC/MS analysis.
DNZ783	This laboratory does not employ the ASTM classification scheme.
E4P2CL	We have an information sheet similar to Table I "Ignitable Liquid Classification Scheme with Examples of Known Products for Each Class" in ASTM E-1618, which we send along with the report. [Report not attached.]

TABLE 5

WebCode	Additional Comments
EUJJEN	No flammable liquid was detected in the sample labelled Item 3
F3V8YU	The above items were examined in accordance with laboratory methods and procedures based upon ASTM International standard test methods and practices. The samples were extracted using passive headspace sampling and analyzed via gas chromatography - mass spectrometry. An extract generated from each item will be returned with the evidence (Items 1A, 2A, and 3A).
FE6HFC	Item #1 appears to be a mixture or blended product consisting of limonene and a heavy petroleum distillate.
FGTUEH	Exhibit 1 is being reported as heavy miscellaneous because CTS only utilizes the ASTM E1618 IL classification scheme & does not allow more specific reporting. However, our lab would report out the specific components identified instead of a miscellaneous classification. This report wording may read: "Exhibit 1 was analyzed and determined to contain a limonene and a heavy petroleum distillate. Limonene may be found in ignitable and non-ignitable commercial products including, but not limited to, turpentine products, some cleaning products, and some paint strippers. It should be noted that limonene is commonly used as a scenting and flavoring agent. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. It could not be determined whether Exhibit 1 contained a single commercial product or a mixture of two individual products."
FRATNK	Item 1 also contains limonene.
FWP2CJ	The Heavy Others-Miscellaneous Products detected on the sample received and labeled as item 1, has a n-alcanes ion profile with carbon number range between C12 – C15. The Heavy Normal Alkane Product detected on the sample received and labeled as item 2, has a carbon number range between C13 – C17. In the Item 3 it was detected the chromatograph peak of Nylon (sample container material described as nylon evidence bag).
GME8TB	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.
GTH77L	In Item 1 is also detected the presence of terpenes (dl-limonene and B-myrcene).
HFUV4U	A negative control and a positive control (75% weathered gas) are prepared in the same manner as our questioned samples, for quality control.
HHXDVG	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 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.
HJR4YB	Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. It is unknown if the ignitable liquids found in Item #1-1 represent a single product as manufactured or a subsequent mixture.
J2PMTC	The presence of ignitable liquids in Item 1 and Item 2 does not necessarily lead to the conclusion that fire was incendiary in nature. further investigation may reveal a legitimate reason for the presence of ignitable liquids.
JCKXWD	There is no information about products that were used for the day spa activity.
JLXPQG	My laboratory does not typically report limonene in fire debris samples.
JPBYNX	Item 3 - comparison sample
JR2TCA	The unanalyzed portion of the activated charcoal strips are being returned to the submitting agency along with the submitted evidence.

TABLE 5

WebCode	Additional Comments
JX76HY	Items 1, 2, and 3 were examined visually and using gas chromatography/mass spectrometry (GC/MS). Passive adsorption/elution extraction were performed on the items. The activated charcoal strips used to collect volatile organic compounds with an adsorption/elution technique are contained in separate plastic vials, placed in separate, heat-sealed fire debris bags, and each was repackaged inside the original item.
LBJC8V	Item 1, I would call it De-aromatized Heavy Petroleum Distillate, regarding the area without the Limonene. I would justify that Limonene, is added as a scent only and can be excluded from classification. Based on a reference from NCFS, classifying a product very similar to Item 1, as Miscellaneous, is why I have given such classification. This classification stays consistent with NCFS, which is generally accepted in the field of Fire Debris analysis.
MK68VW	Item 1 - Miscellaneous liquids are products of unusual composition that do not fit into a prescribed classification. Examples are listed in our interpretive guidance document. The subject sample consisted of a Heavy Petroleum Distillate (HPD) and Limonene. The residues identified may be a product that contained a HPD or Limonene, or two separate ignitable liquid residues. Item 2 - Normal alkane products are highly refined, petroleum-based liquids. Examples are listed in our interpretive guidance document.
MK9P29	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 releval 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.
MP3Q22	Three laboratory glass vials were repackaged with the evidence.
N4YVRQ	The activated charcoal strip extracts were packaged with the original items and stored in the Fire Debris Unit. Upon completion of the proficiency test, after results are released, the items and their ACS will be disposed of. 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's internal policy and procedures.
NVKGZ3	Question 1 on the test report form references using the ASTM E1618-14 for classification purposes. The ASTM E1618-14 has been replaced with the ASTM E1618-19. Future versions of this proficiency test should reference the current version of the ASTM E1618.
P2MHMU	Item 1A is CTS Item 1. Item 1B is CTS Item 2. Item 1C is CTS Item 3.
PET7MY	Item 1 note: Unable to determine if the miscellaneous product in item 1 is the result of a single product or a mixture of two products.
PHRGHY	We're using ASTME-1618 scheme for the interpretation of the analysis result.
QDWE3H	If limonene was present as a result of a cleaning product, it is reasonable to expect both items 1 and 2 to contain limonene as both are linen sources from the same location/business. Item 3 was described as a blank cloth substrate, but it is difficult to know if this is a blank source of the sheet or pillow case or some other product. Ideally, a blank sample should be submitted from both samples to be tested.
QEA8XK	Material Submitted: Item 1: Nylon bag containing white cloth material. Item 1.1: Activated charcoal strip used to collect volatile organic compounds from Item 1. Item 2: Nylon bag containing white cloth material. Item 2.1: Activated charcoal strip used to collect volatile organic compounds from Item 2. Item 3: Nylon bag containing white cloth material. Item 3.1: Activated charcoal strip used to collect volatile organic compounds from Item 3.
QGTTJZ	Item I contains components identifiable as a short range heavy petroleum distillate which also has some extra cyclohexane type product contribution

