Collaborative Testing Services, Inc
FORENSIC TESTING PROGRAM

P.O. Box 650820
Sterling, VA 20165-0820
e-mail: forensics@cts-interlab.com
Telephone: +1-571-434-1925
Web site: www.cts-forensics.com

Ignitable Liquid Identification
Test No. 24-5436 Summary Report

Each sample set contained two questioned items to which an unknown ignitable liquid had been added to a substrate and one item used as a substrate comparison blank. Participants were asked to examine these items using their existing protocols. Data were returned from 285 participants and are compiled into the following tables:

	Page
Manufacturer's Information	2
Summary Comments	3
Table 1: Ignitable Liquid Identification	4
Table 2: Extraction Techniques	22
Table 3: Identification Techniques	35
Table 4: Conclusions	39
Table 5: Additional Comments	73
Appendix: Data Sheet	

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 contained two questioned items to which an unknown ignitable liquid had been added to a substrate and one item used as a substrate comparison blank. Participants were asked to identify and indicate the ASTM class for any ignitable liquid(s) present on the submitted items.

SUBSTRATE PREPARATION: All items contained cotton terry cloth substrate that were prepared by being washed and dried, lint rolled on each side to remove any extraneous debris, and then cut into 2x2 inch squares.

QUESTIONED ITEMS: The items were created by pipetting and depositing 50 µl of each of the ignitable liquids to the substrate and immediately heat sealing in a 5x10 inch nylon bag. This bag was then placed in a 6x12 inch, pre-labeled, nylon bag and heat-sealed. Each bag was then inspected to determine if it contained an adequate amount of headspace. The different items were prepared and stored in different locations until the sample set assembly.

COMPARISON BLANK: The same substrate was packaged in the same way as described for the questioned items, but no ignitable liquid was added.

SAMPLE SET ASSEMBLY: All items were inspected to ensure they contained an adequate amount of headspace, and then they were placed into a pre-labeled sample set box and sealed.

VERIFICATION: Predistribution results were consistent with each other and the manufacturer's preparation information. The following recovery and identification techniques were used to examine the items: Passive, Dynamic, and Static Headspace, Adsorption, Desorption, and GC/MS.

Questioned Item	Substrate	Product Type	Brand	Classification*
1	Cotton Terry Cloth	Auto Diesel (40 Cetane, ultra low-sulfur 15-ppm)	Sheetz Gas Station Sterling, VA	Petroleum Distillates
2	Cotton Terry Cloth	Diesel Fuel Supplement + Cetane Boost	Power Service ®	Miscellaneous
Item 3 intended as a comparison blank only.				

**Classification as determined by the Ignitable Liquids Reference Collection (ILRC) database - University of Central Florida.*

Source: ASTM E 1618-19, Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry, Table 1.

 Copyright ©2024 CTS, Inc

Summary Comments

This test was designed to allow participants to assess their ability in the extraction and identification of ignitable liquids on cloth substrates packaged in nylon bags. A sample set contained two questioned items consisting of an unknown ignitable liquid deposited on a substrate and one item used as a substrate comparison blank. Participants were asked to identify and indicate the ASTM class for any ignitable liquid(s) present on the submitted items. The substrate in the Item 1 bag contained a product labeled as Auto Diesel (40 Cetane, ultra low-sulfur 15-ppm) and the substrate in the Item 2 bag contained a product labeled as Diesel Fuel Supplement + Cetane Boost. Refer to the Manufacturer's Information for preparation details.

Of the 285 responding participants for Item 1, 280 (98%) classified the ignitable liquid as belonging to the Petroleum Distillates (including De-Aromatized). For Item 1 subclass, the majority of participants reported heavy.

Of the 280 responding participants for Item 2, 234 (84%) classified the ignitable liquid as belonging to a single classification of either Others-Miscellaneous or Aromatic Products or a combination of the two. For Item 2 subclass, the majority of participants reported medium.

The most commonly used extraction techniques were heated, passive headspace concentration with carbon/charcoal adsorbent and solvent desorption. The most commonly used identification technique was GC/MS.

 Copyright ©2024 CTS, Inc

Ignitable Liquid Identification

Indicate the ASTM E 1618-19 class or classes for any ignitable substances present on the submitted items.

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
24URNH	Petroleum Distillates (including De-Aromatized)	heavy
26QTPK	Petroleum Distillates (including De-Aromatized)	Heavy
2A72DK	Petroleum Distillates (including De-Aromatized)	Heavy
2AYLQQ	Petroleum Distillates (including De-Aromatized)	Heavy
2D3UZM	Petroleum Distillates (including De-Aromatized)	Heavy
2HETFM	Petroleum Distillates (including De-Aromatized)	heavy
2JQ66Y	Petroleum Distillates (including De-Aromatized)	Heavy petroleum distillate
2KG4JW	Petroleum Distillates (including De-Aromatized)	heavy
2MAMDN	Petroleum Distillates (including De-Aromatized)	Heavy Range
2WWXWB	Others - Miscellaneous	Medium to Heavy
2YHC8J	Petroleum Distillates (including De-Aromatized)	heavy
2YKW4Y	Petroleum Distillates (including De-Aromatized)	Heavy
36L2J6	Petroleum Distillates (including De-Aromatized)	Heavy petroleum distilates
3ECLMG	Petroleum Distillates (including De-Aromatized)	Heavy
3F3HZV	Petroleum Distillates (including De-Aromatized)	Heavy
3MNBEF	Petroleum Distillates (including De-Aromatized)	Heavy
3PCC74	Petroleum Distillates (including De-Aromatized)	Heavy
43C3CL	Petroleum Distillates (including De-Aromatized)	Heavy Range
46ZR49	Petroleum Distillates (including De-Aromatized)	heavy
49GEHE	Petroleum Distillates (including De-Aromatized)	Heavy
4CGPBT	Petroleum Distillates (including De-Aromatized)	heavy
4E9LZM	Petroleum Distillates (including De-Aromatized)	Heavy de-aromatized
4GUXPW	Petroleum Distillates (including De-Aromatized)	Heavy
4HRDCP	Petroleum Distillates (including De-Aromatized)	Heavy
4MKH39	Others - Miscellaneous	medium to heavy
4Q433M	Petroleum Distillates (including De-Aromatized)	Heavy
4UJVRV	Petroleum Distillates (including De-Aromatized)	Heavy
4ZM7WM	Petroleum Distillates (including De-Aromatized)	C-8 to C-18 Heavy Product
62B6L6	Petroleum Distillates (including De-Aromatized)	Heavy
66Z7UE	Petroleum Distillates (including De-Aromatized)	Heavy C8-C17

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
6FF28T	Petroleum Distillates (including De-Aromatized)	Heavy
6GP7KG	Petroleum Distillates (including De-Aromatized)	Medium
6LKZHH	Petroleum Distillates (including De-Aromatized)	Heavy
6MEDVF	Petroleum Distillates (including De-Aromatized)	Heavy
6NCV8C	Petroleum Distillates (including De-Aromatized)	Heavy (C9-C20+)
6P6EYH	Petroleum Distillates (including De-Aromatized)	Heavy
6T4QVH	Petroleum Distillates (including De-Aromatized)	Heavy
6UF3KU	Petroleum Distillates (including De-Aromatized)	Heavy
6YVA9T	Petroleum Distillates (including De-Aromatized)	Heavy
77997H	Petroleum Distillates (including De-Aromatized)	heavy
7D4B9T	Petroleum Distillates (including De-Aromatized)	Heavy
7H3PVJ	Petroleum Distillates (including De-Aromatized)	heavy range
7JAGWR	Petroleum Distillates (including De-Aromatized)	heavy
7LZFBQ	Petroleum Distillates (including De-Aromatized)	Heavy
7PEF8G	Petroleum Distillates (including De-Aromatized)	HEAVY
7TZ3Z6	Petroleum Distillates (including De-Aromatized)	heavy range
7V7XRF	Petroleum Distillates (including De-Aromatized)	Heavy
7VP69D	Petroleum Distillates (including De-Aromatized)	Heavy C8-C19
7WY4VD	Petroleum Distillates (including De-Aromatized)	Heavy
82MFGF	Petroleum Distillates (including De-Aromatized)	Heavy
8F8YC6	Petroleum Distillates (including De-Aromatized)	Heavy
8LVJFK	Petroleum Distillates (including De-Aromatized)	heavy
8NMHUJ	Petroleum Distillates (including De-Aromatized)	Heavy
8PE2NA	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate
8PEAAF	Petroleum Distillates (including De-Aromatized)	Heavy
8Q6BDH	Petroleum Distillates (including De-Aromatized)	Heavy
8TU9WP	Petroleum Distillates (including De-Aromatized)	heavy
8YM8D6	Petroleum Distillates (including De-Aromatized)	Medium to Heavy Petroleum Distillates
9CQQN6	Petroleum Distillates (including De-Aromatized)	Heavy
9E7K3G	Petroleum Distillates (including De-Aromatized)	Heavy
9J6YP8	Petroleum Distillates (including De-Aromatized)	Heavy
9JLTQG	Petroleum Distillates (including De-Aromatized)	Heavy
9MNQ2A	Petroleum Distillates (including De-Aromatized)	Medium

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
9PR2ZB	Petroleum Distillates (including De-Aromatized)	Heavy
9PVGGH	Petroleum Distillates (including De-Aromatized)	Heavy
9QN3WA	Petroleum Distillates (including De-Aromatized)	Medium to Heavy
9R3YFD	Petroleum Distillates (including De-Aromatized)	Heavy (C9 - C17)
9U7ZP7	Petroleum Distillates (including De-Aromatized)	C7 to C15
9WAXZY	Petroleum Distillates (including De-Aromatized)	Heavy (C9-C20)
9XJGNE	Petroleum Distillates (including De-Aromatized)	Heavy
9ZB4CJ	Petroleum Distillates (including De-Aromatized)	Medium (C9 - C17)
A6HGM8	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate
A92472	Petroleum Distillates (including De-Aromatized)	heavy petroleum distilates
AGD3ZD	Petroleum Distillates (including De-Aromatized)	Heavy
AJHT22	Petroleum Distillates (including De-Aromatized)	Heavy
AVBCGR	Petroleum Distillates (including De-Aromatized)	heavy
AVUVNJ	Petroleum Distillates (including De-Aromatized)	Heavy
AVXH7X	Petroleum Distillates (including De-Aromatized)	Heavy
B78FLL	Petroleum Distillates (including De-Aromatized)	Heavy
B7UDQR	Petroleum Distillates (including De-Aromatized)	medium to heavy
BL8URZ	Petroleum Distillates (including De-Aromatized)	Heavy (C8-C16) Petroleum Distillate
BMCLHF	Petroleum Distillates (including De-Aromatized)	Heavy
BN7ULC	Petroleum Distillates (including De-Aromatized)	Heavy
BNR9AP	Petroleum Distillates (including De-Aromatized)	heavy
BP86NZ	Petroleum Distillates (including De-Aromatized)	Heavy
BPH4GB	Petroleum Distillates (including De-Aromatized)	Heavy
BQXQB7	Petroleum Distillates (including De-Aromatized)	Heavy
BQXTZB	Petroleum Distillates (including De-Aromatized)	heavy
BRA3V9	Petroleum Distillates (including De-Aromatized)	Heavy
BTJFTX	Petroleum Distillates (including De-Aromatized)	MEDIUM PRODUCT RANGE
BVBYMP	Petroleum Distillates (including De-Aromatized)	Heavy
BXWDZK	Petroleum Distillates (including De-Aromatized)	Heavy
BYPLE9	Petroleum Distillates (including De-Aromatized)	Heavy
BZMHXX	Petroleum Distillates (including De-Aromatized)	Medium to heavy
C2WEQL	Petroleum Distillates (including De-Aromatized)	Medium
C8JT7Z	Petroleum Distillates (including De-Aromatized)	Medium to Heavy Petroleum Distillates

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
C9BRKY	Petroleum Distillates (including De-Aromatized)	Heavy
C9W4J8	Petroleum Distillates (including De-Aromatized)	Heavy
CLGQNY	Petroleum Distillates (including De-Aromatized)	Heavy
CUUUFX	Petroleum Distillates (including De-Aromatized)	Heavy
CXQLLA	Petroleum Distillates (including De-Aromatized)	Heavy (C7-C16)
CY3UG9	Petroleum Distillates (including De-Aromatized)	Heavy
D2UG6C	Petroleum Distillates (including De-Aromatized)	Heavy
D4UP9M	Petroleum Distillates (including De-Aromatized)	heavy
D66QVL	Petroleum Distillates (including De-Aromatized)	Heavy
DAKYJK	Petroleum Distillates (including De-Aromatized)	Heavy
DGJC88	Petroleum Distillates (including De-Aromatized)	Heavy
DHF2KW	Petroleum Distillates (including De-Aromatized)	Heavy
DHWLKE	Petroleum Distillates (including De-Aromatized)	heavy
DJAP7D	Petroleum Distillates (including De-Aromatized)	Heavy
DPELRX	Petroleum Distillates (including De-Aromatized)	Heavy
DRL4PU	Petroleum Distillates (including De-Aromatized)	Heavy
DTQ7FC	Petroleum Distillates (including De-Aromatized)	Heavy
DURWV8	Petroleum Distillates (including De-Aromatized)	Heavy (C9-C17)
DWD9GD	Petroleum Distillates (including De-Aromatized)	Heavy
E2MG9L	Petroleum Distillates (including De-Aromatized)	Heavy
ECPG8L	Petroleum Distillates (including De-Aromatized)	Heavy
EF84TZ	Petroleum Distillates (including De-Aromatized)	Heavy
EWQP3B	Petroleum Distillates (including De-Aromatized)	Heavy
EYZAY7	Petroleum Distillates (including De-Aromatized)	C9-C17 (Heavy)
EZR7NZ	Petroleum Distillates (including De-Aromatized)	Heavy
F2JX2B	Petroleum Distillates (including De-Aromatized)	heavy range
F6JAXB	Petroleum Distillates (including De-Aromatized)	Heavy Range
F8L894	Petroleum Distillates (including De-Aromatized)	Heavy
FH8YP9	Petroleum Distillates (including De-Aromatized)	Heavy
FQJLPG	Petroleum Distillates (including De-Aromatized)	Heavy
FR82W4	Petroleum Distillates (including De-Aromatized)	heavy
FRBGEB	Petroleum Distillates (including De-Aromatized)	heavy
FU38BW	Petroleum Distillates (including De-Aromatized)	Medium to Heavy

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
FXFQRD	Petroleum Distillates (including De-Aromatized)	Heavy
FZ8P7C	Petroleum Distillates (including De-Aromatized)	Medium
G2ENDQ	Petroleum Distillates (including De-Aromatized)	Heavy
G7TRF7	Petroleum Distillates (including De-Aromatized)	Heavy
G9F9UK	Petroleum Distillates (including De-Aromatized)	Heavy
GB3HUT	Petroleum Distillates (including De-Aromatized)	Heavy
GBYUDF	Petroleum Distillates (including De-Aromatized)	Heavy
GFF32E	Petroleum Distillates (including De-Aromatized)	Heavy
GGUPC2	Petroleum Distillates (including De-Aromatized)	heavy
GHKNQZ	Petroleum Distillates (including De-Aromatized)	Heavy
GTJLCE	Petroleum Distillates (including De-Aromatized)	Heavy
GXZTZE	Petroleum Distillates (including De-Aromatized)	Heavy
H4GAW2	Petroleum Distillates (including De-Aromatized)	Heavy
H7LA7U	Petroleum Distillates (including De-Aromatized)	Heavy
H9Q3X8	Petroleum Distillates (including De-Aromatized)	Heavy
HCCCXD	Petroleum Distillates (including De-Aromatized)	Heavy
HCR8BR	Petroleum Distillates (including De-Aromatized)	Heavy
HCTBFG	Petroleum Distillates (including De-Aromatized)	Heavy
HD4M6T	Petroleum Distillates (including De-Aromatized)	Heavy
HG9BL4	Petroleum Distillates (including De-Aromatized)	Medium
HLE4GY	Petroleum Distillates (including De-Aromatized)	Heavy
HN7Z6T	Petroleum Distillates (including De-Aromatized)	Heavy
HQT8EA	Petroleum Distillates (including De-Aromatized)	Heavy
HW2386	Petroleum Distillates (including De-Aromatized)	Heavy
HWYFQQ	Petroleum Distillates (including De-Aromatized)	High
HZXUDF	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate
J7X6R6	Petroleum Distillates (including De-Aromatized)	Heavy
J8CZMR	Petroleum Distillates (including De-Aromatized)	Heavy
JBVHX3	Petroleum Distillates (including De-Aromatized)	Heavy
JJM3T3	Petroleum Distillates (including De-Aromatized)	Heavy
JLE4W7	Petroleum Distillates (including De-Aromatized)	Heavy
JMQ2L4	Petroleum Distillates (including De-Aromatized)	Heavy
JPEC32	Petroleum Distillates (including De-Aromatized)	Heavy

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
JPUYUB	Petroleum Distillates (including De-Aromatized)	Heavy
JRLUJ6	Petroleum Distillates (including De-Aromatized)	Heavy
JWB7ZY	Petroleum Distillates (including De-Aromatized)	heavy
K4C4GX	Petroleum Distillates (including De-Aromatized)	Heavy
K9QLYE	Petroleum Distillates (including De-Aromatized)	Heavy
KACP7C	Petroleum Distillates (including De-Aromatized)	heavy
KAEPCY	Petroleum Distillates (including De-Aromatized)	Heavy
KC4LV7	Petroleum Distillates (including De-Aromatized)	Heavy
KHAN8E	Petroleum Distillates (including De-Aromatized)	Heavy
KNYZ93	Petroleum Distillates (including De-Aromatized)	Heavy
KZQVZ3	Petroleum Distillates (including De-Aromatized)	Heavy
L23KUL	Petroleum Distillates (including De-Aromatized)	Heavy
L3UGHF	Petroleum Distillates (including De-Aromatized)	heavy
LJ3VT4	Petroleum Distillates (including De-Aromatized)	Heavy
LLQ32L	Petroleum Distillates (including De-Aromatized)	Heavy
LM2C6X	Petroleum Distillates (including De-Aromatized)	HPD
LNCNUA	Petroleum Distillates (including De-Aromatized)	Heavy petroleum distillate
LQ4KJ4	Petroleum Distillates (including De-Aromatized)	heavy
LQ4M98	Petroleum Distillates (including De-Aromatized)	Heavy
LQJ7T6	Petroleum Distillates (including De-Aromatized)	medium to heavy (C8-C16)
M3UW9L	Petroleum Distillates (including De-Aromatized)	heavy
M88GF8	Petroleum Distillates (including De-Aromatized)	Heavy
M9FTVN	Petroleum Distillates (including De-Aromatized)	Heavy
MB7V3W	Petroleum Distillates (including De-Aromatized)	Heavy
MEMN64	Petroleum Distillates (including De-Aromatized)	Heavy
MJDPWP	Petroleum Distillates (including De-Aromatized)	Medium to Heavy
MJY4MN	Petroleum Distillates (including De-Aromatized)	heavy
MNADDW	Aromatic Products	Medium
MZ36AE	Petroleum Distillates (including De-Aromatized)	Heavy
N6PJ6Z	Petroleum Distillates (including De-Aromatized)	Heavy petroleum distillate
N8YM2W	Petroleum Distillates (including De-Aromatized)	heavy
N9FJRB	Petroleum Distillates (including De-Aromatized)	Heavy
NHK2C9	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
NN6T7Z	Petroleum Distillates (including De-Aromatized)	Heavy
NRMDBN	Petroleum Distillates (including De-Aromatized)	Heavy
NUD8XW	Petroleum Distillates (including De-Aromatized)	Heavy
NV492Z	Petroleum Distillates (including De-Aromatized)	Heavy
NXAY69	Petroleum Distillates (including De-Aromatized)	Heavy
NY4UZC	Petroleum Distillates (including De-Aromatized)	Heavy
NZ2VT3	Petroleum Distillates (including De-Aromatized)	Heavy
P2ABGZ	Petroleum Distillates (including De-Aromatized)	Heavy
P9LZ4U	Petroleum Distillates (including De-Aromatized)	Heavy (C8-C16) Petroleum Distillate
PBV3Y6	Petroleum Distillates (including De-Aromatized)	Heavy
PEX2AX	Petroleum Distillates (including De-Aromatized)	Heavy
PLDKRC	Petroleum Distillates (including De-Aromatized)	Heavy
Q2N99Q	Petroleum Distillates (including De-Aromatized)	Heavy
Q7YVT3	Petroleum Distillates (including De-Aromatized)	Heavy
QGDVMA	Petroleum Distillates (including De-Aromatized)	Heavy
QGFH6N	Petroleum Distillates (including De-Aromatized)	heavy
QKFTX3	Petroleum Distillates (including De-Aromatized)	Heavy
QPRGYY	Petroleum Distillates (including De-Aromatized)	Heavy
QQ4QUX	Petroleum Distillates (including De-Aromatized)	Heavy
QT92JU	Petroleum Distillates (including De-Aromatized)	Heavy
QVZX8M	Petroleum Distillates (including De-Aromatized)	heavy
QX4TRQ	Petroleum Distillates (including De-Aromatized)	Heavy
R48MA7	Petroleum Distillates (including De-Aromatized)	medium to heavy (C8-C17)
R4MTPV	Petroleum Distillates (including De-Aromatized)	Heavy
R4P9VN	Petroleum Distillates (including De-Aromatized)	Heavy
R6NJ4Q	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate
R89Z7Q	Petroleum Distillates (including De-Aromatized)	Heavy
RCZAGN	Petroleum Distillates (including De-Aromatized)	Heavy
RL33QV	Petroleum Distillates (including De-Aromatized)	heavy
RQJWLF	Petroleum Distillates (including De-Aromatized)	heavy
RRBJ8W	Petroleum Distillates (including De-Aromatized)	Heavy
RTNK4Q	Petroleum Distillates (including De-Aromatized)	Heavy
RZNGTV	Petroleum Distillates (including De-Aromatized)	heavy

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
T4N36Y	Petroleum Distillates (including De-Aromatized)	Heavy
TT7Q3G	Normal Alkanes Products	Medium-Heavy (nC8 - nC20)
U3QG3E	Petroleum Distillates (including De-Aromatized)	Heavy (C9-C20+)
U4ZQQ6	Petroleum Distillates (including De-Aromatized)	heavy
U7QTXE	Petroleum Distillates (including De-Aromatized)	heavy
UA3DMR	Petroleum Distillates (including De-Aromatized)	Heavy
UCUC2Q	Petroleum Distillates (including De-Aromatized)	Heavy
UCWWW7	Petroleum Distillates (including De-Aromatized)	Medium-heavy
UFXXYN	Petroleum Distillates (including De-Aromatized)	HPD
UJDF9T	Petroleum Distillates (including De-Aromatized)	Heavy
ULFZQ7	Petroleum Distillates (including De-Aromatized)	Heavy
UN73YE	Petroleum Distillates (including De-Aromatized)	Heavy petroleum distilates
UW3EYV	Petroleum Distillates (including De-Aromatized)	Heavy
UZ2FU6	Petroleum Distillates (including De-Aromatized)	Heavy
UZZJNF	Petroleum Distillates (including De-Aromatized)	Heavy
V2RYBW	Petroleum Distillates (including De-Aromatized)	Heavy
V3KR7F	Petroleum Distillates (including De-Aromatized)	Heavy
V8B2GE	Petroleum Distillates (including De-Aromatized)	heavy
VKFFGB	Petroleum Distillates (including De-Aromatized)	Heavy
VRLWCQ	Petroleum Distillates (including De-Aromatized)	Heavy
VVH7AR	Petroleum Distillates (including De-Aromatized)	Heavy
VVNUNJ	Petroleum Distillates (including De-Aromatized)	heavy petroleum distillate
VYKJ37	Petroleum Distillates (including De-Aromatized)	heavy
VYM7JJ	Petroleum Distillates (including De-Aromatized)	HPD
W27KKY	Petroleum Distillates (including De-Aromatized)	heavy
W49LMG	Petroleum Distillates (including De-Aromatized)	Heavy (C11-C19)
WAH8MT	Petroleum Distillates (including De-Aromatized)	heavy
WC6DVB	Petroleum Distillates (including De-Aromatized)	Heavy
WDHFQ3	Petroleum Distillates (including De-Aromatized)	Heavy
WFKQUC	Petroleum Distillates (including De-Aromatized)	Heavy
WGE9FQ	Petroleum Distillates (including De-Aromatized)	Heavy
WJNLDF	Petroleum Distillates (including De-Aromatized)	Heavy
WX7YLL	Petroleum Distillates (including De-Aromatized)	Heavy

Copyright ©2024 CTS, Inc

TABLE 1a - Item 1

WebCode	Item 1: Class	SubClass
X94YYP	Petroleum Distillates (including De-Aromatized)	Heavy
XAF9YX	Petroleum Distillates (including De-Aromatized)	Heavy
XC2D9F	Petroleum Distillates (including De-Aromatized)	Heavy
XDZQ8M	Petroleum Distillates (including De-Aromatized)	Heavy (C9-C17)
XL8PE3	Petroleum Distillates (including De-Aromatized)	Heavy
XUHRY4	Petroleum Distillates (including De-Aromatized)	Heavy
XYCG8H	Petroleum Distillates (including De-Aromatized)	Heavy
Y8JCM9	Petroleum Distillates (including De-Aromatized)	Heavy
Y9TKRM	Gasoline	
YAAGJL	Petroleum Distillates (including De-Aromatized)	Heavy (C8-C20+)
YD9RFL	Petroleum Distillates (including De-Aromatized)	Heavy Petroleum Distillate (HPD)
YE39HM	Petroleum Distillates (including De-Aromatized)	heavy
YHH9NA	Petroleum Distillates (including De-Aromatized)	Heavy
YVTJEL	Petroleum Distillates (including De-Aromatized)	Heavy
Z2A4PG	Petroleum Distillates (including De-Aromatized)	Heavy
Z8G6VZ	Petroleum Distillates (including De-Aromatized)	heavy
ZCTTVW	Petroleum Distillates (including De-Aromatized)	Heavy
ZE3Z2B	Petroleum Distillates (including De-Aromatized)	Heavy
ZHHZ8V	Petroleum Distillates (including De-Aromatized)	Heavy
ZMACXK	Petroleum Distillates (including De-Aromatized)	Heavy
ZNLE2R	Petroleum Distillates (including De-Aromatized)	Heavy
ZQDBQL	Petroleum Distillates (including De-Aromatized)	Heavy
ZUR66X	Petroleum Distillates (including De-Aromatized)	Heavy
ZY9DTX	Petroleum Distillates (including De-Aromatized)	Class 4 (Kerosene)

Response Summary

Total Participants: 285

Item 1: Class

Petroleum Distillates (including De-Aromatized)	280	(98.2%)
Others - Miscellaneous	2	(0.7%)
Aromatic Products	1	(0.4%)
Gasoline	1	(0.4%)
Normal Alkanes Products	1	(0.4%)

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

Copyright ©2024 CTS, Inc

Ignitable Liquid Identification

Indicate the ASTM E 1618-19 class or classes for any ignitable substances present on the submitted items.

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
24URNH	Aromatic Products	medium
	Others - Miscellaneous	
26QTPK	Others - Miscellaneous	Medium
2A72DK	Others - Miscellaneous	Medium
2AYLQQ	Gasoline	
2D3UZM	Others - Miscellaneous	Medium
2HETFM	Others - Miscellaneous	medium
2JQ66Y	Gasoline	
2KG4JW	Others - Miscellaneous	medium
2MAMDN	Others - Miscellaneous	Medium Range
2WWXWB	Others - Miscellaneous	Medium
2YHC8J	Others - Miscellaneous	C8-C15
2YKW4Y	Others - Miscellaneous	Medium
36L2J6	Gasoline	
3ECLMG	Gasoline	
	Oxygenated Solvents	Light
3F3HZV	Others - Miscellaneous	Medium
3MNBEF	Others - Miscellaneous	Medium range aromatic and 2-butoxyethanol
3PCC74	Aromatic Products	Medium
43C3CL	Others - Miscellaneous	Medium Range
46ZR49	Others - Miscellaneous	Medium
49GEHE	Gasoline	
	Others - Miscellaneous	See Conclusions
4CGPBT	Others - Miscellaneous	medium
4E9LZM	Aromatic Products	Medium
4GUXPW	Others - Miscellaneous	Medium
4HRDCP	Aromatic Products	Medium
4MKH39	Others - Miscellaneous	Medium
4Q433M	Aromatic Products	Medium
4UJVRV	Others - Miscellaneous	Medium
4ZM7WM	Aromatic Products	C-8 to C13 Medium Product with Cyclo-Aliphatics
62B6L6	Gasoline	

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
66Z7UE	Others - Miscellaneous	oxygenated/aromatic
6FF28T	Others - Miscellaneous	Medium
6GP7KG	Petroleum Distillates (including De-Aromatized)	Medium
6LKZHH	Petroleum Distillates (including De-Aromatized)	Medium
6MEDVF	Others - Miscellaneous	Medium
6NCV8C	Others - Miscellaneous	Medium (C8-C13)
6P6EYH	Others - Miscellaneous	Medium
6T4QVH	Others - Miscellaneous	Medium
6UF3KU	Others - Miscellaneous	Medium
6YVA9T	Others - Miscellaneous	Medium
77997H	Aromatic Products	
7D4B9T	Others - Miscellaneous	Medium
7H3PVJ	Aromatic Products	medium range
7JAGWR	Others - Miscellaneous	medium
7LZFBQ	Others - Miscellaneous	Medium
7PEF8G	Others - Miscellaneous	MEDIUM
7TZ3Z6	Aromatic Products	medium range
	Others - Miscellaneous	
7V7XRF	Others - Miscellaneous	Medium
7VP69D	Others - Miscellaneous	aromatic/oxygenated
7WY4VD	Aromatic Products	Medium
	Petroleum Distillates (including De-Aromatized)	Medium
82MFGF	Aromatic Products	Heavy
8F8YC6	Aromatic Products	Medium
8LVJFK	Aromatic Products	medium
	Others - Miscellaneous	medium
8PE2NA	Aromatic Products	Medium Aromatic Solvent
8PEAAF	Others - Miscellaneous	
8Q6BDH	Aromatic Products	Medium
8TU9WP	Aromatic Products	medium
8YM8D6	Gasoline	
9CQQN6	Others - Miscellaneous	Medium
9E7K3G	Aromatic Products	Medium
9J6YP8	Others - Miscellaneous	Medium
9JLTQG	Aromatic Products	Medium

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
9MNQ2A	Others - Miscellaneous	Medium
9PR2ZB	Others - Miscellaneous	
9PVGGH	Others - Miscellaneous	Medium to Heavy
9QN3WA	Petroleum Distillates (including De-Aromatized)	Medium to Heavy
9R3YFD	Aromatic Products	Medium (C9 - C12)
9U7ZP7	Others - Miscellaneous	C7 to C12
9WAXZY	Others - Miscellaneous	Medium (C8-C13)
9XJGNE	Aromatic Products	Medium
9ZB4CJ	Aromatic Products	
A6HGM8	Aromatic Products	Medium Aromatic Solvent
A92472	Gasoline	
AGD3ZD	Others - Miscellaneous	Medium Aromatic Product
AJHT22	Others - Miscellaneous	Medium
AVBCGR	Aromatic Products	medium
AVUVNJ	Others - Miscellaneous	Medium
AVXH7X	Others - Miscellaneous	Medium Aromatic Product and Heavy Petroleum Product
B78FLL	Aromatic Products	Medium
B7UDQR	No Ignitable Liquid(s) Detected	
BL8URZ	Others - Miscellaneous	Medium (C8-C13) range other/miscellaneous
BMCLHF	Gasoline	
BN7ULC	Petroleum Distillates (including De-Aromatized)	Medium
BNR9AP	Aromatic Products	medium
BP86NZ	Gasoline	
BPH4GB	Others - Miscellaneous	Medium
BQXQB7	Others - Miscellaneous	Medium
BQXTZB	Aromatic Products	Medium
BRA3V9	Others - Miscellaneous	Medium
BTJFTX	Gasoline	
BVBYMP	Others - Miscellaneous	Medium
BXWDZK	Others - Miscellaneous	Medium
BYPLE9	Aromatic Products	Medium
BZMHXX	Others - Miscellaneous	Medium to heavy
C2WEQL	Gasoline	
C8JT7Z	Gasoline	

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
C9BRKY	Others - Miscellaneous	Medium
C9W4J8	Gasoline	Medium
CLGQNY	Others - Miscellaneous	Medium
CUUUFX	Others - Miscellaneous	Medium
CXQLLA	Aromatic Products	Medium (C8-C14)
CY3UG9	Aromatic Products	Medium
D2UG6C	Aromatic Products	Medium
D4UP9M	Aromatic Products	medium
D66QVL	Others - Miscellaneous	Medium
DAKYJK	Others - Miscellaneous	Medium
DGJC88	Aromatic Products	Medium
DHF2KW	Others - Miscellaneous	Medium
DPELRX	Others - Miscellaneous	Medium; Aromatics and Cycloalkanes
DRL4PU	Aromatic Products	Medium
DTQ7FC	Others - Miscellaneous	Medium
DURWV8	Aromatic Products	Medium (C9-C12)
DWD9GD	Others - Miscellaneous	Medium
E2MG9L	Others - Miscellaneous	Medium
ECPG8L	Petroleum Distillates (including De-Aromatized)	Medium
EF84TZ	Others - Miscellaneous	Medium
EWQP3B	Aromatic Products	Medium
	Others - Miscellaneous	Medium
EYZAY7	Gasoline	
	Petroleum Distillates (including De-Aromatized)	C10-C16 (Heavy)
EZR7NZ	Others - Miscellaneous	
F2JX2B	Gasoline	
F6JAXB	Gasoline	
F8L894	Aromatic Products	Medium
FH8YP9	Aromatic Products	
	Others - Miscellaneous	Medium Aromatic/Cycloalkanes/Alkanes
FQJLPG	Others - Miscellaneous	medium
FR82W4	Others - Miscellaneous	medium
FRBGEB	Aromatic Products	medium
FU38BW	Gasoline	
FXFQRD	Gasoline	NA

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
FZ8P7C	Others - Miscellaneous	Medium
G2ENDQ	Aromatic Products	Medium
G7TRF7	Aromatic Products	
G9F9UK	Others - Miscellaneous	Medium
GB3HUT	Others - Miscellaneous	light to medium
GBYUDF	Others - Miscellaneous	Medium
GFF32E	Others - Miscellaneous	
GGUPC2	Aromatic Products	medium
GHKNQZ	Aromatic Products	Medium
GTJLCE	Others - Miscellaneous	Medium to heavy
GXZTZE	Others - Miscellaneous	
H4GAW2	Aromatic Products	Medium
H7LA7U	Others - Miscellaneous	Medium
H9Q3X8	Others - Miscellaneous	primarily aromatic
HCCCXD	Others - Miscellaneous	Medium
HCR8BR	Others - Miscellaneous	Medium
HCTBFG	Others - Miscellaneous	Medium
HD4M6T	Others - Miscellaneous	Medium
HG9BL4	Petroleum Distillates (including De-Aromatized)	Medium
HLE4GY	Aromatic Products	Medium
HN7Z6T	Others - Miscellaneous	Medium
HQT8EA	Others - Miscellaneous	Medium
HW2386	Aromatic Products	
	Others - Miscellaneous	Medium
HWYFQQ	Others - Miscellaneous	Medium
HZXUDF	Others - Miscellaneous	
J7X6R6	Others - Miscellaneous	Medium
J8CZMR	Others - Miscellaneous	medium
JBVHX3	Others - Miscellaneous	Medium
JJM3T3	Aromatic Products	Medium
JLE4W7	Aromatic Products	Medium
JMQ2L4	Others - Miscellaneous	Medium
JPEC32	Aromatic Products	Medium
JPUYUB	Gasoline	
JRLUJ6	Gasoline	

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
JWB7ZY	Others - Miscellaneous	
K4C4GX	Aromatic Products	medium
K9QLYE	Aromatic Products	Medium
	Others - Miscellaneous	Medium
KACP7C	Others - Miscellaneous	medium
KAEPCY	Aromatic Products	Medium
KC4LV7	Aromatic Products	Medium
	Others - Miscellaneous	Medium
KHAN8E	Aromatic Products	Medium
KNYZ93	Others - Miscellaneous	Medium
KZQVZ3	Aromatic Products	Medium
L23KUL	Others - Miscellaneous	Medium
L3UGHF	Aromatic Products	medium
LJ3VT4	Aromatic Products	Medium
	Others - Miscellaneous	Medium
LLQ32L	Aromatic Products	Medium
LM2C6X	Aromatic Products	medium
LNCNUA	Others - Miscellaneous	
LQ4KJ4	Aromatic Products	light
	Others - Miscellaneous	medium
LQ4M98	Others - Miscellaneous	Medium
LQJ7T6	Aromatic Products	Medium
	Gasoline	
	Others - Miscellaneous	Medium
M3UW9L	Aromatic Products	medium
M88GF8	Others - Miscellaneous	
M9FTVN	Others - Miscellaneous	Aromatics
MB7V3W	Gasoline	
MEMN64	Aromatic Products	Medium
MJDPWP	Gasoline	
MJY4MN	Others - Miscellaneous	medium aromatic
MNADDW	Petroleum Distillates (including De-Aromatized)	Heavy
MZ36AE	Others - Miscellaneous	Medium
N6PJ6Z	Aromatic Products	Medium
	Others - Miscellaneous	Tetrahydrodicyclopentadiene

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
N8YM2W	Others - Miscellaneous	medium
N9FJRB	Others - Miscellaneous	Medium
NHK2C9	Others - Miscellaneous	Medium Miscellaneous Product (Aromatic/Oxygenate)
NN6T7Z	Aromatic Products	Medium
NRMDBN	Others - Miscellaneous	Medium
NUD8XW	Aromatic Products	Medium
NV492Z	Aromatic Products	Medium
NXAY69	Others - Miscellaneous	Medium
NY4UZC	Aromatic Products	Medium
NZ2VT3	Aromatic Products	Medium
P2ABGZ	Others - Miscellaneous	Medium
P9LZ4U	Others - Miscellaneous	Medium (C8-C13) Other/Miscallaneous
PBV3Y6	Others - Miscellaneous	
PEX2AX	Aromatic Products	Light
	Others - Miscellaneous	Medium
PLDKRC	Aromatic Products	Medium
Q2N99Q	Aromatic Products	Medium
Q7YVT3	Gasoline	Not applicable
QGDVMA	Aromatic Products	Medium
QGFH6N	Aromatic Products	medium
QKFTX3	Others - Miscellaneous	Medium
QPRGYY	Aromatic Products	Medium
QQ4QUX	Others - Miscellaneous	Medium
QT92JU	Others - Miscellaneous	Medium
QVZX8M	Gasoline	
QX4TRQ	Aromatic Products	Medium
R48MA7	Others - Miscellaneous	Medium
R4MTPV	Aromatic Products	Medium
R4P9VN	Gasoline	
	Others - Miscellaneous	
R6NJ4Q	Aromatic Products	Medium Aromatic Solvent
R89Z7Q	Others - Miscellaneous	Medium
RCZAGN	Gasoline	
RL33QV	Aromatic Products	medium

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
RQJWLF	Others - Miscellaneous	medium
RRBJ8W	Others - Miscellaneous	Medium
RTNK4Q	Aromatic Products	Medium
RZNGTV	Aromatic Products	medium
T4N36Y	Aromatic Products	Medium
TT7Q3G	Normal Alkanes Products	Heavy (nC10-nC16)
U3QG3E	Gasoline	NA
U4ZQQ6	Aromatic Products	medium
U7QTXE	Others - Miscellaneous	medium
UA3DMR	Others - Miscellaneous	Medium
UCUC2Q	Others - Miscellaneous	Medium
UCWWW7	Aromatic Products	Medium
UFXXYN	Aromatic Products	Medium
UJDF9T	Others - Miscellaneous	Medium
ULFZQ7	Aromatic Products	Medium
UN73YE	Gasoline	
UW3EYV	Aromatic Products	Medium
UZ2FU6	Aromatic Products	Medium
UZZJNF	Others - Miscellaneous	Medium
V2RYBW	Others - Miscellaneous	Medium
V3KR7F	Others - Miscellaneous	Medium
V8B2GE	Aromatic Products	medium
	Others - Miscellaneous	medium
VKFFGB	Aromatic Products	Medium
VVH7AR	Others - Miscellaneous	Medium
VVNUNJ	Others - Miscellaneous	Medium miscellaneous
VYKJ37	Aromatic Products	medium
VYM7JJ	Others - Miscellaneous	Aromatics
W27KKY	Others - Miscellaneous	
W49LMG	Gasoline	
WAH8MT	Others - Miscellaneous	medium
WC6DVB	Aromatic Products	Medium
WDHFQ3	Others - Miscellaneous	Medium
WFKQUC	Others - Miscellaneous	
WGE9FQ	Others - Miscellaneous	Medium

Copyright ©2024 CTS, Inc

TABLE 1b- Item 2

WebCode	Item 2: Class	SubClass
WJNLDF	Others - Miscellaneous	Medium
WX7YLL	Aromatic Products	Medium
X94YYP	Others - Miscellaneous	Medium
XAF9YX	Others - Miscellaneous	
XC2D9F	Gasoline	
XDZQ8M	Aromatic Products	Medium (C9-C12)
XUHRY4	Aromatic Products	Medium
XYCG8H	Others - Miscellaneous	
Y8JCM9	Aromatic Products	Medium
Y9TKRM	Gasoline	
YAAGJL	Others - Miscellaneous	Medium (C10-C14)
YD9RFL	Others - Miscellaneous	Medium Ignitable Liquid
YE39HM	Others - Miscellaneous	medium
YHH9NA	Gasoline	
YVTJEL	Others - Miscellaneous	Medium
Z2A4PG	Others - Miscellaneous	Medium Aromatic product and 2-butoxyethanol
Z8G6VZ	Others - Miscellaneous	medium
ZCTTVW	Aromatic Products	C9-C15
ZE3Z2B	Others - Miscellaneous	Medium
ZHHZ8V	Gasoline	
ZMACXK	Others - Miscellaneous	Medium
ZNLE2R	Aromatic Products	Medium
ZQDBQL	Gasoline	
ZUR66X	Others - Miscellaneous	
ZY9DTX	Aromatic Products	Class 0.4

Response Summary

Total Participants: 280

Item 2: Class

Others - Miscellaneous	154	(55.0%)
Aromatic Products	98	(35.0%)
Gasoline	36	(12.9%)
Petroleum Distillates (including De-Aromatized)	9	(3.2%)
No Ignitable Liquid(s) Detected	1	(0.4%)
Normal Alkanes Products	1	(0.4%)
Oxygenated Solvents	1	(0.4%)

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

Copyright ©2024 CTS, Inc

Extraction Techniques

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp		Adsorption Duration (°C)	Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated				
24URNH	✓				80	12 hours	Carbon/Charcoal	Carbon disulfide
Other Extraction Technique: solvent extraction-Item#1								
26QTPK	✓			✓	80	2	Carbon/Charcoal	CS2
2A72DK	✓			✓	70	12-16 hours	Carbon/Charcoal	Carbon disulfide
2AYLQQ				✓	90	10 minutes		
Other Extraction Technique: Solvent Extraction-Pentane								
2D3UZM	✓			✓	71	4 hours	Carbon/Charcoal	carbon disulfide
2HETFM	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
2JQ66Y	✓			✓	65	16 hours	Carbon/Charcoal	CS2
2KG4JW	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
2MAMDN	✓		✓	✓	60	2 hours RT, Overnight @60C	Carbon/Charcoal	Toluene, CS2
2WWXWB	✓			✓	~80	Overnight	Carbon/Charcoal	CS2/C26
2YHC8J	✓			✓	80	2 hours	Carbon/Charcoal	carbon disulfide
2YKW4Y	✓			✓	63	23 hours	Carbon/Charcoal	Carbon disulfide
36L2J6				✓	50-90		SPME	n-Hegzane
3ECLMG	✓			✓	82	16 hours	Carbon/Charcoal	Carbon Disulfide
3F3HZV		✓	✓	✓	130		Tenax TA	Thermal
3MNBEF	✓			✓	70	16 hours	Carbon/Charcoal	carbon disulfide
Other Extraction Technique: Simple headspace								
3PCC74	✓			✓	80	16 hr	Carbon/Charcoal	CS2
43C3CL	✓		✓	✓	60	2 hours @ room temp, 17 hours @ 60C	Carbon/Charcoal	carbon disulfide and toluene
46ZR49	✓			✓		16 hours	Carbon/Charcoal	CS2
49GEHE	✓			✓	77	2 Hours	Carbon/Charcoal	Carbon Disulfide
4CGPBT	✓			✓	80	~16 hours	Carbon/Charcoal	Carbon Disulfide
4E9LZM	✓			✓	80-120	15 or 30 min	CAR/PDMS fiber	Thermal
Other Extraction Technique: Hexane extraction and liquid inyection in GC/MS								

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
4GUXPW	✓			✓	65	18.5	Carbon/Charcoal	CS2
Other Extraction Technique: static headspace								
4HRDCP	✓			✓	66	16hr	Carbon/Charcoal	CS2
4MKH39	✓			✓	~80	Overnight	Carbon/Charcoal	CS2C26
4Q433M	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon Disulfide
Other Extraction Technique: None								
4UJVRV								
Other Extraction Technique: Solvent extraction								
4ZM7WM	✓			✓	65		Carbon/Charcoal	
62B6L6	✓			✓	60	< 24 hours	Carbon/Charcoal	CS2
66Z7UE	✓			✓	60	16 hours	Carbon/Charcoal	pentane
6FF28T	✓			✓	80	approximately 16 hours	Carbon/Charcoal	Carbon Disulfide
6GP7KG		✓		✓	100	1 hour	Tenax	Pentane
6LKZHH		✓		✓	90	10 minutes	Carbon/Charcoal	Thermal
6MEDVF	✓			✓	70	12-16 Hours	Carbon/Charcoal	Carbon Disulfide
6NCV8C	✓			✓	75	14hr	Carbon/Charcoal	Pentane
6P6EYH	✓			✓	~70	~16 hours	Carbon/Charcoal	carbon disulfide
6T4QVH	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
6UF3KU	✓				80	16 hours	Carbon/Charcoal	Carbon Disulfide
6YVA9T	✓			✓	65	17 hours	Carbon/Charcoal	CS2
77997H	✓			✓	65	16.75	Carbon/Charcoal	carbon disulfide
7D4B9T	✓			✓	60	~18 hours	Carbon/Charcoal	Carbon disulfide
7H3PVJ	✓			✓	70	10 hours	Carbon/Charcoal	Ethyl Ether
Other Extraction Technique: Static Headspace sampling, heated for 30 minutes at 70C								
7JAGWR	✓			✓	65	16hr	Carbon/Charcoal	Carbon Disulfide
7LZFBQ	✓			✓	70	15 minutes	SPME Fiber	Thermal
7PEF8G	✓			✓	80	10 minutes	SPME (Carboxen-PDMS)	Thermal

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
7TZ3Z6	✓			✓	60		Carbon/Charcoal	carbon disulfide
7V7XRF	✓			✓	77	3 hours	Carbon/Charcoal	carbon disulfide
7VP69D	✓			✓	60	16 hours	Carbon/Charcoal	pentane
7WY4VD	✓		✓	✓	65	about 20 hours	Carbon/Charcoal	carbon disulfide
82MFGF	✓			✓	90	16 hour	Carbon/Charcoal	dichloromethane
8F8YC6	✓			✓	~65	12 hours	Carbon/Charcoal	Diethyl Ether
8LVJFK	✓			✓	95	15 min	SPME	Thermal
8NMHUJ	✓			✓	~80	~16 hours	Carbon/Charcoal	carbon disulfide
8PE2NA	✓			✓	~66	17 hours	Carbon/Charcoal	CS2/PCE
8PEAAF	✓			✓	70-100	2 hours	Carbon/Charcoal	Pentane
8Q6BDH	✓			✓	70	16 hours	Carbon/Charcoal	CS2
8TU9WP	✓			✓	90	45		
Other Extraction Technique: solvent extraction with pentane								
8YM8D6	✓			✓	80	2 hours	Carbon/Charcoal	Dichloromethane
9CQQN6	✓		✓	✓	70	0,5 min	SPME-PDMS	
Other Extraction Technique: Solvent extraction, solvent: diethyl ether								
9E7K3G				✓	85			
Other Extraction Technique: Direct headspace injection, solvent extraction - diethyl ether								
9J6YP8	✓			✓	80		Carbon/Charcoal	Butanol-1 and dichloromethan
9JLTQG	✓			✓	67	16 hours	Carbon/Charcoal	CS2
9MNQ2A	✓			✓	80	8 hr	Carbon/Charcoal	Carbon disulfide
9PR2ZB	✓			✓	89.4-91.0	2 hours	Carbon/Charcoal	Pentane
9PVGGH	✓			✓	~76	~17 hours	Carbon/Charcoal	Carbon Disulfide
9QN3WA	✓			✓	50	15 min	SPME Fiber	
9R3YFD	✓			✓	80	4 hours	Carbon/Charcoal	pentane
9U7ZP7	✓		✓	✓	80	15m	SPME	Thermal
Other Extraction Technique: No other techniques were used to the samples								