TABLE 5

WebCode	Additional Comments
QZ6F68	Supplemental info for Item 1: Heavy Petroleum Distillate and Limonene
R8M4JA	For Specimen #1, an aromatic compound was identified as well as a medium to heavy petroleum distillate.
RB2EGQ	A blend of a terpene (D-Limonene) and a heavy petroleum distillate was identified in Item 1.
RN73K2	1. 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.
RUC4UN	Limonene is an ignitable liquid that is used as a flavour and fragrance additive in food, household cleaning products, and perfumes, as well as a solvent, dispersing agent and resin manufacture. Limonene is also present in some non-ignitable cleaning products/formulations. Heavy petroleum distillates are ignitable liquids. Diesel fuel, fuel oil, stove oil, furnace oil, jet fuel and some products marketed as kerosene are examples of heavy petroleum distillates. The mixture of limonene and heavy petroleum distillate identified in item 1 may originate from two independent commercial sources or from a single unidentified commercial product. Heavy normal alkanes products are ignitable liquids that may be found in commercial products such as some lamp oils, solvents and carbonless forms and copier toners.
RUWELP	For item 1, limonene call in actual casework would depend on the matrix and overall abundance. Limonene call was made here despite low relative abundance because matrix is essentially a gauze swab with liquid dripped onto it. Limonene call might not be made based on scenario of test, as relative abundance is very low compared to HPD peaks and cannot eliminate substrate/matrix contributions from the sample.
RXG473	Item 1- Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent and resin manufacturing. It is unknown if the ignitable liquids found in item 1-1 represent a single product as manufactured or a subsequent mixture.
T4H9JK	A copy of the ignitable liquids classification table is attached to every report. [Report not attached.]
TKQUW2	Regarding Item #1-1: Limonene is a terpene used in flavoring, fragrance and perfume materials, solvent, and resin manufacturing. Regarding Item #1-1: It is unknown if the ignitable liquids found in Item #1-1 represent a single product as manufactured or a subsequent mixture. An example of a product manufactured with this blend is “Goo Gone”.
UBEXRV	Item #1 - Limonene was identified and categorized as the Miscellaneous Ignitable Liquid in the sample.
VETAM3	On Item #1 was found D-Limonene and a Heavy Petroleum Distillate. The presence of two different categories was the reason that the sample was classified as a whole as a Miscellaneous Product.
W6KW2T	The cloth from Item 3 was tested and would be reported as negative.
W94R6K	Limonene present in Item 1. Peak is high in abundance and relative to the n-alkane peaks of the HPD. Additionally, the limonene cannot be attributed to the matrix. Therefore, call made.
WC43ZK	Documentation made that a limonene was detected in Item 1 but would not call this separately due to an order of magnitude criteria in protocol; considering this as evidence from a fire scene, in which case it does not meet the order of magnitude criteria. However, if it were a gauze swab or a liquid recovery, then the overall abundance of the limonene would meet criteria, so it would meet the criteria and limonene call could be made in addition to the HPD. Also, would document that Item #1 meets both medium petroleum distillate and heavy petroleum distillate criteria but overlays better with heavy petroleum distillate known sample and fits the narrow range heavy petroleum distillate description better than calling an MPD-HPD range or just and MPD.
WENRKX	It is unknown if the ignitable liquids found in Item 1-1 represent a single product as manufactured or a subsequent mixture.