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
9WAXZY	✓			✓	80	15 min	SPME-DVB-PDMS	Thermal
Other Extraction Technique: Head space(HS) seringue incubation 90°C in FID / SPME-DVB-PDMS incubation in 80°C in GCMS								
9XJGNE	✓			✓	65	~16 hours	Carbon/Charcoal	carbon disulfide
9ZB4CJ	✓				100	10min (heating duration)	Tenax	Thermal
A6HGM8	✓			✓	~65	16 hours	Carbon/Charcoal	CS2/PCE
A92472	✓			✓	50	10 MINUTES	SPME	Thermal
AGD3ZD	✓			✓	70	16 hours	Carbon/Charcoal	CS2
AJHT22	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon Disulfide
AVBCGR	✓		✓	✓	60	20	Carbon/Charcoal	n-hexane, Thermal
AVUVNJ	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
AVXH7X	✓			✓	70		Carbon/Charcoal	CS2
B78FLL	✓			✓	66	16 hours	Carbon/Charcoal	CS2
B7UDQR	✓			✓	60		Carbon/Charcoal	carbon disulfide
BL8URZ	✓			✓	60	60 min	Carbon/Charcoal	CS2
BMCLHF	✓			✓	65		Carbon/Charcoal	carbon disulfide
BN7ULC		✓		✓	50	20 minutes	Tenax TA	Thermal
BNR9AP		✓	✓			5 min	SPME(black)	hexane, Thermal
BP86NZ	✓			✓	66	16 hours	Carbon/Charcoal	Carbon Disulfide
BPH4GB	✓			✓	77.3	3 hr	Carbon/Charcoal	carbon disulfide
BQXQB7	✓		✓	✓	80	15min	1. SPME-Carboxene, 2. SPME-PDMS 100um	Thermal
Other Extraction Technique: Liquid extraction								
BQXTZB	✓			✓	60	20	PDMS	
BRA3V9	✓		✓	✓	60	16 hours	Carbon/Charcoal	Toluene (room temp), CS2 (heated)
BTJFTX	✓			✓	250			

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
BVBYMP	✓			✓	70	2.5	Carbon/Charcoal	carbon disulfide
BXWDZK	✓			✓	50	4-8	Carbon/Charcoal	CS2
BYPLE9	✓			✓	66	16	Carbon/Charcoal	Carbon Disulfide
BZMHXX	✓			✓	85	15 min	PDMS-CARBOXEN	Thermal
Other Extraction Technique: Static or direct head space								
C2WEQL		✓	✓				Markes C3-AAXX-5304	Thermal
C8JT7Z	✓			✓	80	2 hours	Carbon/Charcoal	Dichloromethane
C9BRKY	✓			✓	65	21 hr	Carbon/Charcoal	Carbon disulfide
C9W4J8	✓			✓	90	0.1 min	SPME	
Other Extraction Technique: SPME								
CLGQNY	✓			✓	70	16 hours	Carbon/Charcoal	CS2
CUUUFX	✓			✓	80	16	Carbon/Charcoal	carbon disulfide
Other Extraction Technique: Direct Headspace Sampling								
CXQLLA	✓		✓			30s	SPME DCP	
Other Extraction Technique: liquid extraction with n-pentan								
CY3UG9	✓			✓	66	16 hrs	Carbon/Charcoal	carbon disulfide
D2UG6C	✓			✓	65	17 hours	Carbon/Charcoal	CS2
D4UP9M	✓			✓	60	10 min	SPME	Thermal
Other Extraction Technique: solvent extraction using n-hexane								
D66QVL	✓			✓	80	16hrs	Carbon/Charcoal	CS2
DAKYJK	✓			✓	65	18.5	Carbon/Charcoal	CS2
DGJC88	✓		✓	✓	68	8 hours	Carbon/Charcoal	carbon disulfide
Other Extraction Technique: Direct Headspace Injection								
DHF2KW					89	20 minutes	Carbon/Charcoal	carbon disulfide
DHWLKE	✓			✓	70	10 hours	Carbon/Charcoal	ethyl ether
Other Extraction Technique: direct (Static) headspace analysis 70C for 30 min								
DJAP7D	✓			✓	~80	~16 hours	Carbon/Charcoal	carbon disulfide
DPELRX	✓			✓	~60	~16 h	Carbon/Charcoal	Carbon Disulfide
DRL4PU	✓			✓	80	16 hours	Carbon/Charcoal	CS2

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
DTQ7FC	✓			✓	75.0	~3.1 hours	Carbon/Charcoal	carbon disulfide
DURWV8	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
DWD9GD	✓			✓	75	15H	Carbon/Charcoal	PENTANE
E2MG9L	✓			✓	60	16 hours	Carbon/Charcoal	CS2
ECPG8L	✓			✓	70	48 hours	Carbon/Charcoal	diethyl ether
Other Extraction Technique: solvent extraction with diethyl ether								
EF84TZ	✓			✓	75	15 Hours	Carbon/Charcoal	Pentane
EWQP3B	✓			✓	60	16 hours	Carbon/Charcoal	methylene chloride
EYZAY7		✓		✓	100		Tenax	Thermal
EZR7NZ	✓			✓	80	12-16 hours	Carbon/Charcoal	CS2
F2JX2B	✓			✓	~65	~16hrs	Carbon/Charcoal	CS2
F6JAXB	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
F8L894	✓			✓	66	16 hours	Carbon/Charcoal	Carbon Disulfide
FH8YP9	✓			✓	70	5 hours	Carbon/Charcoal	
FQJLPG	✓			✓	70	24hs	Carbon/Charcoal	Diethyl ether
Other Extraction Technique: Solvent extraction using diethylether								
FR82W4	✓			✓	80	2 hours	Carbon/Charcoal	Carbon Disulfide
FRBGEB	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
FU38BW	✓			✓	80	2 hours	Carbon/Charcoal	Dichloromethane
FXFQRD	✓			✓	80	16 hours	Carbon/Charcoal	Carbon disulfide
FZ8P7C	✓			✓	60	16 hours	Carbon/Charcoal	Pentane
G2ENDQ	✓			✓	76	4.5 hours	Carbon/Charcoal	carbon disulfide
G7TRF7	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
G9F9UK	✓			✓	65	~17 hours	Carbon/Charcoal	Carbon Disulfide
Other Extraction Technique: Static Headspace								
GB3HUT	✓			✓	80	16 hours	Carbon/Charcoal	Carbon disulfide

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
GBYUDF	✓			✓	80	6 hours	Carbon/Charcoal, Tenax	carbon disulfide, Thermal
Other Extraction Technique: direct headspace analysis at room temperature								
GFF32E		✓		✓	85	20 minutes	Carbon/Charcoal	CS2
Other Extraction Technique: heated headspace								
GGUPC2	✓			✓	~60	~16 hours	Carbon/Charcoal	Carbon Disulfide
GHKNQZ	✓			✓	77	4 hours	Carbon/Charcoal	carbon disulfide
GTJLCE	✓			✓	80	18 hours	Carbon/Charcoal	Carbon disulfide
GXZTZE	✓			✓	69	16 hours	Carbon/Charcoal	Carbon Disulfide
H4GAW2	✓		✓	✓	66	17.25 hours, 4.5 hours	Carbon/Charcoal	Carbon disulfide
H7LA7U	✓			✓	70	16.66 hours	Carbon/Charcoal	Pentane
H9Q3X8	✓			✓	72	17 hours	Carbon/Charcoal	CS2
HCCCXD	✓			✓	70	Overnight	Carbon/Charcoal	DCM/Toluene
HCR8BR	✓			✓	75	13h	Tenax TA	Thermal
Other Extraction Technique: solvent extraction with n-hexane								
HCTBFG	✓		✓	✓	85	overnight	Carbon/Charcoal	dichloromethane
HD4M6T	✓			✓	70	~ 16 hours	Carbon/Charcoal	Carbon Disulfide
HG9BL4		✓		✓	100	1hr	pentax	pentane
HLE4GY	✓			✓	65	16 Hours	Carbon/Charcoal	Carbon Disulfide
HN7Z6T	✓			✓	70	3 hours	Carbon/Charcoal	Pentane
Other Extraction Technique: Heated headspace for 15 minutes at 80 degrees Celsius								
HQT8EA	✓			✓	60	16 Hours	Carbon/Charcoal	CS2
HW2386	✓			✓	70	19 hours	Carbon/Charcoal	Carbon DiSulfide
HWYFQQ	✓			✓	130	15 min	SPME	Thermal
HZXUDF		✓		✓	85.0	20 minutes	Carbon/Charcoal	CS2
Other Extraction Technique: Heated Headspace								
J7X6R6	✓			✓	69	4 hours	Carbon/Charcoal	Carbon disulfide
J8CZMR	✓			✓	80	5 hours	Carbon/Charcoal	carbon disulfide
Other Extraction Technique: heated headspace concentration								

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
JBVHX3	✓			✓	80	2 hours	Carbon/Charcoal	carbon disulfide
JJM3T3	✓			✓	60	~16 hours		Carbon disulfide
Other Extraction Technique: Solvent extraction with carbon disulfide								
JLE4W7	✓			✓	70	4 hours	Carbon/Charcoal	CS2
JMQ2L4	✓			✓	75	15 hours	Carbon/Charcoal, spme	n-Pentane, Thermal
JPEC32	✓			✓	65	Approximately 16 hours	Carbon/Charcoal	Carbon Disulfide
JPUYUB	✓		✓	✓	80	15 minutos	spme carbox-pdms	Thermal
JRLUJ6	✓		✓	✓	50-80	10 min	SPME	Thermal
Other Extraction Technique: solvent extraction								
JWB7ZY	✓			✓	90	2 hours	Carbon/Charcoal	pentane
K4C4GX	✓			✓	65	16 hours	Carbon/Charcoal	CS2
K9QLYE	✓			✓	80	16 hours	Carbon/Charcoal	Carbon disulfide
KACP7C	✓			✓	65	16 hours	Carbon/Charcoal	CS2
KAEPCY	✓		✓	✓	60		Carbon/Charcoal	Toluene (Room Temp)/Carbon Disulfide (Heated)
KC4LV7	✓			✓	60	~16 hours	Carbon/Charcoal	CS2
KHAN8E	✓			✓	80	overnight	Carbon/Charcoal	CS2
KNYZ93	✓			✓	70	16 hours	Carbon/Charcoal	dichloromethane
KZQVZ3	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
L23KUL	✓			✓	70	20 hours	Carbon/Charcoal	CS2
L3UGHF	✓			✓	65	10 min	SPME black	Thermal
Other Extraction Technique: Headspace gas, Solvent extraction(methylene chloride)								
LJ3VT4	✓			✓	~76	~17 hours	Carbon/Charcoal	CS2
LLQ32L	✓			✓	60	24 hours	Carbon/Charcoal	Diethyl Ether
LM2C6X	✓			✓	60	16	Charcoal strip	Pentane
LNCNUA		✓		✓	85	20 minutes	Carbon/Charcoal	Carbon Disulfide
Other Extraction Technique: Heated Headspace								

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
LQ4KJ4	✓		✓			16 hours	Carbon/Charcoal	Carbon disulfide
LQ4M98	✓			✓	60	16h	Carbon/Charcoal	CS2
LQJ7T6	✓		✓	✓	85	10 min		
Other Extraction Technique: Direct headspace injection								
M3UW9L	✓			✓	40	10 min	SPME (DVB/CAR/PDMS)	Thermal
M88GF8	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
M9FTVN	✓			✓			Carbon/Charcoal	
MB7V3W	✓		✓	✓	120			Thermal
MEMN64	✓			✓	70	~16 hours	Carbon/Charcoal	carbon disulfide
MJDPWP	✓			✓	80	2 hours	Carbon/Charcoal	Dichloromethane
MJY4MN	✓			✓	60		Carbon/Charcoal	
MNADDW	✓			✓	79	16 hours	Carbon/Charcoal	Carbon Disulfide
MZ36AE	✓			✓	70	2 hours	Carbon/Charcoal	Carbon disulfide
N6PJ6Z	✓			✓	110		Tenax	Thermal
N8YM2W	✓			✓	70	~16 hours	Carbon/Charcoal	Carbon Disulfide
N9FJRB	✓			✓	60 & 90	16 hours	Tenax tubes	Thermal
NHK2C9	✓			✓	~78	~17 hours (#1 and #3); ~2 hours (#2)	Carbon/Charcoal	CS2
Other Extraction Technique: Heated Headspace via GC-FID								
NN6T7Z	✓			✓	60	16 hours	Carbon/Charcoal	CSS
NRMDBN	✓			✓	75		Carbon/Charcoal	pentane
NUD8XW	✓			✓	70	16 hours	Carbon/Charcoal	DCM
NV492Z	✓			✓	65	16 hours (overnight)	Carbon/Charcoal	CS2
NXAY69		✓	✓	✓	130		Tenax	Thermal
NY4UZC	✓		✓			10 min		Dichloromethane
Other Extraction Technique: SPME								
NZ2VT3	✓			✓	70	16 hours	Carbon/Charcoal	Carbon disulfide

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
P2ABGZ	✓			✓	75	12 hours, 20 minutes	Carbon/Charcoal	carbon disulfide
P9LZ4U	✓			✓	60	60 min	Carbon/Charcoal	Carbon Disulfide
PBV3Y6		✓		✓	85	20 minutes	Carbon/Charcoal	CS2
Other Extraction Technique: Heated headspace								
PEX2AX	✓		✓	✓	60	16hrs	Carbon/Charcoal	Carbon Disulfide
PLDKRC	✓			✓	70	20 minutes	SPME(black)	Thermal
Other Extraction Technique: Solvent extraction (Hexane)								
Q2N99Q	✓			✓	70	16.5hrs	Carbon/Charcoal	TCE:Ethyl Ether
Q7YVT3	✓			✓	80	16 hours	Carbon/Charcoal	Carbon disulfide
QGDVMA	✓		✓			1 min	SPME (Black)	Thermal
Other Extraction Technique: Solvent extraction (n-Hexane)								
QGFH6N	✓			✓	80	16	Carbon/Charcoal	Pentane
QKFTX3	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
QPRGYY	✓			✓	65	~12.5	Carbon/Charcoal	Carbon Disulfide
QQ4QUX	✓			✓	80			
Other Extraction Technique: solvent extraction (heptane)								
QT92JU	✓			✓	70		Carboxen/PDMS	Thermal
Other Extraction Technique: Solvent extraction								
QVZX8M	✓			✓	95	24 hr.	Carbon/Charcoal	Dichloromethane
QX4TRQ	✓			✓	65	16	Carbon/Charcoal	Carbon Disulfide
R48MA7	✓		✓	✓	80	1 day for room temperature; 3 hours for elevated temperature	tenax	Thermal
R4MTPV	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
R4P9VN	✓			✓	80	8h	Carbon/Charcoal	DEE/Butanol
R6NJ4Q	✓			✓	~65	2 hours	Carbon/Charcoal	CS2/PCE
Other Extraction Technique: Solvent Extraction								
R89Z7Q		✓	✓			4 seconds	Tenax	Thermal
RCZAGN	✓			✓	80	8H00	Carbon/Charcoal	Dichloromethane-Butanol

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
RL33QV	✓			✓	65	16 hours	Carbon/Charcoal	Carbon Disulfide
Other Extraction Technique: Solvent extraction on Item 2								
RQJWLF	✓			✓	75	4.5 hours	Carbon/Charcoal	CS2
RRBJ8W	✓			✓	60	~23 hours	Carbon/Charcoal	Carbon Disulfide
RTNK4Q	✓			✓	65	16 hours	Carbon/Charcoal	carbon disulfide
RZNGTV	✓			✓	60	16 hours	Carbon/Charcoal	carbon disulfide
T4N36Y	✓			✓	70	16 hours	Carbon/Charcoal	Carbon disulfide
TT7Q3G	✓			✓	70	15 min	Solid Phase Micro Extraction (DVB/CAR/PDMS)	Thermal
U3QG3E								n-Pentane
U4ZQQ6		✓		✓	60	20min	Carbon/Charcoal	hexane
U7QTXE								
UA3DMR	✓			✓	77	2 hours, 10 minutes	Carbon/Charcoal	CS2
UCUC2Q	✓			✓	80	2 hours	Carbon/Charcoal	Carbon Disulfide
UCWWW7	✓			✓	63	22 hours	Carbon/Charcoal	CS2
UFXXYN	✓			✓	70	16.5 hrs	Carbon/Charcoal	TCE in diethyl ether
UJDF9T	✓			✓	77.4	2.2 hours	Carbon/Charcoal	carbon disulfide
ULFZQ7	✓			✓	65		Carbon/Charcoal	Carbon disulfide
UN73YE				✓	50-90		SPME	n-Hegzane
UW3EYV	✓			✓	60	16 hours	Carbon/Charcoal	Carbon Disulfide
UZ2FU6	✓			✓	60	20 min.	CAR/PDMS SPME fiber	Hexane
UZZJNF	✓			✓	80	17 hours	Carbon/Charcoal	Carbon disulfide
Other Extraction Technique: Passive direct headspace								
V2RYBW	✓			✓	70	15 Hours	Carbon/Charcoal	Carbon Disulfide
V3KR7F	✓			✓	70	17 hours	Carbon/Charcoal	Carbon Disulfide
V8B2GE	✓			✓	70	18 hrs	Carbon/Charcoal	CS2

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
VKFFGB	✓			✓	80	16 hours	Carbon/Charcoal	Carbon disulphide
VRLWCQ	✓			✓	80	2 hrs	Carbon/Charcoal	CS2
VVH7AR	✓			✓	70	16 Hours	Carbon/Charcoal	Methylene Chloride
VVNUNJ	✓			✓	80	6	Carbon/Charcoal	Carbon disulfide
Other Extraction Technique: Static headspace; heated about 40 minutes								
VYKJ37	✓		✓	✓	60	24 hours (room temp) & 16 hours (heated)	Carbon/Charcoal	Cs2
VYM7JJ	✓	✓	✓	✓	100	16 h	Carbon/Charcoal, Tenax	DKM, Thermal
Other Extraction Technique: ACS								
W27KKY		✓		✓	83	20 minutes	Carbon/Charcoal	carbon disulfide
Other Extraction Technique: Heated headspace								
W49LMG	✓			✓	70	16 hours	Carbon/Charcoal	n-pentane
WAH8MT	✓			✓	65		Carbon/Charcoal	CS2
WC6DVB	✓			✓	80	16 hours	Carbon/Charcoal	carbon disulfide
WDHFQ3	✓		✓	✓	90	16-24 Hours	Carbon/Charcoal	DCM
WFKQUC		✓		✓	70		Tenax	Thermal
WGE9FQ	✓			✓	65	16 Hours	Carbon/Charcoal	Carbon Disulfide
WJNLDF	✓			✓	80	Overnight	Carbon/Charcoal	Carbon Disulfide
WX7YLL	✓			✓	60	16 hours	Carbon/Charcoal	Pentane
Other Extraction Technique: Static headspace sampling								
X94YYP	✓			✓	65	16 Hrs	Carbon/Charcoal	Carbon Disulfide
XAF9YX	✓			✓	69	16 hours	Carbon/Charcoal	Carbon Disulfide
XC2D9F	✓		✓	✓	50	10 MİNUTES	PDMS (POLYDİMETHYLSILOXONE)	Thermal
Other Extraction Technique: SPME (SOLİD FAZ MİCROEXRACTION)								
XDZQ8M	✓			✓	80	4 hours	Carbon/Charcoal	Pentane
XL8PE3	✓			✓	82	4 hours	Carbon/Charcoal	1:1 CS2/C5
XUHRY4	✓			✓	~65	~18 hours	Carbon/Charcoal	Carbon Disulfide

Copyright ©2024 CTS, Inc

TABLE 2

WebCode	Adsorption Headspace		Adsorption Temp			Adsorption Duration	Adsorbent	Desorption
	Passive	Dynamic	Rm Temp	Heated	(°C)			
XYCG8H	✓			✓	80	08h00	Carbon/Charcoal	DCM and Butanol
Y8JCM9	✓			✓	75	5 hours	Carbon/Charcoal	CS2
Y9TKRM	✓			✓	70	3 hours	Carbon/Charcoal	
YAAGJL	✓			✓	80		Carbon/Charcoal	Hexane
YD9RFL	✓		✓	✓	70	15 min		
YE39HM	✓			✓	60	18 hours	Carbon/Charcoal	carbon disulfide
YHH9NA	✓			✓	80	8 Hours	Carbon/Charcoal	Acetone
YVTJEL	✓				80	16 hours	Carbon/Charcoal	CS2
Other Extraction Technique: Does not apply								
Z2A4PG	✓			✓	70	16 Hours	Carbon/Charcoal	CS2
Other Extraction Technique: Simple heated headspace (70C for 10 Minutes)								
Z8G6VZ	✓			✓	65	16 hours	Carbon/Charcoal	CS2
ZCTTVW	✓			✓	75	4 Hours	Carbon/Charcoal	Carbon Disulfide
Other Extraction Technique: Heated Headspace (GC-FID)								
ZE3Z2B	✓			✓	65	16.5 hours	Carbon/Charcoal	Carbon disulfide
ZHHZ8V	✓			✓	80	60 minutes	Tenax	Thermal
ZMACXK	✓			✓	77	2 hours	Carbon/Charcoal	Carbon disulfide
ZNLE2R	✓			✓	110			Pentane
ZQDBQL								
Other Extraction Technique: Liquid Extraction								
ZUR66X		✓		✓	85	20 minutes	Carbon/Charcoal	CS2
Other Extraction Technique: Heated Headspace								
ZY9DTX	✓			✓	85			

Response Summary

	Adsorption Headspace		Adsorption Temp		Adsorbent		Desorption	
Participants	Passive	Dynamic	Rm Temp	Heated	Carbon/Charcoal	Other	Thermal	Solvent
285	**258**	**19**	**32**	**269**	**224**	**48**	**40**	**229**

Copyright ©2024 CTS, Inc

Identification Techniques

TABLE 3

WebCode	GC	GC/MS	Other
24URNH		✓	
26QTPK		✓	
2A72DK	✓	✓	
2AYLQQ		✓	
2D3UZM		✓	
2HETFM		✓	
2JQ66Y		✓	
2KG4JW		✓	
2MAMDN		✓	
2WWXWB		✓	
2YHC8J		✓	
2YKW4Y		✓	
36L2J6	✓	✓	
3ECLMG		✓	
3F3HZV		✓	
3MNBEF		✓	
3PCC74		✓	
43C3CL		✓	
46ZR49		✓	
49GEHE		✓	
4CGPBT		✓	
4E9LZM		✓	
4GUXPW		✓	
4HRDCP		✓	
4MKH39		✓	
4Q433M	✓	✓	Odor Assessment
4UJVRV		✓	
4ZM7WM		✓	
62B6L6		✓	
66Z7UE		✓	
6FF28T		✓	
6GP7KG	✓		
6LKZHH		✓	
6MEDVF	✓	✓	
6NCV8C		✓	
6P6EYH		✓	
6T4QVH		✓	
6UF3KU		✓	
6YVA9T		✓	
77997H		✓	
7D4B9T		✓	
7H3PVJ		✓	
7JAGWR		✓	
7LZFBQ		✓	
7PEF8G		✓	
7TZ3Z6		✓	
7V7XRF		✓	
7VP69D		✓	
7WY4VD		✓	
82MFGF		✓	
8F8YC6		✓	
8LVJFK		✓	
8NMHUJ		✓	
8PE2NA		✓	
8PEAAF		✓	
8Q6BDH		✓	
8TU9WP	✓	✓	GC/FID
8YM8D6		✓	
9CQQN6		✓	
9E7K3G		✓	
9J6YP8		✓	
9JLTQG		✓	
9MNQ2A		✓	
9PR2ZB		✓	
9PVGGH		✓	
9QN3WA		✓	
9R3YFD		✓	
9U7ZP7		✓	
9WAXZY	✓	✓	
9XJGNE		✓	
9ZB4CJ		✓	
A6HGM8		✓	
A92472		✓	
AGD3ZD		✓	
AJHT22		✓	
AVBCGR		✓	
AVUVNJ		✓	
AVXH7X		✓	
B78FLL		✓	
B7UDQR		✓	
BL8URZ		✓	
BMCLHF		✓	
BN7ULC		✓	
BNR9AP		✓	
BP86NZ		✓	
BPH4GB		✓	

Copyright ©2024 CTS, Inc

TABLE 3

WebCode	GC	GC/MS	Other
BQXQB7		✓	
BQXTZB		✓	
BRA3V9		✓	
BTJFTX		✓	
BVBYMP		✓	
BXWDZK		✓	
BYPLE9		✓	
BZMHXX		✓	
C2WEQL		✓	
C8JT7Z		✓	
C9BRKY		✓	
C9W4J8		✓	
CLGQNY		✓	
CUUUFX		✓	Headspace GC/MS
CXQLLA		✓	
CY3UG9		✓	
D2UG6C		✓	
D4UP9M		✓	
D66QVL		✓	
DAKYJK		✓	
DGJC88		✓	
DHF2KW		✓	
DHWLKE		✓	
DJAP7D		✓	
DPELRX		✓	
DRL4PU		✓	
DTQ7FC		✓	
DURWV8		✓	
DWD9GD		✓	
E2MG9L		✓	
ECPG8L		✓	
EF84TZ		✓	
EWQP3B		✓	
EYZAY7		✓	
EZR7NZ		✓	
F2JX2B		✓	
F6JAXB		✓	
F8L894		✓	
FH8YP9		✓	
FQJLPG		✓	
FR82W4		✓	
FRBGEB		✓	
FU38BW		✓	
FXFQRD	✓	✓	
FZ8P7C		✓	
G2ENDQ		✓	
G7TRF7		✓	
G9F9UK		✓	
GB3HUT		✓	
GBYUDF	✓	✓	ATD-GC-MS
GFF32E		✓	
GGUPC2		✓	
GHKNQZ		✓	
GTJLCE		✓	
GXZTZE		✓	
H4GAW2		✓	
H7LA7U		✓	
H9Q3X8		✓	
HCCCXD		✓	
HCR8BR		✓	
HCTBFG		✓	
HD4M6T		✓	
HG9BL4	✓		
HLE4GY		✓	
HN7Z6T		✓	
HQT8EA		✓	
HW2386		✓	
HWYFQQ	✓	✓	
HZXUDF		✓	
J7X6R6		✓	
J8CZMR		✓	
JBVHX3		✓	
JJM3T3		✓	
JLE4W7		✓	
JMQ2L4		✓	
JPEC32		✓	
JPUYUB		✓	
JRLUJ6	✓	✓	
JWB7ZY		✓	
K4C4GX		✓	
K9QLYE		✓	
KACP7C		✓	
KAEPCY		✓	
KC4LV7		✓	
KHAN8E		✓	
KNYZ93		✓	
KZQVZ3		✓	
L23KUL		✓	
L3UGHF		✓	
LJ3VT4		✓	

Copyright ©2024 CTS, Inc

TABLE 3

WebCode	GC	GC/MS	Other
LLQ32L		✓	
LM2C6X		✓	
LNCNUA		✓	
LQ4KJ4		✓	
LQ4M98		✓	
LQJ7T6		✓	
M3UW9L		✓	
M88GF8		✓	
M9FTVN		✓	
MB7V3W		✓	
MEMN64	✓	✓	assess any unavoidable odor
MJDPWP		✓	
MJY4MN		✓	
MNADDW		✓	
MZ36AE		✓	
N6PJ6Z		✓	TD and SPME
N8YM2W		✓	
N9FJRB		✓	
NHK2C9	✓	✓	
NN6T7Z		✓	
NRMDBN		✓	
NUD8XW		✓	
NV492Z		✓	
NXAY69		✓	
NY4UZC		✓	
NZ2VT3	✓	✓	
P2ABGZ		✓	
P9LZ4U		✓	
PBV3Y6		✓	
PEX2AX		✓	
PLDKRC		✓	
Q2N99Q		✓	
Q7YVT3	✓	✓	
QGDVMA		✓	
QGFH6N		✓	
QKFTX3		✓	
QPRGYY		✓	
QQ4QUX	✓	✓	
QT92JU		✓	
QVZX8M		✓	
QX4TRQ		✓	
R48MA7	✓	✓	
R4MTPV		✓	
R4P9VN		✓	
R6NJ4Q		✓	
R89Z7Q		✓	SPME
RCZAGN		✓	
RL33QV		✓	
RQJWLF		✓	
RRBJ8W		✓	
RTNK4Q		✓	
RZNGTV		✓	
T4N36Y	✓	✓	Odor assessment
TT7Q3G		✓	
U3QG3E		✓	
U4ZQQ6		✓	
U7QTXE			passive headspace GCMS
UA3DMR		✓	
UCUC2Q		✓	
UCWWW7		✓	
UFXXYN		✓	
UJDF9T		✓	
ULFZQ7		✓	
UN73YE	✓	✓	
UW3EYV		✓	
UZ2FU6		✓	
UZZJNF		✓	
V2RYBW		✓	
V3KR7F		✓	
V8B2GE		✓	
VKFFGB		✓	
VRLWCQ		✓	
VVH7AR		✓	
VVNUNJ		✓	headspace GC/MS
VYKJ37		✓	
VYM7JJ		✓	TD-GC/MS
W27KKY		✓	
W49LMG	✓	✓	
WAH8MT		✓	
WC6DVB		✓	
WDHFQ3		✓	
WFKQUC	✓	✓	
WGE9FQ		✓	GC/FID
WJNLDF		✓	
WX7YLL		✓	
X94YYP		✓	
XAF9YX		✓	
XC2D9F		✓	

Copyright ©2024 CTS, Inc

TABLE 3

WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other	WebCode	GC	GC/MS	Other
XDZQ8M		✓	Heated Headspace								
XL8PE3		✓									
XUHRY4		✓									
XYCG8H		✓									
Y8JCM9		✓									
Y9TKRM		✓									
YAAGJL		✓									
YD9RFL		✓									
YE39HM		✓									
YHH9NA		✓									
YVTJEL		✓									
Z2A4PG		✓									
Z8G6VZ		✓									
ZCTTVW		✓									
ZE3Z2B		✓									
ZHHZ8V		✓									
ZMACXK		✓									
ZNLE2R	✓	✓									
ZQDBQL		✓									
ZUR66X		✓									
ZY9DTX		✓									

Response Summary		
Participants	GC	GC/MS
285	**23**	**282**

Copyright ©2024 CTS, Inc

Conclusions

TABLE 4

WebCode	Conclusions
24URNH	A heavy petroleum distillate was identified in Item 1. Examples of heavy petroleum distillates would include diesel fuels and home heating fuels such as #2 Fuel oil. A medium range aromatic-miscellaneous product was identified in Item #2. Examples of this would include some fuel additives and brush cleaners. No ignitable liquids were identified in Item 3.
26QTPK	1.1) An ignitable liquid was identified. The ignitable liquid is a Heavy Petroleum Distillate. Examples of such products include Kerosene, Diesel Fuel and some Fuel additives. 1.2) An ignitable liquid was identified. The ignitable liquid is a Medium Miscellaneous product. Examples of such products include some Fuel additives, Spray lubricants and Paint thinners.
2A72DK	Methods: 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. Results and Opinions: Item 1.1 was found to contain a heavy petroleum distillate. Examples include, but are not limited to: some charcoal starters, some kerosenes, and diesel fuel. Item 2.1 was found to contain a medium miscellaneous product. Examples include, but are not limited to: some mineral spirits, some fuel additives, some brush cleaners, some paint thinners, and some charcoal starters. Item 3.1 was used as a control.
2AYLQQ	On analysis: i) Heavy petroleum distillates (including de-aromatized) was detected on item 1. ii) Gasoline was detected on item 2. iii) No ignitable liquid was detected on item 3.
2D3UZM	Item 1: An ignitable liquid classified as a heavy petroleum distillate was detected. Examples of heavy petroleum distillates include diesel fuel, kerosene, and aviation fuel. Item 2: An ignitable liquid classified as a medium miscellaneous product was detected. Examples of medium miscellaneous products include turpentine products, fuel supplements, and brush cleaners. Item 3: An ignitable liquid was not detected. For archival purposes, the unused portions of the carbon strips from items 1-3 and an empty bag were booked as item 4.
2HETFM	Exhibit 1 contained a heavy petroleum distillate (HPD), which is an ignitable liquid. Examples of HPDs include diesel fuel, kerosene, some charcoal starters, and some fuel additives. Exhibit 2 contained a medium miscellaneous product, which is an ignitable liquid. Examples of this classification include some fuel additives, some spray lubricants, and some cleaning solvents. No ignitable liquids were identified in Exhibit 3.
2JQ66Y	Analysis of the samples for ignitable liquids gave the following results. 1: Analysis identified the presence of a heavy petroleum distillate. 2: Analysis identified the presence of gasoline. 3: No ignitable liquids were identified. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, charcoal starters, aviation fuels, insecticide solvents/propellants, fuel additives, lamp oils and automotive parts cleaners.
2KG4JW	Laboratory item #1: A heavy petroleum distillate was identified. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel and some charcoal starters. Laboratory item #2: A medium range miscellaneous product was identified. Examples of medium range miscellaneous products include, but are not limited to, some spray lubricants, some paint thinners or some fuel additives, such as, Power Service Diesel Kleen Cetane Boost.
2MAMDN	Item 1 - A square piece of white fabric. Examination revealed the presence of a Heavy Range ignitable liquid residue in the Petroleum Distillate Class. Refer to the attached Ignitable Liquid Classification System. Item 2 - A square piece of white fabric. Examination revealed the presence of a Medium Range ignitable liquid residue in the Miscellaneous Class. Refer to the attached Ignitable Liquid Classification System. Item 3 - A square piece of white fabric (comparison sample). No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected.
2WWXWB	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium to Heavy Other-Miscellaneous type product

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	was identified. Examples of this type ignitable liquid include: some fuel additives, 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 Medium Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: some fuel additives, some blended products and various specialty products. 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.
2YHC8J	A heavy petroleum distillate was identified in item 1. Heavy petroleum distillate products include, but are not limited to, kerosene, diesel fuel, and some brands of charcoal starters. A specialty product was identified in item 2. Specialty products include single compounds and specialty mixtures. 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. 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.
2YKW4Y	Item 1: The piece of white cloth contains a heavy petroleum distillate ignitable liquid residue. Examples of this type of liquid can include, but are not limited to, diesel fuel, kerosene, some jet fuels, and some charcoal starters. Item 2: The piece of white cloth contains a medium miscellaneous ignitable liquid residue. Examples of this type of liquid can include, but are not limited to, some blended and/or some specialty products, and fuel additives. Item 3: An ignitable liquid residue was not detected on the piece of white cloth.
36L2J6	"Item 1" contains; Heavy petroleum distilates. "Item 2" contains; Gasoline. "Item 3" contains; Doesn't have any ignitable liquid.
3ECLMG	1)In the sample received and labeled as item 1, the presence of a mixture of hydrocarbons was detected, classifiable, according to the scheme proposed by the ASTM E1618-19 method, as Heavy Petroleum Distillates. Examples of the product detected are some lamp oils and some diesel. 2)In the sample received and labeled as item 2, the presence of a mixture of hydrocarbons was detected, classifiable, according to the scheme proposed by the ASTM E1618-19 method, as Gasoline and a Light Oxygenated Solvent (Thinner). 3) In the sample received and labeled as item 3, the presence of a mixture of hydrocarbons was detected, classifiable, according to the scheme proposed by the ASTM E1618-19 method, as Light Oxigenated Solvent (Thinner). 4) The Heavy Petroleum Distillates, gasoline and tninners are ignitable liquids. Ignitable liquid may start or accelerate a fire.
3F3HZV	PURPOSE: The items were examined to determine whether ignitable liquids could be identified. ITEM DESCRIPTION: RESULTS: 1 Cloth remnant. Heavy petroleum distillate identified. 2 Cloth remnant. Medium Miscellaneous product identified. 3 Cloth substrate. No ignitable liquids identified.
3MNBEF	1. Volatile residues from Exhibits 1 (questioned piece of cloth), 2 (questioned piece of cloth), and 3 (cloth substrate intended as a comparison blank) were collected using direct headspace sampling as well as passive headspace concentration techniques and analyzed using gas chromatography-mass spectrometry (GC-MS) for the presence of ignitable liquid residues. 2. A heavy petroleum distillate was identified in the concentrated headspace vapors of Exhibit 1. Ignitable liquids belonging to this class are commercially available as diesel fuel, kerosene, and some jet fuels. 3. A medium-range miscellaneous product consisting of a medium-range aromatic product and 2-butoxyethanol was identified in the concentrated headspace vapors of Exhibit 2. Ignitable liquids belonging to this class are commercially available as some blended products and some specialty products. 4. No ignitable liquid residue classifications were identified in Exhibit 3.
3PCC74	Item 1 - A petroleum distillate product (a weathered Diesel Range product with no FAME additive recovered) within the heavy range (C9 to C20) was detected in Item 1 based on the ASTM 1618 classification scheme. Examples of products provided by ASTM 1618 include: Charcoal Starters, Kerosenes, Diesel Fuels, Heating Oils, and Lamp Oils. Item 2 - An aromatic product within the medium range (C8 to C13) was detected in Item 2 based on the ASTM 1618 classification scheme.

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Examples of products provided by ASTM 1618 include: Automotive Parts Cleaners, Specialty Solvents, Insecticides and Brush Cleaners. The products in Item 1 and Item 2 do not appear to be the same source material. Item 3 - Control Sample - Cloth Sample: Items 3 was provided for background substrate and was negative for the presence of accelerants.
43C3CL	EXHIBIT # AGENCY # DESCRIPTION 1 1 White cloth. Examination reveals the presence of an ignitable liquid residue in the Heavy Range of the Petroleum Distillates Class. Refer to the attached Ignitable Liquid Classification System. 2 2 White cloth. Examination reveals the presence of an ignitable liquid residue in the Medium Range of the Miscellaneous Class. Refer to the attached Ignitable Liquid Classification System. 3 3 White cloth (comparison sample). No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected. Exhibits 1 through 3 were analyzed using passive adsorption on an activated charcoal strip. The strip was extracted with a solvent and the recovered volatile material was analyzed by gas chromatography/mass spectrometry. An additional charcoal strip was collected for preservation purposes and will be retained with the evidence. [Participant created a manually formatted table within the free form text space. This special formatting was not transferable into the final report. Data is presented as is.]
46ZR49	Analysis of Item 1 disclosed the presence of an ignitable liquid from the heavy petroleum distillate class. Examples of this class include kerosene, diesel fuel, some aviation fuels, some charcoal starters, some fuel additives, some lamp oils, and some automotive parts cleaners. Analysis of Item 2 disclosed the presence of an ignitable liquid from the medium miscellaneous class. Examples of this class include turpentine products, some mineral spirits, some fuel additives, some brush cleaners, some spray lubricants, some paint thinners, some charcoal starters, and some citrus cleaners. Analysis conducted on Item 3 did not identify the presence of an ignitable liquid. Item 3 was submitted as a substrate comparison sample.
49GEHE	Item 1 contains a heavy petroleum distillate. Item 2 contains gasoline. The item also contains elevated levels of ethylbenzene, indane, and other compounds which may be associated with a fuel additive. Item 3 was utilized as a comparison sample.
4CGPBT	Item 01 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy petroleum distillate ASTM class ignitable liquid. Examples of this ASTM class are kerosene, diesel fuel, and some charcoal starters. Item 02 was analyzed by gas chromatography/mass spectrometry and determined to contain a medium others-miscellaneous ASTM class ignitable liquid. Examples of this ASTM class are automotive parts cleaners, fuel additives, and some charcoal starters. Item 03 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
4E9LZM	Flammable liquid has been detected in both samples. Due to the heavy components detected (range C9-C22) on ITEM 1, it could be a destillate like kerosene. Aromatics components has been detected on ITEM 2, with some cycloalkanes in insignificant quantities.
4GUXPW	Item 1 An ignitable liquid consistent with a heavy (C9-C19) petroleum distillate was identified. Examples of the heavy petroleum distillate class of ignitable liquids include kerosene, aviation fuels, insecticides. Item 2 An ignitable liquid consistent with a medium miscellaneous product was identified. Examples of medium miscellaneous products include fuel additives, blended products, spray lubricants, and various specialty products.
4HRDCP	Item #1- the presence of a Heavy Petroleum Distillate was detected. Item #2- the presence of a Medium Aromatic Product was detected.
4MKH39	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium to Heavy Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: turpentine products, some blended products, various specialty products, kerosene, diesel fuel, some jet fuels and some charcoal starters. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: turpentine products, some blended products

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	and various specialty products. 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.
4Q433M	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. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item #2 revealed the presence of an aromatic product. Aromatic products include some fuel additives, some automotive parts cleaners, and some specialty cleaning solvents. Examination of Item #3 failed to reveal the presence of ignitable liquids.
4UJVRV	Item 1: The cloth remnant was found to contain automotive diesel fuel Item 2: The sample contained a high proportion of endo-tricyclo[5.2.1.0(2.6)]decane and tricyclodecane isomers. Endo-tricyclodecane is a precursor for JP10 fuel and for adamantane pharmaceuticals. Item 3: No ignitable liquid was detected on the comparison blank.
4ZM7WM	Item 1: Positive for ignitable liquid residues consistent with C-8 to C-18 heavy petroleum distillate. Item 2. Positive for ignitable liquid residues consistent with a C-8 to C-13 medium range aromatic solvent containing cyclo-aliphatics.
62B6L6	ITEMS: 1 a sealed cardboard box identified as "2024 CTS Forensic Testing Program Test No. 24-5436: Ignitable Liquid Identification Sample Pack: IL" containing: 1-1 a heat-sealed nylon bag containing unburned white cloth material identified as "Test No. 24-5436 Item 1" 1-2 a heat-sealed nylon bag containing unburned white cloth material identified as "Test No. 24-5436 Item 2" 1-3 a heat-sealed nylon bag containing unburned white cloth material identified as "Test No. 24-5436 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, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, and automotive parts cleaners. Gasoline was present in item #1-2. No ignitable liquids were identified in item #1-3. 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. DISPOSITION OF EVIDENCE: The evidence is returned to the submitting/investigating agency upon completion of examination.
66Z7UE	Item 1 was found to contain a heavy petroleum distillate. Examples of a heavy petroleum distillate include but are not limited to kerosene and some charcoal lighter starters. Item 2 was found to contain a miscellaneous petroleum product that contains both an oxygenated product and an aromatic product. Examples of this type of miscellaneous petroleum product include but are not limited to some diesel injection cleaners and some specialty solvents. No ignitable liquids were detected in Item 3.
6FF28T	Item 01 was analyzed by gas chromatography/mass spectrometry and determined to contain a heavy petroleum distillate ASTM class ignitable liquid. Examples of this ASTM class are kerosene, diesel fuel, and some charcoal starters. Item 02 was analyzed by gas chromatography/mass spectrometry and determined to contain a medium miscellaneous-others ASTM class ignitable liquid. Examples of this ASTM class are fuel additives and spray lubricants. Item 03 was analyzed by gas chromatography/mass spectrometry; however, ignitable liquids could not be detected.
6GP7KG	Item 1 cloth remnant was identified as a medium Petroleum Distillate (C8-C12). Item 2 cloth remnant was identified as a medium Petroleum Distillate (C9-C12).

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
6LKZHH	item 1 and 2 (positive, contain Hydrocarbons), item 3 (Negative, does not contain Hydrocarbones)
6MEDVF	Item 1.1 was found to contain a heavy petroleum distillate. Examples include, but are not limited to: some charcoal starters, some kerosenes, and diesel fuel. Item 2.1 was found to contain a medium miscellaneous product. Examples include, but are not limited to: some fuel additives, some spray lubricants, and some brush cleaners. Item 3.1 was used as a control.
6NCV8C	[No Conclusions Reported.]
6P6EYH	Item 1 was determined to contain the following: Heavy Petroleum Distillate, an ignitable liquid, examples of which include kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, and lamp oils. Item 2 was determined to contain the following: Medium Other-Miscellaneous, an ignitable liquid, containing a mixture of Medium Aromatic Product (examples of which include automotive parts cleaners, specialty cleaning solvents, and brush cleaners) and Medium Other-Miscellaneous (examples of which include fuel additives, turpentine products, spray lubricants, and brush cleaners). It could not be determined if Item 2 contained two individual commercial products or a single commercial product. 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. No ignitable liquids were identified.
6T4QVH	GC/MS analysis of Item 001-01 disclosed the presence of a heavy petroleum distillate. Examples of a heavy petroleum distillate include, but are not limited to, kerosene, diesel fuel, and some charcoal starters. GC/MS analysis of Item 001-02 disclosed the presence of a medium miscellaneous product. Examples of a medium miscellaneous product include, but are not limited to, some specialty products and some blended products. GC/MS analysis of Item 001-03 failed to disclose the presence of an ignitable liquid.
6UF3KU	Laboratory item #1: A heavy petroleum distillate was identified. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, and some charcoal starters. Laboratory item #2: A medium miscellaneous product was identified. Examples of medium miscellaneous products include, but are not limited to, some spray lubricants, some charcoal starters, and some fuel additives such as Power Service Diesel Kleen Cetane Boost.
6YVA9T	A heavy petroleum distillate was detected in Lab Item 1. A medium miscellaneous product was detected in Lab Item 2. No ignitable liquids were identified in Lab Item 3. Negative results do not preclude the possibility that ignitable liquids were present at the fire scene. Samples of recovered materials from this case have been preserved with the evidence. The methodologies used for this analysis, along with the Lab Items they were used with, include: Carbon Trap - Lab Items 1, 2 and 3 Gas Chromatography/Mass Spectrometry - Lab Items 1, 2 and 3
77997H	Exhibit 1 contained a heavy petroleum distillate (HPD), which is an ignitable liquid. Examples of HPDs include kerosene, diesel, and some lamp oils. Exhibit 2 contained an aromatic product, which is an ignitable liquid. Examples of aromatic products include some fuel additives, and some specialty solvents. No ignitable liquids were identified in Exhibit 3.
7D4B9T	Item 1 contains an ignitable liquid classified as a Heavy Petroleum Distillate. Examples include (… kerosene, diesel fuel, some jet fuels and some charcoal starters.). Item 2 contains an ignitable liquid classified as a Medium Other-Miscellaneous. Examples include (…turpentine products, some aviation fuel, and some some fuel additives.).
7H3PVJ	Analysis of exhibit 001-A detected the presence of a heavy petroleum distillate (examples: some automotive parts cleaners, some fuel additives, diesel fuels, etc.). Analysis of exhibit 001-B detected the presence of a medium range aromatic product (examples: some automotive parts cleaners, some degreasing solvents, some specialty cleaning products, etc.). The analysis further indicated the presence of heavy range cyclic compounds the nature of which could not be determined.
7JAGWR	A heavy petroleum distillate was detected in Lab Item 1. A medium miscellaneous product was

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	detected in Lab Item 2. No ignitable liquids were identified in Lab Item 3. Samples of recovered materials from this case have been preserved with the evidence. The methodologies used for this analysis, along with the Lab Items they were used with, include: Carbon Trap - Lab Items 1, 2 and 3 Gas Chromatography/Mass Spectrometry - Lab Items 1, 2 and 3
7LZFBQ	Item 1: A heavy petroleum distillate (HPD) was recovered from item 1. Examples of HDPs include kerosene, diesel fuel, aviation fuel and some charcoal starters. Item 2: A medium others - miscellaneous product like that found in some petroleum products, fuel additives, spray lubricants or brush cleaners was present on item 2
7PEF8G	[No Conclusions Reported.]
7TZ3Z6	It was determined utilizing activated charcoal strip extraction and gas chromatography/mass spectrometry analysis that item 1, exhibited the presence of a petroleum distillate in the heavy range and item 2 exhibited a miscellaneous distillate in the medium range with aromatic dominated profile.
7V7XRF	Item 1 was found to contain a heavy-range petroleum distillate. Examples include diesel fuel and fuel additives. Item 2 was found to contain a medium-range miscellaneous product containing aromatic compounds. Examples include fuel additives and spray lubricants. No ignitable liquid residues were identified in item 3.
7VP69D	Item 1 was found to contain a heavy petroleum distillate. Examples of a heavy petroleum distillate include but are not limited to kerosene and some charcoal lighter starters. Item 2 was found to contain a miscellaneous petroleum product, which contains both an aromatic product and an oxygenated product. Examples may include but are not limited to some diesel fuel injection cleaners and some specialty solvents/cleaners. No ignitable liquids were detected in Item 3.
7WY4VD	A Heavy Petroleum Distillate (HPD) was identified in Item 1. Examples of HPDs include diesel fuel, some charcoal starters and some fuel additives. A mixture containing a Medium Aromatic Product (MAP) and a Medium Petroleum Distillate (MPD) was identified in Item 2. Examples of MAPs include some brush cleaners, some automotive parts cleaners and some specialty cleaning solvents. Examples of MPDs include some mineral spirits, some paint thinners and some spray lubricants. The ignitable liquids present may result from two sources or may be a commercially produced product. No ignitable liquids were detected in Item 3 (comparison sample).
82MFGF	item (1) contains heavy petroleum distillate, that known locally as (diesel) item (2) contains heavy Aromatic products item(3) as blank
8F8YC6	Sample 1 contained a heavy petroleum distillate (HPD.) This class of ignitable liquid can be found in some charcoal starters, diesel fuel, kerosene, aviation fuels, insecticides, fuel additives, lamp oils, automotive parts cleaners or other related products. Sample 2 contained a medium aromatic product (M-ARO.) This class of ignitable liquid can be found in some automotive parts cleaners, specialty cleaning solvents, insecticides, brush cleaners or other related products. Sample 3 did not contain measurable levels of ignitable liquids. Please note: negative results do not preclude the presence of ignitable liquids at the time of the loss.
8LVJFK	Item 1 is a HPD (with high aromatics) so probably "heating fuel" Item 2 is a mix of many alkyl-, mono- and polyaromatics with a terpene (THCPD; py-gas indicator) with some n-alcanes and isoalcanes. If we take into account aromatics and terpene as a mix, the class is 'other-Miscellaneous'. If we take into account that the terpene comes from the process (py-gas), the class is 'Aromatic Solvent'. It is probably used as octane booster / fuel additive / paint thinner / brush cleaner, ...
8NMHUJ	SUMMARY OF RESULTS AND INTERPRETATIONS: Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Heavy (C9-C20+) Petroleum Distillate. Examples of a Heavy (C9-C20+) Petroleum Distillate include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Testing for ignitable liquids/ignitable liquid residues was inconclusive. The pattern obtained did not match any laboratory standards or reference materials.