TABLE 5

WebCode	Additional Comments
WT92VL	Regarding subclass for item 001-001: Per ASTM E1618-19 section 12.3.2.3 "Other Ignitable Liquids - Commercial products can be variations of petroleum products or derived from non-petroleum sources. These include: isoparaffinic products, aromatic products, naphthenic-paraffinic products, n-alkane products, oxygenated products, and miscellaneous products. (1) These products can also be reported by assigning an n-alkane range, or can be classified as light, medium, or heavy."
X3UXMU	Samples of recovered materials from this case have been preserved with the evidence. Analysis method: Carbon trap followed by Gas Chromatography/Mass Spectrometry
XT8UK2	item 1 not proceed and reported due to technical error on our side.
XXXXXH	The identification of an ignitable liquid in an item does not necessarily lead to the conclusion that a fire was deliberately set. Terpene-based products are ignitable liquids that are made from organic compounds produced by a variety of plants and trees. Turpentine is a terpene-based product. Limonene is a common terpene. Terpenes are also used in other products such as food additives, fragrances, pharmaceuticals, cleaners and disinfectants. Heavy petroleum distillates are ignitable liquids and are found in such commercial products as furnace oil, diesel fuel, some charcoal starters, some jet fuels, some fuel additives, some automotive parts cleaners and some products marketed as kerosene. Heavy normal alkane products are ignitable liquids and are found in such commercial products as some copier toners, carbonless forms and some candle/lamp oils. The mixture of a terpene-based product and a heavy petroleum distillate identified in item 1 may originate from two independent commercial sources or from a single unidentified commercial product.
Y78MBG	Again, like always, the test is really more about different lab policies for reporting mixtures and miscellaneous products rather than a test of whether our programs and analysts are able to identify products which would be seen in casework. The substrates are always simple, unburned items which have no interfering compounds, completely unlike what we see in typical casework. And the products used are weird specialty liquids which would never be used to start a fire.
Y7N7B2	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 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.
YMDGX4	Too easy
YT32YX	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). Explanations for a finding of no ignitable liquids may be, but are not limited to: not present in the sample, does not meet current ASTM requirements, evaporation of the volatile compounds, complete consumption in a fire, environmental alteration, masked by background material, or a limitation of the reference material available to this laboratory. NOTE: An activated charcoal strip was used to collect a sample from each item submitted for analysis. These charcoal strips are preserved in the laboratory for 5 years for potential additional analysis. Charcoal strips associated with death investigations will be preserved indefinitely.
ZD3FC3	1. Limonene is used in the manufacture of, but is not limited to, some cleaning solvents, some fire suppression foams, some hand cleaners and some paint solvents. De-aromatized heavy petroleum distillates are used in the manufacture of, but are not limited to, some cleaning solvents and some paint solvents. 2. Heavy normal-alkanes products are used in the manufacture of, but are not limited to, some candle oils, carbonless copy forms, some copier toners and some torch fuels.
ZNNJJ3	Specimen #1 was found to contain an aromatic product blended with a medium to heavy petroleum distillate.
ZRMUF3	For Speciemen #01, an aromatic compound was identified as well as a medium to heavy petroleum

TABLE 5

WebCode	Additional Comments
	distillate.
ZTV8VH	The identification of an ignitable liquid residue in 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 of ignitable liquid residues. The absence of an ignitable liquid residue does not preclude 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 materials.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 20-5436: Ignitable Liquid Identification

DATA MUST BE SUBMITTED BY **Oct. 5, 2020, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234J WebCode: 7F9ML2

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Scenario:

Police are investigating a suspected, attempted arson at a local day spa. It appears that someone tried to light a fire in a back room. Police collected cloth remnants from a table sheet and pillowcase that were located near the attempted ignition site and appeared to contain liquid. The samples were immediately sealed within nylon evidence bags. The police are requesting that you identify any ignitable liquid(s) that may be present on the cloth samples.

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: Cloth remnant from the sheet sealed in a nylon evidence bag.
Item 2: Cloth remnant from the pillowcase sealed in a nylon evidence bag.
Item 3: Cloth substrate intended as a comparison blank in a nylon evidence bag.

1.) Using the ASTM E 1618-14 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

Class	*Subclass*

Item 2

Class	*Subclass*

2.) Ignitable Liquid Recovery Techniques

Adsorption Headspace

a) Method

- ☐ Passive
- ☐ Dynamic

b) Adsorption Temperature

- ☐ Room Temperature
- ☐ Heated (Temperature: ____ °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 note: *Any additional formatting applied in the free form spaces below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

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

5.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or 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 below must be completed.)
○ This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

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 Certificate here)

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)