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	However, if a particular product is suspected to have been used, it may be submitted to the laboratory for analysis. 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.
8PE2NA	Item 001: Contains a heavy petroleum distillate, examples of which include kerosene, diesel fuel and some charcoal starter fluids. Item 002: Contains a medium aromatic solvent, examples of which include automotive parts cleaners and specialty solvents. Item 003: No ignitable liquids were detected/identified.
8PEAAF	Heavy Petroleum Distillate: Examples of heavy petroleum distillates include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Miscellaneous: Examples of miscellaneous products include enamel reducers, lacquer thinners, aviation gasolines, racing gasolines, turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, charcoal starters, lamp oils, insecticides, and automotive parts cleaners. 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 no ignitable liquids used to start the fire.
8Q6BDH	The extract from item 1 was found to contain a volatile mixture which was identified to contain a heavy petroleum distillate. 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 medium aromatic product. Examples of medium aromatic products include some auto parts cleaners, some insecticide vehicles, and specialty cleaning solvents.
8TU9WP	Item 1: the ignitable liquid present on the piece of cloth was classified as belonging to heavy petroleum destillate (de-aromatized) using the ASTM-1618 classification scheme. Item 2: the ignitable liquid present on the piece of cloth was classified as belonging to medium aromatic product using the ASTM-1618 classification scheme. Item 3: No ignitable liquids were identified in the control bag containing cardboard substrate.
8YM8D6	4.1 Exhibit material marked Item 1 contained characteristics of medium petroleum distillates to heavy petroleum distillates comparable to mineral turpentine, paraffin, some charcoal starters, diesel fuel and kerosene according to ASTM E1618 4.2 Exhibit material marked Item 2 contained of gasoline comparable to petrol according to ASTM E1618
9CQQN6	A Heavy Petroleum Distillate (HPD), in range C8 - C27, diesel fuel was detected in Item 1. A Medium Others-Miscellaneous product, in range C7 - C13-14, was detected in Item 2. It consists mainly of aromatics (toluene, xylenes, 3,4-alkylbenzenes), olefins, di-olefins (the biggest peak is tetrahydrodicyclopentadiene, 2H-DCPD), and other components (small peaks of alkanes). It can be pyrolysis gasoline (Py-gas) - a by-product of ethylene production through naphtha pyrolysis; gasoline additive (fuel additive); a blending product for gasoline; a feedstock in the chemical industry or other. The subclass of Item 2 may be Light to Medium if the composition of the liquid has changed (most volatile components are evaporated).
9E7K3G	Item 1 was found to contain a heavy petroleum distillate fraction of carbon range C9 to C25. Item 2 was found to contain a medium aromatic product of carbon range C9 to C13. No ignitable liquids were detected in Item 3.
9J6YP8	Item 1: presence of a traditional Heavy Petroleum Distillate which could be identified as a diesel fuel. Item 2: presence of a median other-miscellaneous product composed of a mix of cycloalkanes, aromatic products and oxygenated compounds, with traces of alkanes
9JLTQG	A Heavy Petroleum Distillate was identified in Exhibit #1. Examples of Heavy Petroleum Distillates include kerosene, diesel, and some charcoal starters. A Medium Aromatic Product was identified in

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Exhibit #2. Examples of Medium Aromatic Products include automotive parts cleaners, some specialty cleaning solvents, some insecticide vehicles and some fuel additives. No ignitable liquids were detected in Exhibit #3. 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. All exhibits were extracted by Passive Headspace Concentration extraction with activated charcoal and analyzed by Gas Chromatography/Mass Spectrometry.
9MNQ2A	[No Conclusions Reported.]
9PR2ZB	Item 1: Heavy petroleum distillate was detected. Examples of heavy petroleum distillates include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: A Miscellaneous Product was detected. Examples of miscellaneous products include enamel reducers, lacquer thinners, aviation gasolines, racing gasolines, turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, charcoal starters, lamp oils, insecticides, and automotive part thinners. Item 3: Negative: No ignitable liquids were detected. 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 no ignitable liquids used to start the fire.
9PVGGH	Evidence addressed in this report was received into the laboratory on August 12, 2024. Analysis for diffusive ignitable liquid residues using Adsorption Trapping with Activated Charcoal, followed by Gas Chromatography/Mass Selective Detection: Item #1: Heavy Petroleum Distillate, examples of which include (but are not limited to) kerosene, fuel oils, diesel fuels and some brands of charcoal starter fluids. Item #2: Medium to Heavy Miscellaneous Product (Aromatic Product, 2-Butoxyethanol and Tetrahydrodicyclopentadiene), examples of which include (but are not limited to) fuel additives/treatment. Unable to determine if this is a mixture or single source products. 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.
9QN3WA	Item #1 contained a distribution of alkanes from about C4-C20 with a characteristic Gaussian spread. Cycloalkanes, indanes, styrenes and monoterpenes were also present in a similar distribution but were less intense. Item #2 exhibited a Gaussian distribution of hydrocarbons similar to that of item #1 but with a narrower distribution from about C8 - C15. Like Sample #1, a distribution of cycloalkanes, indanes, and styrenes were also proximately observed. The control sample exhibited a series of hydrocarbons but in general the far lower signals were not expected to significantly impact the interpretation of data from Items #1 and #2.
9R3YFD	A heavy petroleum distillate was identified in Item 1. Examples of a heavy petroleum distillate include but are not limited to kerosene and some charcoal starters. A medium aromatic product was identified in Item 2. Examples of a medium aromatic product include but are not limited to some specialty solvents and products. 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.
9U7ZP7	for our first sample we were able to detect the carbon count to fall in the range of (C7 to C15) and classified to be petroleum distillates. and for our second sample we were able to detect the carbon count to fall in the range of (C7 to C12) with major peaks of aromatics with other components and classified to be others-Miscellaneous.
9WAXZY	Heavy Petroleum Distillates (including de-aromatized) in range (C9-C20) was identified in Item 1, Exemples: Diesel fuel, kerosene, Charcoal starters, Aviation fuels, Insecticides, Fuel additives, ...ext. Others-Miscellaneous in the range (C8-C13) was identified in Item 2, Exemples: Fuel Additives,

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Turpentine Products, Spray Lubricants, Paint Thinners, Brush Cleaners...ext No Ignitable liquid was identified in Item 3.
9XJGNE	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 heavy petroleum distillate which can be found in, but is not limited to, kerosene and diesel fuel. The Item 2 extract contained a medium aromatic product which can be found in, but is not limited to, some industrial solvents and paint thinners. No ignitable liquids were identified in the Item 3 extract.
9ZB4CJ	An ignitable liquid was detected with item 1. (MPD C9 - C17) and a different ignitable liquid was detected with item 2 (Aromatic, although may be Miscellaneous)
A6HGM8	Item 001: Contains a heavy petroleum distillate, examples of which include kerosene, diesel fuel and some charcoal starter fluids. Item 002: Contains a medium aromatic solvent, examples of which include automotive parts cleaners and specialty solvents. Item 003: No ignitable liquids were detected/identified.
A92472	"Item1" contains: Heavy petroleum distillates. "Item2" contains: Gasoline.
AGD3ZD	A heavy petroleum distillate was detected in Item 1. 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. A medium aromatic product was detected in Item 2. Medium aromatic products include, but are not limited to, some automotive parts cleaners, some specialty cleaning solvents, some insecticide solvents, brush cleaners and other specialty application solvents and thinners. No ignitable liquids were detected in Item 3.
AJHT22	Exhibit 1 RESULT: Heavy Petroleum Distillate. Example Products: Kerosene, Diesel Fuel, Charcoal Starters, Aviation Fuels, Insecticides, Fuel Additives, Lamp Oils, Automotive Parts Cleaners. Exhibit 2 RESULT: Medium Miscellaneous Product. Example Products: Mineral Spirits, Fuel Additives, Spray Lubricants, Brush Cleaners, Paint Thinners, Charcoal Starters. Exhibit 3 RESULT: No common ignitable liquid residue was identified.
AVBCGR	[No Conclusions Reported.]
AVUVNJ	A heavy petroleum distillate was detected in the ACS sample extract (item 1-1-1-1-1) from the questioned piece of cloth remnant (item 1-1-1-1). Examples of heavy petroleum distillates are kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, and automotive parts cleaners. A miscellaneous ignitable liquid (medium range) was detected in the ACS sample extract (item 1-2-1-1-1) from the questioned piece of cloth remnant (item 1-2-1-1). Examples of miscellaneous ignitable liquids are turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, and charcoal starters. No ignitable liquid residues were detected in the ACS sample extract (item 1-3-1-1-1) from the cardboard substrate intended as a comparison blank (item 1-3-1-1).
AVXH7X	A heavy petroleum distillate was present in Item 1. Products in this range include, but are not limited to, some types of charcoal starters, kerosene, lamp oils/torch fuels and diesel fuels. A medium-heavy miscellaneous solvent containing a medium aromatic product and a heavy petroleum product was present in Item 2. Products include, but are not limited to, some blended products such as diesel fuel additives, diesel cetane boost, automotive products, and other proprietary formulations. No ignitable liquid residues were detected in the comparison sample, Item 3.
B78FLL	Item #1: The presence of heavy petroleum distillate was detected. Item #2: The presence of a medium aromatic product was detected.
B7UDQR	Analysis of Item 1 revealed the presence of a heavy petroleum distillate (HPD). Examples of this class are kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, and automotive parts cleaners. Analysis of Item 2 failed to reveal the presence of an identifiable ignitable

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	liquid. A negative result does not preclude the possibility that an ignitable liquid was present in the location where the sample was collected. Negative results mean that the laboratory did not identify flammable or combustible liquids in the submitted sample. Analysis of Item 3 revealed the presence of an others - miscellaneous class. Examples of this class are turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, and charcoal starters.
BL8URZ	Items 1 – 3 were sampled using passive headspace extraction with activated carbon strips and analyzed by gas chromatography-mass spectrometry (GC-MS). Item 1 was found to contain a heavy (C8-C16) petroleum distillate (HPD). Heavy petroleum distillates may originate from kerosene, diesel fuels, and some charcoal starters. Item 2 was found to contain a medium range (C8-C13) miscellaneous product composed predominately of aromatic compounds. Ignitable liquid residues were not detected on Item 3.
BMCLHF	A petroleum distillate in the heavy range was identified in Item #1, examples of which include kerosene, diesel fuel, and some charcoal starters. Gasoline was identified in Item #2. There were no ignitable liquids identified in Item #3.
BN7ULC	The Meatrial Testing Branch in Arson Section [Laboratory] Police has received three samples from the Collabrative Testing Services (CTS), Inc (Test 22-5436) on 08/08/2024. The objective is to identify the class or classes for any flammable substances detected in the received items according to the material testing branch's procedures. Analysis of ignitable liqued residues by dynamic headspace followed by gas chromotography/Mass Spectometry discloses the following - Item 1 contains heavy, Petroleum distillates, as per ASTM E1618-19 - Item 2 contains medium, Petroleum distillates, as per ASTM E1618-19 - Item 3 ignitable liqueds/ ignitable liqueds residues were not detcted inthe scheme proposed by ASTM E1718-19
BNR9AP	We have found petroleum distillates from Item 1 and it showed carbon range from 9 to 22. In case of Item 2, we observed patterns of aromatic products and its carbon range was 8 to 13.
BP86NZ	Ex. 1.1- Heavy petroleum distillate. Ex. 2.1- Gasoline. Ex. 3.1- No ignitable liquid was determined.
BPH4GB	Item 1 was found to contain a heavy petroleum distillate. Examples of products that contain heavy petroleum distillates include (but are not limited to) kerosene and lamp oils. Item 2 was found to contain a medium miscellaneous product. Examples of products that contain medium miscellaneous products include (but are not limited to) fuel additives and spray lubricants. No ignitable liquid residue was detected in Item 3.
BQXQB7	Both Items contained an ignitable liquid. Item1 contained a heavy petroleum distillate mit low aromatics content and no FAME. Possible products may be diesel or light heating fuel. Item 2 contained mainly of Tetrahydro-Dicyclopentdadiene (4H-DCPD) as well as Methyl and Dimethyl/Ethyl-Detivatives, Tetraline and a low aromatics content. The only known use is the militiary one as a gas turbine fuel in missiles (JP-10).
BQXTZB	Petroleum distillates were detected in Item 1 and aromatic products were detected in Item 2. No interference was detected in Item 3.
BRA3V9	Item 1: Sealed nylon bag containing a piece of white cloth. Examination reveals the presence of a Heavy Range ignitable liquid residue in the Petroleum Distillates Class. Item 2: Sealed nylon bag containing a piece of white cloth. Examination reveals the presence of a Medium Range ignitable liquid residue in the Miscellaneous Class. Item 3: Sealed nylon bag containing a piece of white cloth (comparison blank). No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected. Exhibits 1-3 were analyzed using passive adsorption on a piece of activated charcoal. The charcoal was extracted with a solvent and the recovered volatile material was analyzed by gas chromatography/mass spectrometry.
BTJFTX	[No Conclusions Reported.]
BVBYMP	An ignitable liquid classified as a heavy petroleum distillate (HPD) was identified in Item 1. Examples of

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	heavy petroleum distillates include, but are not limited to, kerosene and diesel fuel. An ignitable liquid classified as a medium miscellaneous product was identified in Item 2. Examples of medium miscellaneous products include, but are not limited to, some fuel additives/supplements. No recognizable ignitable liquids were identified in Item 3.
BXWDZK	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 charcoal starters, aviation fuels, some lamp oils, some fuel additives, and some solvents for insecticides and polishes. An ignitable liquid residue consistent with a medium miscellaneous product was identified in Item 2. Examples of the medium miscellaneous class of ignitable liquids include some fuel additives, some spray lubricants, some brush cleaners, and some paint thinners. Miscellaneous ignitable liquids also include various commercial and industrial products or specialty mixtures that cannot be further classified. No ignitable liquid residues were detected in Item 3.
BYPLE9	Item 1: A heavy petroleum distillate found. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, charcoal starters, insecticide vehicles, fuel additives, lamp oils, and automotive parts cleaners. Item 2: A medium aromatic product found. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, brush cleaners, and fuel additives. Item 3: No ignitable liquids found.
BZMHXX	Item 1 and item 2 were extracted by passive Solid phase micro-extraction (SPME) method with heating. The headspace above the sample adsorbed on the polymer-coated fused fiber was then analyzed by gas chromatography-mass spectrometry. A Medium to heavy Petroleum Distillates (including de-aromatized) was detected in item 1. The Analysis of item2, indicates the presence of a Medium to heavy Other/Miscellaneous product. We had also used other technique, the static or direct headspace, this method consists of extracting a quantity 2 ml of the vapor phase directly with a gas syringe, and analyzed by GC-MS.
C2WEQL	Item 1 was found to contain volatile hydrocarbons typical of a medium petroleum distillate. Products identified in this ignitable liquid category include mineral turpentine, kerosene, white spirits, light heating oil and diesel. Comparison with laboratory reference material of these products has not identified an exact source for the medium petroleum distillate, however it most closely resembles mineral turpentine. Item 2 was found to contain flammable compounds. The compounds detected are commonly identified in petrol, however the ratios of the compounds detected are not typical as to petrol samples seen within our laboratory. In addition, there was one compound identified seldomly seen in petrol samples within our laboratory. Item 3 did not contain any common ignitable liquid residues.
C8JT7Z	4.1 Residue characteristics of medium petroleum distillates to heavy petroleum distillates comparable to mineral turpentine, paraffin, some charcoal starters, diesel fuel and kerosene according to ASTM E1618 4.2 residue characteristics of gasoline comparable to petrol according to ASTM E1618
C9BRKY	A heavy petroleum distillate was detected in the nylon bag containing a piece of white cloth (Item 1). Example of ignitable in the heavy distillates class include kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides products, fuel additives, lamp oils, and automotive parts cleaners. A medium miscellaneous class of ignitable liquid was detected in the nylon bag containing a piece of white cloth (Item 2). Examples of ignitable liquids in the medium miscellaneous class include turpentine products, mineral spirit, citrus cleaners, spray lubricants, brush cleaners, paint thinners, charcoal staters, and fuel additives. No ignitable liquids were detected in the nylon bag containing a piece of white cloth sample intended as a comparison blank (Item 3).
C9W4J8	Sample 1 and Sample 2 both tested positive for an ignitable liquid. Based on the comparison to reference materials, this analysis satisfied the requirement to indicate the presence of a Heavy Petroleum Distillate (HPD) for Sample 1 and Gasoline for Sample 2.
CLGQNY	Results/Opinions and Interpretations: Analysis of Item 1 disclosed the presence of an ignitable liquid from the heavy petroleum distillate class. Examples of this class include some charcoal starters, some

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	aviation fuels, some insecticides, some fuel additives, some lamp oils, some automotive parts cleaners, kerosene and diesel fuel. Analysis of Item 2 disclosed the presence of an ignitable liquid from the medium miscellaneous class. Examples of this class include some fuel additives, some mineral spirits, some spray lubricants, some brush cleaners, some paint thinners, some citrus cleaners, some charcoal starters, turpentine products, and some blended/specialty products. Analysis conducted on Item 3 did not identify the presence of an ignitable liquid. Item 3 was submitted as a comparison sample.
CUUUFX	Residues of a heavy petroleum distillate (HPD) were identified on Item 1. Examples of some HPDs include diesel fuel, some charcoal starter fluids, and some fuel additives. Residues of a medium miscellaneous product were identified on Item 2. This product contained mostly aromatic compounds. Examples of some medium miscellaneous products include fuel additives, brush cleaners, and spray lubricants.
CXQLLA	Item 1 Findings: n-alkanes and branched alkanes, alkenes/cycloalkanes, alkines/cycloalkenes in the range of C7-C16 Assessment: Due to the findings it is most probable that the piece of cloth contained a heavy petroleum distillate (e.g. diesel fuel). Item 2 Findings: ethylbenzene, m-, p-, o-xylene, toluene, cumene, propylbenzene, ethyltoluene,mesitylen, pseudocumene, hemellitole, 4H-DCPD Assessment: Due to the findings it is most probable that the piece of cloth contained a medium aromatic product (e.g. special solvents). Item 3 No ignitable liquids were detected.
CY3UG9	Item 1: A heavy petroleum distillate found. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, charcoal starters, insecticide vehicles, fuel additives, lamp oils, and automotive parts cleaners. Item 2: A medium aromatic product found. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, brush cleaners, and fuel additives. Item 3: No ignitable liquids found.
D2UG6C	A petroleum distillate (heavy range) was identified in specimen #1. Examples of heavy petroleum distillates include kerosene, diesel fuels, and some jet fuels. An aromatic product (medium range) was identified in specimen #2. Examples of medium aromatic products include cleaning solvents, insecticides, and fuel additives. No ignitable liquids were detected in specimen #3. The specimens were extracted by passive concentration headspace 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.
D4UP9M	Heavy petroleum distillates(HPDs) were identified in item1 and medium aromatic products(MAPs) were identified in item2.
D66QVL	1. Laboratory item #1: A heavy petroleum distillate was identified. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel and some charcoal starters. 2. Laboratory item #2: A medium miscellaneous product was identified. Examples of medium miscellaneous product include, but are not limited to, some fuel additives such as "Power Service Diesel Fuel Supplement". 3. Laboratory item #3 (Comparison sample for items 1 and 2): No ignitable liquids were identified.
DAKYJK	A heavy petroleum distillate was detected in Lab Item 1. A medium miscellaneous product was detected in Lab Item 2. No ignitable liquids were identified in Lab Item 3.
DGJC88	Item 1 was analyzed for the presence of ignitable liquid residues. A Heavy Petroleum Distillate was detected. Examples include Kerosene and Charcoal Starters Item 2 was analyzed for the presence of ignitable liquid residues. A Medium Aromatic Product was detected. Examples include specialty cleaning solvents and automotive parts cleaners. Item 3 was a sample submitted for comparison. Item 3 was analyzed for the presence of ignitable liquid residues and none were detected.
DHF2KW	ITEM # DESCRIPTION FINDINGS 1 Cloth fragments: unburned. Subdesignated. 1-1 One cloth fragment: unburned. Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	fuels, and some charcoal starters. 1-2 One cloth fragment: unburned. Unidentified petroleum product. 1-3 One cloth fragment: unburned. No ignitable liquids were found. Used for comparison for Items 1-1 and 1-2. [Participant created a manually formatted table within the free form text space. This special formatting was not transferable into the final report. Data is presented as is.]
DHWLKE	Analysis of exhibit 001-item 1 detected the presence of a heavy range petroleum distillate (examples: some charcoal lighter fluids, some automotive parts cleaners, some lubricating oils, etc). Analysis of exhibit 001-item 2 detected the presence of light to medium aromatic compounds and heavy range cyclic compounds the nature of which could not be determined. Accordingly, the results of the analysis were inconclusive. Analysis of exhibit 001-item 3 failed to detect the presence of an ignitable liquid. Exhibits 001-item 1, 001-item 2 and 001-item 3 were initially extracted using direct heated headspace sampling and then were further extracted by passive headspace adsorption onto activated charcoal strips. The extractions were analyzed by gas chromatography-mass spectrometry. Portions of the activated charcoal strips from these extractions, designated 001-item 1-a, 001-item 2-a and 001-item s-a were preserved for return to the submitting agency.
DJAP7D	SUMMARY OF RESULTS AND INTERPRETATIONS: Item 1.1: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Heavy (C9-C20+) Petroleum Distillate. Examples of a Heavy (C9-C20+) Petroleum Distillate include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 1.2: Passive Headspace Concentration/Gas Chromatography-Mass Spectrometry disclosed the following: Testing for ignitable liquids/ignitable liquid residues was inconclusive. The pattern obtained did not match any laboratory standards or reference materials. However, if a particular product is suspected to have been used, it may be submitted to the laboratory for analysis. 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.
DPELRX	A heavy petroleum distillate profile was detected in Item 1. Some examples of heavy petroleum distillate products include diesel fuel, charcoal starters, aviation fuels, and lamp oils. A medium miscellaneous profile was detected in Item 2. Some examples of medium miscellaneous products include fuel additives, mineral spirits, and spray lubricants. The miscellaneous profile could be from a mixture of products, or it could be from a blended/specialty product. No ignitable liquid profile was detected in Item 3. Item 1 The profile for Item 1 contained n-alkanes (e.g. decane, undecane), and other alkanes (branched and cycloalkanes) in the heavy n-alkane range (~C9 – C19). I concluded the profile meets the ASTM E1618 requirements for a distillate product profile. Item 2 The profile for Item 2 contained aromatics (e.g. ethylbenzene, propylbenzene) and cycloalkanes (e.g. tricyclodecane). There did not appear to be significant n-alkanes, or branched alkanes present. Based on the ASTM E1618 classification system, I determined that the best fit class was Miscellaneous, as the profile had both medium aromatic components and cycloalkane components. The profile in this item could be from a mixture of products, or it could be from a blended/specialty product. Item 3 No ignitable liquid profile was detected in Item 3. 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.).
DRL4PU	Item 1 - Questioned Piece of Cloth Remnant A Heavy Petroleum Distillate was detected in Item 1 - Questioned Piece of Cloth Remnant. Examples of products in this range are kerosene, diesel fuel, and charcoal starters. Item 2 - Questioned Piece of Cloth Remnant A Medium Aromatic Product was detected in Item 2 - Questioned Piece of Cloth Remnant. Examples of products in this range are automotive part cleaners, cleaning solvents, insecticides, and brush cleaners. Item 3 - Cloth Substrate

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Intended as Comparison Black No ignitable liquid was detected in Item 3 - Cloth Substrate Intended as Comparison Black.
DTQ7FC	Results: Item 1 was found to contain a heavy-range petroleum distillate (HPD). Examples of heavy-range petroleum distillates include, but are not limited to, kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2 was found to contain a medium-range miscellaneous product. Examples include, but are not limited to, some fuel additives and some spray lubricants. No ignitable liquids were detected in item 3. Evidence Item 1: A heat-sealed bag containing a heat-sealed bag holding a white cloth square. Item 2: A heat-sealed bag containing a heat-sealed bag holding a white cloth square. Item 3: A heat-sealed bag containing a heat-sealed bag holding a white cloth square. Methods: The volatile materials from 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 was placed in a bag and returned to the original packaging. Remarks: This report contains the opinions and interpretations of the analyst whose signature appears on the report.
DURWV8	A heavy petroleum distillate (HPD) was identified in Item 1. Examples of HPDs include, but are not limited to some kerosenes and some charcoal starters. A medium aromatic product was identified in Item 2. Examples of medium aromatic products include, but are not limited to specialty products and solvents. 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). Passive adsorption/elution extraction was performed on Items 1, 2, and 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 were repackaged inside the original items.
DWD9GD	[No Conclusions Reported.]
E2MG9L	Within the limits of the applied methodology and after considering item 3 intended as a comparison blank, the analysis revealed the presence of a Heavy Petroleum Distillate (HPD) in item 1, and a Miscellaneous Medium Product in item 2. The class of ignitable liquid detected in item 1 includes in particular some charcoal starters, lamp oils and other solvents. The product detected in item 2 is not known in our reference ignitable liquid database. Its chemical composition, particularly the detection of THDCPD (4HDCPD), suggests it belongs to a category of high-energy-density fuels. This ignitable products class includes some blended products and some specialty products like jet fuels, high-performance racing fuels, fuel additives or specialized industrial solvents.
ECPG8L	A heavy petroleum distillate, such as automotive diesel fuel, was detected on the fabric (Item 1, FEN122369508 A). A medium petroleum distillate, with a major component of octahydro-4,7-methano-1H-indene, was detected on the fabric (Item 2, FEN122369508 B). Octahydro-4,7-methano-1H-indene is a precursor to rocket fuel. No flammable liquid was detected on Item 3 (FEN122369508 C)
EF84TZ	[No Conclusions Reported.]
EWQP3B	Lab item 1: A heavy petroleum distillate ignitable liquid residue was identified. Examples of this include but are not limited to kerosene, diesel fuel, some jet fuels and some charcoal starters. Lab item 2: A medium aromatic product ignitable liquid residue was identified. Examples of this include but are not limited to some automotive parts cleaners, specialty cleaning solvents, some insecticide vehicles, and fuel additives. A medium miscellaneous product ignitable liquid residue was identified. Examples of this include but are not limited to turpentine products, some blended products, and some specialty products. It could not be determined whether Lab item 2 contained a single commercial product or a mixture of two individual products. Lab item 3: No ignitable liquids were identified. This item is listed as a comparison sample. This comparison sample was analyzed and the results were used in evaluating possible matrix influences on other submitted sample(s).

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
EYZAY7	Item 1 contained a residue of a Heavy Petroleum Distillate. Item 2 contained a mixture of a residue of petrol and a Heavy Petroleum Distillate. Item 3 contained no commonly encountered flammable liquid residues.
EZR7NZ	Item 1 was found to contain compounds classified as heavy petroleum distillates according to ASTM E-1618-19. Item 2 was found to contain compounds classified as miscellaneous product according to ASTM E-1618-19. Item3 no ignitable liquid residue were identified (not identified).
F2JX2B	A petroleum distillate in the heavy range was identified in Item #01, examples of which include kerosene, diesel fuel, and some charcoal starters. Gasoline was identified in Item #02. No ignitable liquids were identified in Item #03.
F6JAXB	A petroleum distillate in the heavy range was identified in Item #1. Examples of this include kerosene, diesel fuel, and some charcoal starters. Gasoline was identified in Item #2. No ignitable liquids were identified in Item #3.
F8L894	Item 1: A heavy petroleum distillate found. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, charcoal starters, insecticide vehicles, fuel additives, lamp oils, and automotive parts cleaners. Item 2: A medium aromatic product found. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, brush cleaners, and fuel additives. Item 3: No ignitable liquids found.
FH8YP9	A heavy petroleum distillate was detected in Item 1. 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. The major portion of the volatile components detected in Item 2 were determined to be a medium aromatic product and a blend of cycloalkanes and normal alkanes. Medium aromatic products include, but are not limited to, some automotive parts cleaners, some specialty cleaning solvents, some insecticide solvents, brush cleaners and other specialty application solvents and thinners. A specialty application solvent may contain this blend of aromatic products, cycloalkanes and normal alkanes. No ignitable liquids were detected in Item 3.
FQJLPG	A heavy petroleum distillate, such as automotive diesel fuel was detected on Item 1. Medium hydrocarbons, such as xylene, ethylbenzene and dimethylbenzene were detected on Item 2, as well as a large peak for endo-tricyclodecane, which suggested it was a mixture of a medium petroleum distillate and a speciality product, which is a precursor for jet or rocket fuel. No flammable liquid was detected on 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.
FR82W4	A heavy petroleum distillate was identified in item 1. Heavy petroleum distillate products include, but are not limited to, kerosene, diesel fuel, and some brands of charcoal starters. A specialty product was identified in item 2. Specialty products include single compounds and specialty mixtures. 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. 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.
FRBGEB	A heavy petroleum distillate was detected in the Item 1 cloth. Examples of heavy petroleum distillates include kerosene and diesel fuel. A medium aromatic product was detected in the Item 2 cloth. Examples of medium aromatic products include some specialty cleaning solvents and some automotive parts cleaners. No ignitable liquid was identified in the Item 3 cloth.
FU38BW	4.1 Residue characteristics of medium petroleum distillates to heavy petroleum distillates comparable to mineral turpentine, paraffin, some charcoal starters, diesel fuel and kerosene according to ASTM E1618 4.2 residue characteristics of gasoline comparable to petrol according to ASTM E1618
FXFQRD	"Item 1" 1. The exhibit was analysed for the presence of ignitable liquid residues and heavy petroleum

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	distillate was detected. "Item 2" 2. The exhibit was analysed for the presence of ignitable liquid residues and petrol was detected. "Item 3" 3. The exhibit was analysed for the presence of ignitable liquid residues and none were detected. The exhibit was submitted as a comparison sample for the exhibits marked "Item 1" and "Item 2". 4. Note: According to literature, examples of heavy petroleum distillates include diesel and kerosene, among other products.
FZ8P7C	1. A medium petroleum distillate (paraffin) was detected in Item 1. 2. A medium miscellaneous product was detected in Item 2.
G2ENDQ	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). Heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, and some charcoal starters. A medium aromatic product was identified in Item 2 (Identification). Examples of medium aromatic products include, but are not limited to, automotive part cleaners, specialty cleaning solvents, insecticides, and brush cleaners. There were no ignitable liquid residues detected in Item 3 (Not Detected).
G7TRF7	Exhibit 1 contained a heavy petroleum distillate which is an ignitable liquid. Examples of heavy petroleum distillates include diesel fuel, kerosene, and charcoal starters. Exhibit 2 contained an aromatic product which is an ignitable liquid. Examples of aromatic products include fuel additives, automotive parts cleaners, and some specialty cleaning solvents. No ignitable liquids were identified in Exhibit 3.
G9F9UK	1) An ignitable liquid consistent with a heavy (C9-C19) petroleum distillate was identified. Examples of the heavy petroleum distillate class of ignitable liquids include kerosene, aviation fuels, insecticides, fuel additives, lamp oils, automotive parts cleaners, charcoal starters, and diesel fuel. 2) An ignitable liquid consistent with a medium miscellaneous product (C9-C13) was identified. Examples of medium miscellaneous products include fuel additives, spray lubricants, and brush cleaners. 3) This comparison sample was analyzed and the results were used in evaluating possible matrix influences on other submitted sample(s).
GB3HUT	Residues of a heavy petroleum distillate (HPD) were identified on Item 1. Examples of an HPD include, but are not limited to, kerosene, diesel fuel, some lamp oils, and some fuel additives. Heavy petroleum distillates are classified as ignitable liquids. Residues of a light to medium miscellaneous product were identified on Item 2. Examples light to medium miscellaneous products include, but are not limited to, some aviation gasolines, some fuel additives, and some mineral spirits. Miscellaneous products are classified as ignitable liquids. Items 1 and 2 were examined by a passive adsorption/elution technique followed by analysis with gas chromatography/mass spectrometry.
GBYUDF	Moderately flammable, heavy petroleum distillate residues could be detected from ITEM 1. It can be for example gas oil, heating oil. From ITEM 2 a flammable liquid residue with a very characteristic composition in the boiling range approximately bounded by the boiling points of n-nonane and n-tridecane can be detected. It mainly contains aromatic and naphthenic hydrocarbons, but traces of aliphatic hydrocarbons and 2-butoxyethanol could also be identified.
GFF32E	Item 1-1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 1-2: Unidentified petroleum product, examples of which are some brands of diesel fuel supplements. Item 1-3: No ignitable liquids were found.
GGUPC2	Instrumental analysis of exhibit #1 revealed heavy petroleum distillate. Instrumental analysis of exhibit #2 revealed medium aromatic product. No ignitable liquid detected in exhibit #3.
GHKNQZ	Item 1 contained a heavy petroleum distillate. Examples of which include kerosene and diesel. Item 2 contained a medium aromatic product. Examples of which include aromatic fluids and aero gloss fuel proffer. No ignitable liquids were detected in Item 3.
GTJLCE	A heavy petroleum distillate product was detected on the cloth from Item 1. Examples of such a product would include diesel fuel and kerosene. A miscellaneous class product was detected on the

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	cloth from Item 2. Examples of such a product would include some fuel additives and insecticide vehicles.
GXZTZE	Item 1 - A heavy petroleum distillate was identified. Examples of a heavy petroleum distillate include, but are not limited to, some kerosenes, diesel fuel, some jet fuels, and some lubricants. Item 2 - A miscellaneous product was identified. It could not be determined whether this item contained a single commercial product or a mixture of individual products. Examples of miscellaneous products include some fuel additives, some paint thinners, and some charcoal starters. Item 3 - No ignitable liquid was identified.
H4GAW2	A heavy petroleum distillate was identified in Item 1. Examples of heavy petroleum distillates include diesel fuel, kerosene and some charcoal starters. A medium aromatic product was identified in Item 2. Examples of medium aromatic products include some automotive parts cleaners, some insecticides and some specialty cleaning solvents. No ignitable liquids were detected in Item 3 comparison sample.
H7LA7U	A heavy petroleum distillate was detected in item 1. Heavy petroleum distillate products may include kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils and automotive parts cleaners. A medium miscellaneous product was detected in item 2. Some examples of medium miscellaneous products include turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, and charcoal starters. No ignitable liquid was detected in item 3.
H9Q3X8	Item #1 showed the presence of a heavy petroleum distillate. Item #2 showed the presence of a miscellaneous class ignitable liquid (primarily aromatic).
HCCCXD	Examination of Item 1: Item 1 comprised a heat-sealed nylon bag enclosing a second heat-sealed nylon bag containing a square of fabric. Heavy petroleum distillate residues were detected from the item. Heavy petroleum distillates include kerosene, diesel fuel, jet fuels and charcoal starters. Examination of Item 2: Item 2 comprised a heat-sealed nylon bag enclosing a second heat-sealed nylon bag containing a square of fabric. Medium miscellaneous product residues were detected from the item. Medium miscellaneous products include some blended products and specialty products. Examination of Item 3: Item 3 comprised a heat-sealed nylon bag enclosing a second heat-sealed nylon bag containing a square of fabric. No ignitable liquid residues were detected from the item.
HCR8BR	In Item 1 and Item 2, ignitable liquids were found. In Item 3 (blank), no traces of ignitable liquid were found. In Item 1, an ignitable liquid was found, belonging to the class of Heavy Petroleum Distillates, according to the ASTM 1618-19 classification scheme. The main components of the detected liquid are consecutive n-alkanes in the 10- to 25-carbon atom range. Such composition is characteristic of some diesel oils and some heating oils. In Item 2, an ignitable liquid was found, belonging to the class Others-Miscellaneous, subclass Medium. Its main components are tricyclodecane (TCD) (CAS# 6004-38-2) and alkylbenzenes: ethylbenzene and C3-alkylbenzenes, with quantitative ratios (profile) similar to the profile of these compounds in gasoline. A liquid with a similar composition is not present in our own database and was not found in online databases available to us. A liquid with such a composition may be available for purchase as a solvent, or as a component of an insecticide (solvent). Online information indicates that tricyclodecane is used as a component of jet fuel. Therefore, it cannot be ruled out that the detected ignitable liquid is a type of jet fuel.
HCTBFG	A heavy petroleum distillate was detected in item 1. A heavy petroleum distillate would include products such as diesel fuel. A medium miscellaneous product was detected in item 2. Such products could include some types of fuel additives and paint thinners. No ignitable liquids were detected in item 3.
HD4M6T	Exhibit 1 Result: Heavy Petroleum Distillate; Example Products Within This Class: Kerosene, Diesel Fuel, Charcoal Starters, Aviation Fuels, Insecticides, Fuel Additives, Lamp Oils, Automotive Parts Cleaners Exhibit 2 Result: Medium Miscellaneous Product; Example Products Within This Class: Fuel Additives, Brush Cleaners Exhibit 3 Result: No common ignitable liquid residue was detected.

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
HG9BL4	Item 1, questioned piece of cloth remnant, was found to contain a Medium Petroleum Distillate (Carbon Range C8 - C12). An example of this includes Kerosene. Item 2, questioned piece of cloth remnant, was found to contain a Medium Petroleum Distillate (Carbon Range C9 - 12). Examples of this include Paint Thinners and Mineral Spirits. No ignitable liquid was identified in Item 3.
HLE4GY	Item 1: Heavy Petroleum Distillate (Examples: some charcoal starters, some fuel injector cleaners, diesel fuel, some jet fuels, and kerosene). Item 2: Medium Aromatic Product (Examples: some automotive parts cleaners, some specialty cleaning solvents, fuel additives, some fuel supplements, and some insecticide carriers). Item 3*: No ignitable liquids were identified (The absence of an ignitable liquid residue does not preclude the possibility that ignitable liquids were present at the fire scene) *Item 3 was used as a comparison sample for Item(s) 1-2.
HN7Z6T	An ignitable liquid classified as a heavy petroleum distillate was identified in item 1. Examples of products that may contain a heavy petroleum distillate include, but are not limited to Kerosene, Diesel Fuel, Charcoal Starters, Aviation Fuels, Insecticides, Fuel Additives, Lamp Oils, and Automotive Parts Cleaners. An ignitable liquid classified as a medium miscellaneous product was identified in item 2. Examples of products that may contain a medium miscellaneous product include, but are not limited to turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners and charcoal starters. No ignitable liquid(s) were detected in item 3.
HQT8EA	Item #1: A heavy petroleum distillate was detected. Examples of heavy petroleum distillates include kerosene, diesel fuel, and some fuel oils. Item #2: A medium range miscellaneous product was detected. Examples of medium range miscellaneous products include some turpentine products, some fuel additives, and some paint thinners. Item #3 (comparison): No ignitable liquids were detected.
HW2386	A heavy petroleum distillate was detected in Item 1. 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. A medium aromatic product was detected in Item 2. Medium aromatic products include, but are not limited to, some fuel supplements, automotive parts cleaners, specialty cleaning solvents, some insecticide solvents, brush cleaners and other specialty application solvents and thinners. No ignitable liquids were detected in Item 3.
HWYFQQ	ITEM 1: High Petroleum Distillate was found. ITEM 2: A mixture of gasoline residues and Tetrahydrodicyclopentadiene Isomeres was found (C10H16). ITEM 3: No flammable liquids were found in Item 3.
HZXUDF	Item #1-1 (Item 1): Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item #1-2 (Item 2): Unidentified petroleum product, examples of which are some brands of diesel fuel supplements. Item #1-3 (Item 3): No ignitable liquids were found.
J7X6R6	An ignitable liquid classified as a heavy petroleum distillate was detected in item 1. Examples of heavy petroleum distillates include fuel injector and carburetor cleaners, charcoal starters, diesel fuel, or jet fuel. An ignitable liquid classified as a medium miscellaneous product was detected in item 2. Examples of medium miscellaneous ignitable liquids include turpentine, diesel fuel supplements, mineral spirits, spray lubricants, and paint thinners. An ignitable liquid was not detected in item 3.
J8CZMR	Date range of testing activities: 9/04/2024 – 9/27/2024. Gas Chromatograph – Mass Spectrometer Analysis (Heated Headspace Concentration [Items #01.01 - #01.03] and Passive Headspace Concentration [Items #01.01 - #01.03]) of the submitted material yielded the following results and conclusions: Items #01.01– A heavy petroleum distillate was identified. Examples of a heavy petroleum distillate of the type identified include, but are not limited to some fire starter gels, diesel fuel and some lamp oils. Item #01.02 – A medium miscellaneous product (aromatic/oxygenate) was identified. Examples of a medium miscellaneous product (aromatic/oxygenate) of the type identified include, but are not limited to some specialty automotive fluids (i.e. Diesel Boosters and some fuel additives). Item #01.03 (Submitted as a comparison sample) – No ignitable liquid residue was

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	identified.
JBVHX3	Item 1 - An ignitable liquid was identified. This liquid was identified as a heavy petroleum distillate product. Some examples of heavy petroleum distillate products are diesel fuels and kerosene. Item 2 - An ignitable liquid was identified. This liquid was identified as a medium miscellaneous product. Some examples of medium miscellaneous products are turpentine, and some blended or specialty products such as fuel supplements. Item 3 - No ignitable liquid was detected. The samples were prepared with the passive heated headspace technique, and analyzed by gas chromatography mass spectrometry. Vials containing charcoal strips of vapor extracts, from each item, were sealed in with the evidence.
JJM3T3	EVIDENCE ANALYZED: Item 1.1 (Agency Item IL). A heat-sealed fire debris bag containing a heat-sealed fire debris bag containing a piece of cloth. Item 1.2 (Agency Item IL). A heat-sealed fire debris bag containing a heat-sealed fire debris bag containing a piece of cloth. Item 1.3 (Agency Item IL). A heat-sealed fire debris bag containing a heat-sealed fire debris bag containing a piece of cloth. (Comparison) RESULTS OF ANALYSIS: Items 1.1, 1.2, 1.3 were extracted by passive adsorption/elution and analyzed by gas chromatography-mass spectrometry. Item 1.2 was also extracted by carbon disulfide and analyzed by gas chromatography-mass spectrometry. Item 1.1. A heavy petroleum distillate was identified in the heat-sealed fire debris bag. Examples of heavy petroleum distillates are kerosene, diesel fuel and some charcoal starters. Item 1.2. A medium aromatic product was identified in the heat-sealed fire debris bag. Examples of medium aromatic products include some automotive parts cleaners, specialty cleaning solvents, insecticides, and fuel additives. Item 1.3. No ignitable liquids were identified in the heat-sealed fire debris bag. (Comparison) A charcoal strip preserved in a glass vial was retained with each item of evidence to be returned to the submitting agency. The above interpretation does not represent the totality of the analyst's observations. Further questions and/or discussion is encouraged.
JLE4W7	The extract from item 1 was found to contain a volatile mixture which was identified as a heavy petroleum distillate. Examples of heavy petroleum distillates include some charcoal lighters, diesel fuel, and kerosene. The extract from item 2 was found to contain a volatile mixture which was identified as a medium aromatic product. Examples of medium aromatic products include some auto part cleaners, specialty cleaning solvents, insecticide vehicles, and brush cleaners. 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. Ignitable liquids are volatile compounds that could have evaporated, been consumed in a fire, environmentally altered or removed, or are otherwise indistinguishable from background materials.
JMQ2L4	[No Conclusions Reported.]
JPEC32	Item 1: A heavy petroleum distillate found. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, jet fuels, charcoal starters, insecticide vehicles, fuel additives, lamp oils, and automotive parts cleaners. Item 2: A medium aromatic product found. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, brush cleaners, and fuel additives. Item 3: No ignitable liquids found.
JPUYUB	In item 1 we have detected a heavy petroleum distillated. In item 2 we have detected gasoline.
JRLUJ6	It is found that Item 1 includes Heavy Petroleum Distillate as ignitable liquids and Item 2 includes Gasoline as ignitable liquids.
JWB7ZY	Item 1: Heavy petroleum distillate was detected. Heavy petroleum distillate: examples of heavy petroleum distillates include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: A miscellaneous product was detected. Miscellaneous: Examples of miscellaneous products include enamel reducers, lacquer thinners, aviation gasolines, racing gasolines, turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, charcoal starters, lamp oils, insecticides, and automotive parts cleaners.
K4C4GX	A heavy petroleum distillate was identified in item 1. An aromatic product was identified in item 2. No

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	ignitable liquids were identified in item 3.
K9QLYE	Laboratory Item #1: A heavy petroleum distillate was identified. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, and some charcoal starters. Laboratory Item #2: A mixture of a medium aromatic product and a medium miscellaneous product was identified. Examples of medium aromatic products include, but are not limited to, some automotive parts cleaners, specialty cleaning solvents, and some brush cleaners. Examples of medium miscellaneous products include, but are not limited to, some fuel additives (such as Power Service Diesel Supplement Cetane Boost), some spray lubricants, and some brush cleaners. The ignitable liquids identified in Laboratory Item #2 could have originated from either two independent sources or a single commercial product. Laboratory Item #3 (comparison sample for Laboratory Items #1 and #2): No ignitable liquids were identified.
KACP7C	A heavy petroleum product was identified in Item 1. A medium miscellaneous product was identified in Item 2. No ignitable liquids were identified in Item 3.
KAEPCY	Exhibit 1 (Agency Exhibit Item 1). Square piece of 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. Exhibit 2 (Agency Exhibit Item 2). Square piece of white cloth. Examination reveals the presence of a Medium Range ignitable liquid residue in the Aromatic Products Class. Refer to the attached Ignitable Liquid Classification System. [Classification System was not included with the report]. Exhibit 3 (Agency Exhibit Item 3). Square piece of white cloth. No ignitable liquid residue as defined by the attached Ignitable Liquid Classification System was detected.
KC4LV7	Item 001: Analysis identified the presence of a Heavy Petroleum Distillate. Some examples of a Heavy Petroleum Distillate may include, but are not limited to, some Kerosene, Diesel fuels, Aviation fuels, Charcoal starters, Fuel additives, Automotive parts cleaners, Lamp oils, and Insecticides. Item 002: Analysis identified the presence of a mixture of a Medium Aromatic Product and a Medium Miscellaneous Product. Some examples of a medium aromatic product include, but are not limited to, some automotive parts cleaners, some specialty cleaning solvents, some insecticides and some brush cleaners. Some examples of a medium miscellaneous product include, but are not limited to, some fuel additives, some mineral spirits, some spray lubricants, some brush cleaners, and some paint thinners. Mixtures of ignitable liquid classifications can be the result of a single commercial product or a mixture of products. This analysis cannot differentiate between ignitable liquids that are mixed by a manufacturer or ignitable liquids mixed at the point of use.
KHAN8E	Item 1 contained a small fabric swatch (approx 5cm x 5cm) which was found to contain 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. Item 2 contained a small fabric swatch (approx 5cm x 5cm) which was found to contain a medium aromatic product. Examples of medium aromatic products include but are not limited to some automotive parts cleaners, speciality cleaning solvents, some insecticide vehicles and fuel additives. Item 3 contained a small fabric swatch (approx 5cm x 5cm). No ignitable liquid was detected in this item.
KNYZ93	Item 1 consists of one piece of white fabric. This item was found to contain a heavy petroleum distillate. Item 2 consists of one piece of white fabric. This item was found to contain a medium miscellaneous product. Item 3 consists of one piece of white fabric. No ignitable liquids were identified in this item. Comments: Examples of a heavy petroleum distillate may include but are not limited to kerosene, diesel fuel, some jet fuels, and some charcoal starters. These items were processed using passive headspace concentration with activated charcoal strips and analyzed using a gas chromatograph/mass spectrometer. No further examinations will be conducted by the Forensic Chemistry Section unless so requested. This laboratory does not have the facilities for the storage of processed evidence. Please make arrangements for the return of this evidence.
KZQVZ3	The Item 1 extract contained a heavy petroleum distillate which can be found in, but is not limited to, kerosene and diesel fuel. The Item 2 extract contained a medium aromatic product which can be found in, but is not limited to, some paint thinners and specialty solvents. No ignitable liquids were

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	identified in the Item 3 extract. Items 1, 2, and 3 were transferred to laboratory provided airtight cans for analysis. One can from the same lot/batch of laboratory provided cans was previously analyzed, served as a control can, and was found to contain no ignitable liquids. Therefore, the re-packaging of Items 1 and 2 was excluded as the source of the heavy petroleum distillate identified in Item 1 and the medium aromatic product identified in Item 2.
L23KUL	1.1) A heavy petroleum distillate was identified in the sample. 1.2) A medium miscellaneous ignitable liquid was identified in the sample. 1.3) No ignitable liquids/or ignitable liquid residues were identified in the sample.
L3UGHF	Heavy petroleum distillate was detected from Item1 Medium aromatic product was detected from Item2
LJ3VT4	Evidence addressed in this report was received into the laboratory on August 12, 2024. Analysis for diffusive ignitable liquid residues using Adsorption Trapping with Activated Charcoal, followed by Gas Chromatography/Mass Selective Detection: Item #1: Heavy Petroleum Distillate, examples of which include (but are not limited to) kerosene, fuel additives, diesel fuels and some brands of charcoal starter fluids. Item #2: Medium Miscellaneous Aromatic Product (with Cyclic Hydrocarbons). Examples of medium aromatic products include (but are not limited to) automotive parts cleaners, insecticides, specialty and industrial solvents. Products that contain cyclic hydrocarbons include (but are not limited to) jet fuels. Examples of medium miscellaneous aromatic products (with cyclic hydrocarbons) include (but are not limited to) fuel additives and treatments. Item #3: No ignitable liquid residues identified. All Evidence will be returned to the Evidence Receiving 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.
LLQ32L	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 Medium Aromatic Products was detected in Item 2. No ignitable liquids were detected in Item 3.
LM2C6X	Item 001-001: Heavy Petroleum Distillate (HPD) residues were identified. Item 001-002: Aromatic product residues were identified. Item 001-003: No ignitable liquid residues were identified.
LNCNUA	Findings: Item 1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: Unidentified petroleum product, examples of which include some diesel fuel supplements. Item 3: No ignitable liquids were found.
LQ4KJ4	1. A heavy petroleum distillate was detected in Exhibit 1, uses of which include, but are not limited to, kerosene, diesel fuel, some jet fuels, some charcoal starters and some fuel additives. Heavy petroleum distillates are ignitable liquids and could act as a fire accelerant. 2. A medium aromatic product and ethylbenzene (a light aromatic product, flash point 15°C) were detected in Exhibit 2. Medium aromatic products and light aromatic products are ignitable liquids and could act as fire accelerants. Uses of medium aromatic products include, but are not limited to, specialty cleaning solvents, automotive parts cleaners, fuel additives and brush cleaners. Uses of ethylbenzene include, but are not limited to, the manufacture of styrene and as a solvent. Additionally, several Tetrahydrodicyclopentadiene (THDCPD) compounds were detected in Exhibit 2, including one unsubstituted THDCPD present at very high levels. THDCPD compounds are a type of polycyclic alkane (specifically tricyclo[5.2.1.0(2.6)]decanes) for which very little information on physical and chemical properties could be found; however, it is known that some are ignitable liquids and could act as fire accelerants, including exo-THDCPD which has a reported flash point of 55°C. Uses of THDCPD compounds include, but are not limited to, aircraft and missile fuels. Medium aromatic products, ethylbenzene and THDCPD compounds can also be found together in some commercially available blended products including, but not limited to, Power Service® Diesel Fuel Supplement and Cetane Boost® formulations. It cannot be determined whether the medium aromatic product, ethylbenzene and THDCPD compounds detected in Exhibit 2 originate from a single blended product or from a mixture of two or more separate products. 3. No ignitable liquid, or its residue, was detected in Exhibit 3.

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
LQ4M98	A petroleum distillate (heavy range) ignitable liquid residue was detected in the ACS sample extract (item 2-1-1-1-1) from the questioned piece of cloth remnant sealed inside a nylon evidence bag (item 2-1-1-1). Examples of heavy range petroleum distillates are some kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, and automotive parts cleaners. An others-miscellaneous (medium range) ignitable liquid residue was detected in the ACS sample extract (item 2-2-1-1-1) from the questioned piece of cloth remnant sealed inside a nylon evidence bag (item 2-2-1-1). Examples of others-miscellaneous products (medium range) include some turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, and charcoal starters. 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 sealed inside a nylon evidence bag (item 2-3-1-1).
LQJ7T6	a) Patterns of ignitable liquid was identified in Item 1 and was found to contain a medium-heavy range PETROLEUM DISTILLATE (including De-Aromatized) product. According to ASTM E1618-19 Ignitable Liquid Classification Scheme, examples of these medium range petroleum distillates (including De-Aromatized) products include but are not limited to charcoal starters, paint thinners, dry cleaning solvents, mineral spirits, automotive parts cleaners, spray lubricants, lamp oils, deck sealers, varnishes, kerosene and insecticides. According to ASTM E1618-19 Ignitable Liquid Classification Scheme, examples of these heavy range petroleum distillates (including De-Aromatized) products include but are not limited to kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils and automotive parts cleaners. b) Patterns of ignitable liquid was identified in Item 2 and was found to contain a GASOLINE, AROMATICS and MISCELLANEOUS product. According to ASTM E1618-19 Ignitable Liquid Classification Scheme, Examples of these Gasoline products are all brands, including gasohol and E-85. According to ASTM E1618-19 Ignitable Liquid Classification Scheme, Examples of these medium Aromatic products include but are not limited to automotive parts cleaners, specialty cleaning solvents, insecticides and brush cleaners. c) No patterns of ignitable liquid were identified in Item 3. Based on the above findings, in my professional opinion, the patterns of ignitable liquid in Item 1 and Item 2 were identified as Petroleum Distillate (including De-Aromatized) and mixture of Gasoline and Aromatics (Miscellaneous), respectively.
M3UW9L	The sample was analyzed by gas chromatography-mass spectrometry for presence of ignitable liquids. Item #1: Instrumental analysis detected high levels of normal alkanes, isoparaffins, cycloalkanes, alkylbenzenes. The ignitable liquid identified as heavy petroleum destilates. Item #2: Instrumental analysis detected high levels of alkylbenzenes without toluene or polyaromatic hydrocarbons. The ignitable liquid identified as medium aromatic products. Item #3: No ignitable liquids were detected in the sample.
M88GF8	Item 1-1: An ignitable liquid in the heavy petroleum distillates class was identified. Examples of products in the heavy petroleum distillates class include some fuel additives, some automotive parts cleaners, and some kerosene. Item 2-1: An ignitable liquid in the others-miscellaneous class was identified. Examples of products in the others-miscellaneous class include some fuel additives and some automotive parts cleaners. Item 3-1: No ignitable liquids were identified.
M9FTVN	The analysis done on (Item 1) revealed the presence of a heavy petroleum distillate in this sample. The analysis done on (Item 2) revealed the presence of a miscellaneous aromatics product in this sample. The analysis done on (Item 3) did not revealed the presence of an ignitable liquid in this sample.
MB7V3W	Item 1 was examined when the presence of a hydrocarbon mixture was detected. This particular hydrocarbon mixture can be found in commercially available products such as paraffin, diesel and other petroleum-based products. Item 2 was examined when the presence of petrol was detected. Item 3 was examined for the presence of commonly encountered accelerants, eg petrol, paraffin etc, with a negative result.
MEMN64	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. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	starters. Examination of Item #2 revealed the presence of an aromatic product. Aromatic products include some fuel additives, some automotive parts cleaners, and some specialty cleaning solvents. Examination of Item #3 failed to reveal the presence of ignitable liquids.
MJDPWP	4.1 Medium petroleum distillates to heavy petroleum distillates comparable to mineral turpentine, paraffin, some charcoal starters, diesel fuel and kerosene according to ASTM E1618 4.2 Gasoline comparable to petrol according to ASTM E1618
MJY4MN	A heavy petroleum distillate was present in Item 1. This class of ignitable liquid includes some kerosene, some diesel fuels, and some charcoal starters. A medium miscellaneous solvent was present in Item 2. This solvent is high in medium aromatic content, as well as, containing oxygenates and aliphatics. This class of ignitable liquid includes diesel fuel supplement for cetane boost and other proprietary formulations. No ignitable liquid residues were detected in Item 3.
MNADDW	GC/MS (gas chromatography/mass spectrometry) analysis of concentrated headspace vapors from item #1 - Item 1 - revealed the presence of compounds having retention times and mass ions characteristic of components of a medium aromatic product. Medium aromatic products include some automotive parts cleaners, specialty cleaning solvents, insecticide vehicles and fuel additives. GC/MS (gas chromatography/mass spectrometry) analysis of concentrated headspace vapors from item #2 - Item 2 - revealed the presence of compounds having retention times and selected ion profiles characteristic of components of a heavy petroleum distillate. Kerosene, diesel fuel, some jet fuels and some charcoal starters are examples of heavy petroleum distillates. GC/MS (gas chromatography/mass spectrometry) analysis of concentrated headspace vapors from item #3 - Item 3 - revealed the presence of compounds having retention times and mass ions characteristic of pyrolysis products and/or matrix components.
MZ36AE	An ignitable liquid classified as a heavy petroleum distillate (HPD) was identified in Item 1. Examples of HPDs include, but are not limited to, some diesel fuels and fuel additives. An ignitable liquid classified as a medium miscellaneous product was identified in Item 2. Examples of medium miscellaneous products include, but are not limited to, some fuel additives.
N6PJ6Z	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 diesel oil (heavy petroleum distillate). Item 2 was found to contain a mixture of aromatic components and tetrahydrodicyclopentadiene. These components can be found in pyrolysis gasoline (pygas). No such hydrocarbon fire accelerants were detected in item 3.
N8YM2W	Analysis of item 01 revealed the presence of a petroleum distillate examples of which include some cigarette lighter fluids, paint thinners, charcoal starter fluids, camping fuels, diesel fuel, and some jet fuels. The product identified is further classified as a heavy range product. Analysis of item 02 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 medium range product.
N9FJRB	Item 1: Diesel was detected in the contents of this item. Item 2: A mixture of volatile substances consisting predominantly of tetrahydrodicyclopentadiene and lower levels of aromatic hydrocarbons, was detected in the contents of this item. These substances can be found in some specialised fuel additive products.
NHK2C9	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 Distillate (e.g. Diesel Fuel, Fuels Additives, Automotive Parts Cleaners, etc.) was detected. Item # 2 The volatile contents were recovered using heated headspace recovery method and analyzed by gas chromatography, and were extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. A Medium Miscellaneous Product (e.g. Fuels Additives, Cleaning Solvents, Automotive Parts Cleaners, etc.) was

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	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 liquid residues were identified. This item was analyzed as a comparison sample.
NN6T7Z	The analysis completed in this case utilized the gas chromatograph/mass spectrometer. 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 1 contains an ignitable liquid in the heavy petroleum distillate class. Examples of products in the heavy petroleum distillate class include diesel fuel, kerosene, some jet fuels and some charcoal starters. Item 2 potentially contains an ignitable liquid in the medium aromatic class. However, no known standard reference matching item 2 was available for comparison. Further testing can be performed if other possible sources of ignitable liquids are identified and submitted. The results of this analysis are therefore considered inconclusive for medium aromatic. Examples of some products in the medium aromatic class include some automotive parts cleaners, some specialty cleaning solvents, some insecticides and some fuel additives. Item 3 was analyzed and 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.
NRMDBN	[No Conclusions Reported.]
NUD8XW	Item 1, A questioned piece of cloth: A heavy petroleum distillate product was identified. Examples of heavy petroleum distillate products include some charcoal starters, kerosene, diesel fuel, and fuel additives. Item 2, A questioned piece of cloth: A medium aromatic product was identified. Examples of medium aromatic products include some automotive parts cleaners, specialty cleaning solvents, insecticides, and brush cleaners.
NV492Z	A heavy petroleum distillate (HPD) was identified in Exhibit 1. Examples of HPDs include kerosene, diesel fuel and some lamp oils. HPDs are ignitable liquids. A medium range aromatic product was identified in Exhibit 2. Examples of medium range aromatic products include fuel treatments, specialty cleaning solvents and some insecticide vehicles. Medium range aromatic products are ignitable liquids. No ignitable liquids were identified in Exhibit 3.
NXAY69	PURPOSE: Items were examined to determine whether ignitable liquids could be identified. ITEM DESCRIPTION: RESULT: 1 Unburnt fabric. Heavy petroleum distillate identified. 2 Unburnt fabric. Medium miscellaneous product identified. 3 Comparison fabric. No ignitable liquids identified. NOTES: The identification of an ignitable liquid in an item does not necessarily indicate that a fire has been deliberately set. Heavy petroleum distillates are ignitable liquids that may be found in commercial products such as diesel fuel, furnace oil and some products marketed as Kerosene. Miscellaneous products are ignitable liquids that may be blends of other classes and types of ignitable liquids. Examples of commercial products that are medium miscellaneous ignitable liquids include some fuel additives.
NY4UZC	Item 1: the presence of a heavy petroleum distillates product was detected in this sample. Item 2: the presence of a medium aromatic product was detected in this sample.
NZ2VT3	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. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item #2 revealed the presence of an aromatic product. Aromatic products include some fuel additives, some automotive parts cleaners, and some specialty cleaning solvents. Examination of Item #3 failed to reveal the presence of ignitable liquids.
P2ABGZ	Item 1 was found to contain a heavy-range petroleum distillate. Examples of heavy-range petroleum distillates include, but are not limited to, automotive parts cleaners, diesel fuel, and fuel additives. Item 2 was found to contain a medium-range aromatic product and tetrahydrodicylopentadiene. Examples of products containing this combination include fuel additives and other specialty products.

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Tetrahydrodicylopentadiene is a component of some jet fuels. No ignitable liquids were detected in item 3.
P9LZ4U	Items 1-3 were sampled using passive headspace extraction with activated carbon strips (ACS) and analyzed by gas chromatography-mass spectrometry (GC-MS). Item 1 was found to contain a heavy (C8-C16) petroleum distillate (HPD). Heavy petroleum distillates may originate from kerosene, diesel fuels, and some charcoal starters. Item 2 was found to contain a medium range (C8-C13) miscellaneous product composed predominantly of aromatic compounds. Item 3 contained no detectable ignitable liquid residues.
PBV3Y6	Item 1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: Unidentified petroleum product, examples of which are some brands of diesel fuel supplements. Item 3: No ignitable liquids were found.
PEX2AX	1. A heavy petroleum distillate was detected in Exhibit 1. Uses of heavy petroleum distillates include, but are not limited to, furnace oil, diesel fuel and some jet fuels. Heavy petroleum distillates are ignitable liquids and could act as a fire accelerant. 2. Tetrahydrodicyclopentadiene (flash point = 54.4°C), ethylbenzene (a light aromatic product, flash point = 15°C), p-xylene (a light aromatic product, flash point = 27.2°C), m-xylene (a light aromatic product, flash point = 29.4°C), o-xylene (a light aromatic product, flash point = 46.1°C) and a medium aromatic product were detected in Exhibit 2. Tetrahydrodicyclopentadiene, light aromatic products and medium aromatic products are ignitable liquids and could act as fire accelerants. Uses of tetrahydrodicyclopentadiene include, but are not limited to, some fuel additives and some jet fuels. Uses of light aromatic products include, but are not limited to, some solvents, some automotive parts cleaners and some lacquer thinners. Uses of medium aromatic products include, but are not limited to, some automotive parts cleaners, some specialty cleaning solvents and some brush and roller cleaners. It is not known if the components/products detected in Exhibit 2 originate from a single blended product or from two or more separate sources. Tetrahydrodicylcopentadiene, ethylbenzene, p-xylene, m-xylene, o-xylene and medium aromatic components can, however, be found blended together in some commercially available diesel fuel supplements. 3. No ignitable liquid, or its residue, was detected in Exhibit 3.
PLDKRC	Ignitable liquids were detected in both of Item 01 and Item 02. Item 01 contains heavy petroleum distillates, and Item 02 contains medium aromatic products.
Q2N99Q	Analysis by Gas Chromatography/Mass Spectrometry of the gauze pad and plastic bag (Item 1A) detects the presence of a heavy petroleum distillate (HPD). Examples of HPD's include: 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 gauze pad and plastic bag (Item 1B) detects the presence of an aromatic product. Examples of Aromatic products include: specialty cleaning solvents, some automotive parts cleaners, some insecticide vehicles and fuel additives. Analysis by Gas Chromatography/Mass Spectrometry of the gauze pad and plastic bag (Item 1C) fails to detect the presence of any ignitable liquids. The procedure employed does not detect the presence of light volatiles such as certain alcohols and acetone.
Q7YVT3	General description of exhibits: 1. "Item 1": A piece of cloth remnant. 2. "Item 2": A piece of cloth remnant. 3. "Item 3": A piece of cloth remnant, submitted for comparison with "Item 1" and "Item 2". Findings: "Item 3" 4. The exhibit was analysed for the presence of ignitable liquid residues and none were detected. "Item 1" 5. The exhibit was analysed for the presence of ignitable liquid residues and heavy petroleum distillate was detected. "Item 2" 6. The exhibit was analysed for the presence of ignitable liquid residues and petrol was detected. 7. Note: According to literature, examples of heavy petroleum distillates include some diesel fuels and some kerosenes.
QGDVMA	1. Item 1 contains heavy petroleum distilates. 2. Item 2 contains medium aromatic products.
QGFH6N	A heavy petroleum distillate (HPD) was detected in item #1. Examples of HPDs include kerosene, diesel Fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils and automotive parts

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	cleaners. A medium aromatic products was detected in item #2. Examples of this aromatic include automotive parts cleaners, specialty cleaning solvents, insecticides and brush cleaners. No ignitable liquids were detected in item #3.
QKFTX3	Item 1: A heavy petroleum distillate was detected. Examples include Kerosene, aviation fuels, diesel fuels, charcoal starters, insecticides, fuel additives, automotive parts cleaners, and lamp oils. Item 2: A miscellaneous ignitable liquid was detected. Examples include specialty mixtures. Item 3 Comparison sample.
QPRGYY	A Heavy Petroleum Distillate was identified in Item # 1. Examples of heavy petroleum distillates include kerosene, diesel, and some charcoal starters. A Medium Aromatic was identified in Item # 2. Examples of medium aromatics include specialty cleaning solvents, some insecticide vehicles, and some fuel additives. No ignitable liquids were detected in Item #3 (marked as comparison). Items #1, #2, and #3 were extracted using Passive Headspace Concentration 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.
QQ4QUX	In the sample 1 was detected aliphatic hydrocarbon mixture which is classied as iqnitable liquid. It is originated from gasoil type product. In the sample 2 was detected aliphatic hydrocarbon mixture whick is classified as iqnitable liquid. The sample 3 had taken into account when interpretating the results.
QT92JU	Sample Nr.1 - Ignitable liquid, Heavy Petroleum Distillate. Sample Nr.1 contents of hydrocarbons C9 – C24. Predominant pattern associated with homologous series of n-alkanes in a Gaussian distribution of peaks. Alkanes are the abundant components of the sample, and normal alkanes are predominant with the presence of some iso-paraffinic ones. Cycloalkanes also present, but less abundant than n-alkanes and iso-alkanes. There are some Aromatic compounds, but less than Cycloalkanes. The investigated sample looks like (these components may belong to the product) Diesel fuel or intermediate product of Diesel fuel. Sample Nr.2 - Ignitable liquid, Miscellaneous. Sample Nr.2 contents of hydrocarbons C8 – C13. Predominant component - 4,7-Methano-1H-indene octahydro. Sample present aromatic compounds include Mesitylene. This product can be obtained from the processing of coal or oil shale (slates). The investigated sample looks like (these components may belong to the product) Fuel additives/components, Fuel for Turboreacteur additives/components, Automotive Parts Cleaner, Specialty Cleaning Solvent.
QVZX8M	Petroleum distillate class of ignitable liquids was detected in Item 1. Gasoline of ignitable liquids was detected in Item 2. No ignitable liquid residue was detected in Item 3.
QX4TRQ	Item 1 - Heavy Petroleum Distillate - Examples of Heavy Petroleum Distillates may include but are not limited to some charcoal starters, diesel fuel, some jet fuels, fuel injectors, carburetor cleaners, and kerosene. Item 2 - Medium Aromatic Product - Examples of Medium Aromatic Products may include but are not limited to some automotive parts cleaners, some specialty cleaning solvents, fuel additives, and some insecticide carriers. Item 3 - No ignitable liquids were identified - The absence of an ignitable liquid residue does not preclude the possibility that ignitable liquids were present at the fire scene.
R48MA7	Traces of an ignitable liquid mixture containing medium to heavy petroleum distillates were found in Item 1. Traces of an ignitable liquid mixture containing mainly octahydro-4,7-methano-1H-indene, C2-alkylbenzenes and C3-alkylbenzenes were found in Item 2. Nothing of significant pertaining to ignitable liquid residues was found in Item 3, the sample being intended as a comparison blank.
R4MTPV	Item 1. A heavy petroleum distillate was identified in the heat-sealed bag containing a piece of white fabric. Examples of heavy petroleum distillates are kerosene, diesel fuel, and some charcoal starters. Item 2. A medium aromatic product was identified in the heat-sealed bag containing a piece of white fabric. Examples of medium aromatic products are some automotive parts cleaners, specialty cleaning solvents, and brush cleaners. Further analysis may be performed upon the submission of any relevant

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	reference materials. Item 3. No identifiable liquids were identified in the heat-sealed bag containing a piece of white fabric. (comparison sample) The above interpretation does not represent the totality of the analyst's observations. Further questions and/or discussion is encouraged.
R4P9VN	Concerning Item 2, in a real case scenario, our report conclusion would include 3 hypothesis (explaining why more than one class is filled) : Others/Miscellaneous: Aromatic product + Dicyclopentadiene (DCPD) Derivatives - Others/Miscellaneous: Gasoline + Dicyclopentadiene (DCPD) Derivatives - Gasoline, such as pyrolysis gasoline Since DCPD derivatives (such as 4H-DCPD) can be industrially used, difference between pyrolysis gasoline containing these compounds, and an aromatic product (or gasoline) mixed with a second DCPD-based product cannot be done by our analysis.
R6NJ4Q	Item 001: Contains a heavy petroleum distillate, examples of which include kerosene, diesel fuel and some specialty products. Item 002: Contains a medium aromatic solvent, examples of which include automotive parts cleaners and specialty solvents. Item 003: No ignitable liquids were detected/identified.
R89Z7Q	Item 1: The results very strongly support the proposition that a heavy petroleum distillate has been detected in item 1 (level +3). Item 2: The results very strongly support the proposition that a medium miscellaneous product has been detected in item 2 (level +3).
RCZAGN	A heavy petroleum distillate has been recovered from Item1. Gasoline has been recovered from Item2.
RL33QV	METHODS: Items 1, 2, and 3 were extracted using a passive adsorption-elution technique. Item 1 was further extracted using a solvent technique. The Item 1, 2, and 3 extracts were examined using Gas Chromatography-Mass Spectrometry (GC-MS). RESULTS AND INTERPRETATIONS: The Item 1 extracts contained a heavy petroleum distillate which can be found in, but is not limited to, some fuel additives and diesel fuel. The Item 2 extract contained a medium aromatic product which can be found in, but is not limited to, some commercial solvents and insect sprays. No ignitable liquids were identified in the Item 3 extract.
RQJWLF	Examinations: Passive carbon adsorption/elution, gas chromatography - mass spectrometry Results: A heavy petroleum distillate was identified in Item 1 (Identification). Heavy petroleum distillates include but are not limited to diesel fuel, some kerosene fuels, and some charcoal lighters. A miscellaneous product consisting of a medium aromatic product and a single component polycyclic alkane (endo-tetrahydrodicyclopentadiene) was identified in Item 2 (Identification). These components could have originated from a single product or from multiple products. This combination of components is present in some diesel fuel treatments. Medium aromatic products are also present in some automotive parts cleaners, some insecticides, and some specialty cleaning solvents. No ignitable liquid residues were detected in Item 3 (Not Detected).
RRBJ8W	Results: Exhibits 1.1: A Heavy Petroleum Distillate product was detected. Examples of which include kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils and automotive parts cleaners. Exhibit 2.1: A Medium Miscellaneous product was detected. Examples of which include turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners and charcoal starters. Exhibit 3.1: No ignitable liquid was detected.
RTNK4Q	A heavy petroleum distillate was identified in item1. A medium aromatic product was identified in item 2. No ignitable liquids were identified in item 3. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, charcoal starters, aviation fuels, insecticide solvents/propellants, fuel additives, lamp oils, and automotive parts cleaners. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, specialty cleaning solvents, insecticide solvents/propellants, and brush cleaners.
RZNGTV	Item 1.1 (CTS Item 1) was extracted by passive adsorption/elution and analyzed by gas chromatography-mass spectrometry. Item 1.2 (CTS Item 2) was extracted by passive adsorption/elution and analyzed by gas chromatography-mass spectrometry. Item 1.3 (CTS Item 3) was extracted by passive adsorption/elution and analyzed by gas chromatography-mass spectrometry. Item 1.1 (CTS

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Item 1). A heavy petroleum distillate was identified in the 1.5" x 1.5" piece of white cloth. Examples of heavy petroleum distillates are kerosene, diesel fuel and some charcoal starters. Item 1.2 (CTS Item 2). A medium aromatic product was identified in the 1.5" x 1.5" piece of white cloth. Examples of medium aromatic products are some insecticides, and brush, automotive and specialty cleaning solvents. Further analysis may be performed upon the availability of relevant reference materials. Item 1.3 (CTS Item 3). No ignitable liquids were identified in the 1.5" x 1.5" piece of white cloth. (control) A charcoal strip preserved in a glass vial was retained with each item of evidence to be returned to the submitting agency.
T4N36Y	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. Heavy petroleum distillates include kerosene, diesel fuel, and some charcoal starters. Examination of Item 2 revealed the presence of an aromatic product. Aromatic products include some fuel additives, some automotive parts cleaners, and some specialty cleaning solvents. Examination of Item 3 failed to reveal the presence of ignitable liquids.
TT7Q3G	Item 1: Medium to heavy alkanes, ranging from nC8 to nC20, were detected in Item1. These compounds are derived from petroleum and are commonly found in candle oils, lamp oils and copier toners. Item 2: Heavy alkanes, ranging from nC10 to nC16, were detected in Item2. These compounds are derived from petroleum and are commonly found in candle oils, lamp oil, carbonless forms and copier toners.
U3QG3E	1. Heavy Petroleum distillate (HPD) was identified in item 1. Examples of heavy petroleum distillates include kerosene oil, diesel and other. 2. Gasoline was identified in item 2. 3. No ignitable liquid residue was identified in item 3.
U4ZQQ6	[No Conclusions Reported.]
U7QTXE	Ignitable liquids were detected in both Item 1 and Item 2. Item 1 contains Heavy Petroleum Distillates. Item 2 contains Medium range of Miscellaneous.
UA3DMR	Results and Conclusions: Item 1 contains a heavy-range petroleum distillate. Examples of products that contain a heavy-range petroleum distillate include, but are not limited to, diesel fuel, some automotive parts cleaners, and some fuel additives. Item 2 contains a medium-range miscellaneous product, or a mixture of these products. Examples of medium-range miscellaneous products with a similar combination of components include, but may not be limited to, some fuel additives. No ignitable liquids were identified in item 3, reported to be a comparison blank.
UCUC2Q	A heavy petroleum distillate was identified in item 1. Heavy petroleum distillate products include, but are not limited to, diesel fuel, some jet fuels and charcoal starters. A specialty product was identified in item 2. Specialty products include single compounds and specialty mixtures. 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. 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.
UCWWW7	Item 1: The piece of cloth contains a medium-heavy petroleum distillate ignitable liquid residue. Examples of this type of liquid can include, but are not limited to some charcoal starters, kerosene, diesel fuel, or some jet fuels. Item 2: The piece of cloth contains a medium aromatic ignitable liquid residue. Examples of this type of liquid can include, but are not limited to some automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, or fuel additives. Item 3: The piece of cloth contains no detectable ignitable liquid residue.
UFXXYN	Analysis by Gas Chromatography/Mass Spectrometry of the gauze pad and plastic bag (Item 1.A) detects the presence of a heavy petroleum distillate (HPD). Examples of HPD's include: Kerosene, Diesel fuel, Fuel Oil No. 1, Fuel Oil No. 2, Jet fuel, some paint thinners, some torch fuels, some lamp

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	oils and some solvents for insect sprays and polishes. Analysis by Gas Chromatography/Mass Spectrometry of the gauze pad and plastic bag (Item 1.B) detects the presence of a medium aromatic product. Examples of aromatic products include: some insecticide vehicles, some automotive parts cleaners, some cleaning solvents, and some fuel additives. Analysis by Gas Chromatography/Mass Spectrometry of the gauze pad and plastic bag (Item 1.C) fails to detect the presence of any ignitable liquids. The procedure employed does not detect the presence of light volatiles such as certain alcohols and acetone.
UJDF9T	A heavy-range petroleum distillate was identified in item 1. Examples of heavy-range petroleum distillate products include, but are not limited to, diesel fuel, fuel additives, and automotive parts cleaners. A medium-range miscellaneous product or mixture of products was identified in item 2. Medium-range miscellaneous products include, but are not limited to, fuel additives. No ignitable liquids were detected in item 3, which was evaluated as a control sample.
ULFZQ7	Item 1 - Analysis identified the presence of a heavy petroleum distillate. Item 2 - Analysis identified the presence of a medium aromatic product. Item 3 - No ignitable liquids were identified. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, charcoal starters, aviation fuels, insecticide solvents/propellants, fuel additives, lamp oils and automotive parts cleaners. Examples of aromatic products include, but are not limited to, automotive parts cleaners, solvent cleaners, xylenes, toluene-based products, lacquer thinners, insecticide solvents/propellants, brush cleaners and adhesives. A heavy petroleum distillate was identified in item 1. A medium aromatic product was identified in item 2. No ignitable liquids were identified in item 3.
UN73YE	"Item 1" contains; Heavy petroleum distilates. "Item 2" contains; Gasoline. "Item 3" contains; doesn't have any ignitable liquid.
UW3EYV	The analysis completed in this case utilized the gas chromatograph/mass spectrometer. 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 1A contains an ignitable liquid in the heavy petroleum distillate class. Examples of products in the heavy petroleum distillate class include diesel fuel, kerosene, some jet fuels and some charcoal starters. Item 1B potentially contains an ignitable liquid in the medium aromatic class. No known reference standard matching Item 1B was available for comparison. Further testing can be performed if other possible sources of ignitable liquids are identified and submitted. The results of this analysis are therefore considered inconclusive for the presence of a medium aromatic. Examples of products in the medium aromatic class include, some automotive parts cleaners, some specialty cleaning solvents, some insecticides, some brush cleaners, and some fuel additives. Item 1C was analyzed and 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.
UZ2FU6	[No Conclusions Reported.]
UZZJNF	Residues of a heavy petroleum distillate were identified within Item 1. Examples of heavy petroleum distillates include, but are not limited to, some kerosenes, diesel fuels, some aviation fuels, and some charcoal starters. Heavy petroleum distillates are classified as ignitable liquids. Residues of a medium miscellaneous product were identified within Item 2. The residues from Item 2 were classified as a medium aromatic profile containing 2-ethylhexyl nitrate. Examples of medium miscellaneous products include, but are not limited to, some fuel additives, spray lubricants, some brush cleaners, and some paint thinners. Medium miscellaneous products are classified as ignitable liquids. Items 1 and 2 were analyzed by organoleptic analysis, a passive headspace sampling technique followed by gas chromatography/mass spectrometry, and a passive adsorption/elution sampling technique followed by gas chromatography/mass spectrometry.
V2RYBW	Item 1 was extracted by passive adsorption/elution and analyzed by gas chromatographic/mass spectrometric (GC/MS) analysis. A heavy petroleum distillate ignitable liquid residue was identified in Item 1. Examples of this class of ignitable liquid could include (but are not limited to): Kerosene, Diesel Fuel, Charcoal Starters, Aviation Fuels, Insecticides, Fuel Additives, Lamp Oils, and Automotive Parts

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	Cleaners. Item 2 was extracted by passive adsorption/elution and analyzed by gas chromatographic/mass spectrometric (GC/MS) analysis. A medium miscellaneous ignitable liquid residue was identified in Item 2. Examples of this class of ignitable liquid could include (but are not limited to): Turpentine Products, Mineral Spirits, Fuel Additives, Spray Lubricants, Brush Cleaners, and Charcoal Starters. Item 3 was extracted by passive adsorption/elution and analyzed by gas chromatographic/mass spectrometric (GC/MS) analysis. No ignitable liquids were identified in Item 3.
V3KR7F	CTS 24-5436 Item 1 tested positive for an ignitable liquid in the Heavy Petroleum Distillate product. Items in the Heavy Petroleum Distillate Classification includes but is not limited to kerosene, diesel fuel, some jet fuels, as well as some charcoal lighter fluids. CTS 24-5436 Item 2 tested positive for a Medium range Miscellaneous Product. Items in this classification include but are not limited to some blended products, some specialty products, and can include turpentine products. CTS 24-5436 Item 3 no ignitable liquid was detected. The item was submitted as a control blank.
V8B2GE	Item 1 - A heavy petroleum distillate was identified. Heavy petroleum distillates are ignitable liquids and include, but are not limited to, kerosene, diesel fuel, some jet fuels, and charcoal starters. Item 2 - A medium miscellaneous product and a medium aromatic product were identified. Medium miscellaneous products are ignitable liquids and include, but are not limited to, some fuel additives, brush cleaners, and paint thinners. Medium aromatic products are ignitable liquids and include, but are not limited to, some automotive parts cleaners, brush cleaners, specialty cleaning solvents, and insecticide vehicles. The medium miscellaneous product and the medium aromatic product identified in item 2 may or may not share the same origin. Item 3 - No ignitable liquid was identified.
VKFFGB	Item 1 - Questioned piece of cloth remnant: A heavy range (C9-C20) petroleum distillate was identified in the sample. This identification is based on the ASTM 1618 Classification Scheme. Examples of commercial products of this class include: diesel fuel, charcoal starters, aviation fuels and kerosene. Item 2 - Questioned piece of cloth remnant: A medium range (C8-C13) aromatic product was identified in the sample. This identification is based on the ASTM 1618 Classification Scheme. Examples of commercial products of this class include: automotive parts cleaners, brush cleaners and specialty solvents. Item 3 - Cloth sample (comparison blank): Item 3 was submitted for substrate comparison to the other two samples. No ignitable liquids were detected in Item 3.
VRLWCQ	By means of physical study and chemical analysis: 1. A flammable/combustible substance was detected in P-1 (item1) within the classification of Heavy Petroleum Distillates (HPD). This classification includes Kerosene, Diesel and some Charcoal Starters. 2. In P-2 (item 2) cannot be confirmed the presence of a flammable/combustible substance due to lack of reference material. 3. In P-3 (item 3) was not detected any ignitable liquid in the classification of flammable/combustible liquids.
VVH7AR	Item 1 consists of a white fabric cutting. This item was found to contain a heavy petroleum distillate. Item 2 consists of a white fabric cutting. This item was fount to contain a medium miscellaneous petroleum product.
VVNUNJ	Residues of a heavy petroleum distillate (HPD) were identified on Item 1. HPDs are classified as ignitable liquids. Examples of HPDs include but are not limited to: diesel fuel, some charcoal starters and some lamp oils. Residues of a medium miscellaneous product were identified on Item 2. Miscellaneous products are classified as ignitable liquids that fall into one or more categories of the ignitable liquid classification scheme. Examples of medium miscellaneous products include but are not limited to: some mineral spirits, some spray lubricants and some paint thinners. No ignitable liquids were detected in Item 3. Items 1, 2 and 3 were examined using the following techniques: visual observations, heated static headspace technique followed with analysis by headspace gas chromatography/mass spectrometry (GC/MS) and passive adsorption/elution technique, followed with analysis by GC/MS.
VYKJ37	A petroleum distillate in the heavy range was identified in item 1. Examples of petroleum distillates in the heavy range include, but are not limited to some kerosenes, diesel fuel, aviation fluids, charcoal starters, fuel additives, lamp oils, and automotive parts cleaners. An aromatic product in the medium range was identified in item 2. Examples of aromatic products in the medium range include, but are

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	not limited to some automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, and fuel additives. No ignitable liquid residues were identified in item 3.
VYM7JJ	Item 1: The results of the examination extremely strongly support that Item 1 contain ignitable liquid (Level +4). Item 2: The results of the examination extremely strongly support that Item 2 contain ignitable liquid (Level +4).
W27KKY	Item 1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 2: Unidentified petroleum product, an example of which is diesel fuel supplement. Item 3: No ignitable liquids were found.
W49LMG	Examination and analysis performed on item 1 revealed the presence of a heavy petroleum distillate (an ignitable liquid). Examination and analysis performed on item 2 revealed the presence of gasoline (an ignitable liquid). Examination and analysis performed on item 3 did not reveal the presence of ignitable liquids
WAH8MT	Exhibit 1 contained a heavy petroleum distillate (HPD), which is an ignitable liquid. Examples of HPDs include diesel fuel, kerosene, some fuel additives, and jet fuel. Exhibit 2 contained a medium miscellaneous product, which is an ignitable liquid. Examples of medium miscellaneous products include some fuel additives and treatments. No ignitable liquids were identified in Exhibit 3.
WC6DVB	Item 1 - Questioned piece of cloth remnant: Heavy petroleum distillate ignitable liquid was identified based on the ASTM 1618 classification scheme. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, some charcoal starters, some jet fuels, etc. Item 2 - Questioned piece of cloth remnant: A Medium Aromatic Product was detected based on the ASTM 1618 classification scheme. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, brush cleaners, specialty cleaning solvents, etc. Item 3 - Cloth substrate intended as comparison blank: Item 3 was provided for background substrate and was negative for the presence of accelerants.
WDHFQ3	Item 1 was found to contain heavy petroleum distillate class ignitable liquid residues. Examples of heavy petroleum distillate products include diesel fuel and some formulations of the following: citronella and the carrier solvent in 2-stroke oils. Item 2 was found to contain medium miscellaneous class ignitable liquid residues. Examples of medium miscellaneous products include some formulations of the following: Fuel Additive/Treatment, jet fuel, the solvent in paints/thinner/cleaners, blended products and specialty products. Item 3 was found not to contain any detectable ignitable liquid residues.
WFKQUC	Item 1: In Item 1 volatile components have been found which originate from a petroleum distillate. The combination of these components indicate a product of subclass diesel fuel. Item 2: In Item 1 volatile components have been found which originate from an ignitable liquid. The particular combination of components is not present in the reference collection of our laboratory. The particular combination of components shows similarities with a Diesel fuel supplement from the United States.
WGE9FQ	Item 1: A heavy petroleum distillate product was identified. Examples of heavy petroleum distillate products include kerosene, diesel fuel, and lamp oils. Item 2: A miscellaneous product was identified. Examples of miscellaneous products would include some specialty products, some fuel additives, and some spray lubricants. Item 3: No ignitable liquids were detected.
WJNLDF	Item 1: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Heavy Petroleum Distillate was identified. Examples of this type ignitable liquid include: kerosene, diesel fuel, some jet fuels and some charcoal starters. Item 2: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). A Medium Other-Miscellaneous type product was identified. Examples of this type ignitable liquid include: turpentine products, some blended products and various specialty products. Item 3: The submitted sample was analyzed using a passive headspace technique and gas chromatography-mass spectrometry (GC-MS). Ignitable liquids were not identified

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
	in the sample.
WX7YLL	Item 001-001: Residues of a heavy petroleum distillate (HPD) were identified. Item 001-002: Residues of a medium aromatic product were identified. Item 001-003: No ignitable liquid residues were identified.
X94YYP	GCMS analysis of Item 001-01 disclosed the presence of a heavy petroleum distillate. Examples of heavy petroleum distillates include, but are not limited to, kerosene, diesel, and some jet fuels. GCMS analysis of Item 001-02 disclosed the presence of a medium range miscellaneous product. Examples of miscellaneous products include, but are not limited to, some blended fuel products and some specialty products. GCMS analysis of Item 001-03 (blank comparison) failed to disclose the presence of an ignitable liquid.
XAF9YX	Item 1 - A heavy petroleum distillate was identified. Examples of a heavy petroleum distillate include, but are not limited to, some kerosenes, diesel fuel, some jet fuels, and some charcoal starters. Item 2 - A miscellaneous product was identified. It could not be determined whether this item contained a single commercial product or a mixture of indvidual products. Examples of miscellaneous products include some fuel additives, some paint thinners, and some charcoal starters. Item 3 - No ignitable liquid was identified.
XC2D9F	Fire accelerator heavy petroleum distillate residues were detected on Item-1. Fire accelerator gasoline residues were detected on Item-2.
XDZQ8M	A heavy petroleum distillate was identified in Item 1. Examples of a heavy petroleum distillate include but are not limited to kerosene and some charcoal starters. A medium aromatic product was identified in Item 2. Examples of a medium aromatic product include but are not limited to some specialty products and solvents. No ignitable liquids were detected in Item 3.
XL8PE3	Item #1 contained residues consistent with the heavy petroleum distillate class of ignitable liquids. Examples of the heavy petroleum distillate class of ignitable liquids include: some kerosenes, some jet fuels, some charcoal starters and diesel fuel. The analysis of Item #2 could neither establish nor exclude the presence of ignitable liquid residues. The results were inconclusive due to the lack of a corresponding standard. No ignitable liquid residues were detected in Item #3.
XUHRY4	Residues of a heavy petroleum distillate were detected in ITEM 1. Examples of heavy petroleum distillates include kerosene, Diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, and automotive parts cleaners. Residues of a medium aromatic product were detected in ITEM 2. Examples of medium aromatic products include automotive parts cleaners, specialty cleaning solvents, insecticides, and brush cleaners. 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.
XYCG8H	The analysis revealed the presence of two different patterns of ignitable liquids in item 1 and item 2: A heavy petroleum distillate in the range of C8 to C18 in item 1. The pattern and components identified in item 1 are consistent with the ingredients found in a diesel, kerosene by example. Presence of aromatic compounds of gasoline, and majority presence of 4H-DCPD (main component of carburant for military aerospace applications: JP-10) in item 2. No ignitable liquids were detected in item 3.
Y8JCM9	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). Heavy petroleum distillates include, but are not limited to, kerosene, diesel fuel, and some charcoal starters. A medium aromatic product was identified in Item 2 (Identification). Examples of medium aromatic products include, but are not limited to, specialty cleaning solvents, automotive parts cleaners, and insecticides. No ignitable liquid residues were identified in Item 3 (Not Identified).
Y9TKRM	Item 1 contains gasoline with presence of nonane and decane Item 2 contains gasoline with presence of butoxy ethanol, decalin and tetralin

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
YAAGJL	Questioned piece of cloth remnant (Item 1) was found to contain an ignitable liquid composed of Heavy Petroleum Distillates (C8 - C20+). Questioned piece of cloth remnant (Item 2) was found to contain an ignitable liquid composed mainly of oxygenated solvents, aromatic products and other components which can be classified as Other-Miscellaneous.
YD9RFL	Item 1 contained traces of Heavy Petroleum Distillate (predominant homologues series of n-alkanes from C10-C20+ with branched alkanes in the same range, aromatic compounds and cycloalkanes also present). Item 2 contained traces of Medium Others-Miscellaneous ignitable liquid (compounds in the range C9 - C13). Tricyclodecane (tetrahydrodicyclopentadiene) was most abundant. The rest detected compounds are: alkyl-tricyclodecanes, C2-C4 alkylbenzenes, tetralin, oxygenate compounds (e.g. 2-butoxyethanol, methyl 4-methyl-2-oxopentanoate), 2-ethylhexyl nitrate. Ignitable liquids detected on the cloth remnant (item 1 and Item 2) could be used as accelerants.
YE39HM	Exhibit 1.1 – An ignitable liquid classified as a heavy petroleum distillate was detected. Examples of heavy petroleum distillates include kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, and automotive parts cleaners. Exhibit 2.1 – An ignitable liquid classified as a medium miscellaneous product was detected. Examples of medium miscellaneous products include turpentine products, mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, and charcoal starters. Exhibit 3.1 – No ignitable liquid was detected. However, the absence of a detectable ignitable liquid does not preclude the possibility of an ignitable liquid being present at the scene of the fire.
YHH9NA	Item !: Heavy petroleum distillate was identified. Examples of heavy petroleum distillates include some charcoal starters, diesel fuel and some jet fuels. Item 2: Gasoline was identified. Item 3: No relevant compound detected.
YVTJEL	1. In the sample received and identified as item 1, it was detected the presence of a hydrocarbon mixture classificable according to the scheme proposed by ASTM E 1618-19 Standard Methods as petroleum heavy distillate. 2. In the sample received and identified as item 2, it was detected the presence of a hydrocarbon mixture classifiable according to the scheme proposed by ASTM E 1618-19 Standard Methods as others medium Miscellaneous. 3. In the sample received and identified as item 3, it was detected the presence of a hydrocarbon mixture classifiable according to the scheme proposed by ASTM E 1618-19 Standard Methods as oxigenated ligth solvents.
Z2A4PG	1. Volatile residues from Exhibits 1 (cloth remnant), 2 (cloth remnant), and 3 (cloth substrate intended as a comparison blank) were collected using direct heated headspace and passive headspace concentration techniques and analyzed for the presence of ignitable liquid residues. 2. A heavy range petroleum distillate was identified in the concentrated headspace vapors of Exhibit 1. Ignitable liquids belonging to this class are commercially available as kerosene, diesel fuel, and some jet fuels. 3. A medium range miscellaneous product consisting of a medium aromatic product and 2-butoxyethanol was identified in the concentrated headspace vapors of Exhibit 2. Ignitable liquids belonging to this class are commercially available as some blended products or some specialty products. 4. No ignitable liquid residues were identified in the concentrated headspace vapors of Exhibit 3.
Z8G6VZ	A heavy petroleum distillate was detected in Lab Item 1. A medium miscellaneous product was detected in Lab Item 2. No ignitable liquids were identified in Lab Item 3. Negative results do not preclude the possibility that ignitable liquids were present at the fire scene. Samples of recovered materials from this case have been preserved with the evidence.
ZCTTVW	The volatile contents of each Item were first recovered using a heated headspace recovery method and analyzed by gas chromatography. The samples were then extracted by passive headspace adsorption using an activated charcoal strip recovery method and analyzed by gas chromatography/mass spectrometry. Item #1: A Heavy Petroleum Distillate (e.g. Aviation Gasolines, Kerosene, Diesel Fuel, etc.) was detected. Item #2: A Medium to Heavy Aromatic Product (e.g. Fuel Additives, Specialty Cleaning Solvents, Automotive Parts Cleaners, etc.) was detected. Item #3: This Item was analyzed as a comparison sample.

 Copyright ©2024 CTS, Inc

TABLE 4

WebCode	Conclusions
ZE3Z2B	A heavy petroleum distillate was detected in item 01. Examples of heavy petroleum distillates include diesel fuel, kerosene, automotive parts cleaners, lamp oils, jet fuels, fuel additives, insecticides, and charcoal starters. A medium miscellaneous product was detected in item 2. Examples of medium miscellaneous products include mineral spirits, fuel additives, spray lubricants, brush cleaners, paint thinners, citrus cleaners, and charcoal starters. No ignitable liquids were detected in the comparison sample (item 03).
ZHHZ8V	An ignitable liquid classified as "Heavy petroleum distillate" has been identified in item 1. The result obtained is similar to our internal reference Diesel fuel. An ignitable liquid classified as "Gasoline" has been identified in item 2. The result obtained is similar to our internal reference Gasoline SP95-E10-evaporated.
ZMACXK	An ignitable liquid residue classified as an heavy-range petroleum distillate (HPD) was found in Item 1. Commercially available products that may contain an HPD include, but are not limited to, kerosene, diesel fuel, some charcoal lighter fluids, and some jet fuels. An ignitable liquid residue classified as a medium-range others-miscellaneous was found in Item 2. No classification system is likely to describe all possible ignitable liquids. There are numerous commercial and industrial products that are ignitable, which fall into more than one category or do not fall into any other category except miscellaneous. Commercially available products associated with the miscellaneous class include, but are not limited to, some blended products and some specialty products (e.g. diesel fuel supplements). Item 3 was evaluated as a comparison blank. Ignitable liquid residues were not identified in this exhibit.
ZNLE2R	According to ASTM E1618-19, the item 1 can be classified as heavy petroleum distillates (e.g. kerosene, diesel fuel, charcoal starters, aviation fuels, insecticides, fuel additives, lamp oils, automotive parts cleaners). According to ASTM E1618-19, the item 2 can be classified as medium aromatic products (automotive parts cleaners, specialty cleaning solvents, insecticides, brush cleaners).
ZQDBQL	Item 1 found to contain a Heavy Petroleum Distillate. Item 2 found to contain a Gasoline.
ZUR66X	Item 1-1: Heavy petroleum distillate, examples of which are kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 1-2 Unidentified petroleum product, examples of which are some brands of diesel fuel supplements. Item 1-3 No ignitable liquids were found.
ZY9DTX	Item 1: Presence of Medium Petroleum distillate. Item 2: Presence of Aromatic solvent.

 Copyright ©2024 CTS, Inc

Additional Comments

TABLE 5

WebCode	Additional Comments
26QTPK	1.1 was straight forward. 1.2 is quite complicated. It appears to have similarities to gasoline but ratios are off with compounds missing from known gasoline. While some compounds are missing, there are extraneous compounds that I was unable to exclude from classification.
2KG4JW	I have never encountered a miscellaneous product during the course of normal casework. It would be beneficial if future proficiency tests used more commonly encountered ignitable liquid classifications in order to mimic real life scenarios.
2MAMDN	Exhibits 1 – 3 were analyzed using passive adsorption on a piece of activated charcoal. The charcoal was extracted with a solvent and the recovered volatile material was analyzed by gas chromatography / mass spectrometry. An additional charcoal strip was collected for preservation purposes and will be retained with the evidence. This evidence will be retained until further instructions.
3ECLMG	The Heavy Petroleum Distillates detected on the sample received and labeled as item 1 has a carbon number range between C9 to C20. In both item 3 and item 2, the presence of 2-butoxyethanol was detected, which we directly associate with the presence of a thinner, so it is reported as a result for item 3 despite being the comparison blank. For item 2, the presence of gasoline is interpreted due to the chromatographic pattern observed both in the TIC and in the predominant ion profile (aromatic); however, it is considered that there is a mixture with thinner due to the presence of 2-butoxyethanol, which is found in a much greater proportion than its presence in the comparison blank (item 3).
3F3HZV	The identification of an ignitable liquid in an item does not necessarily lead to the conclusion that a fire was deliberately set. Heavy petroleum distillates are ignitable liquids and are found in such commercial products as furnace oil, diesel fuel, some charcoal starters, some jet fuels, and some products marketed as kerosene. Medium miscellaneous ignitable liquids are ignitable liquids that do not fit into a single ignitable liquid classification. Some commercial products that are examples of medium miscellaneous ignitable liquids include fuel additives and supplements.
3PCC74	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. 23-5436 Data Sheet, continued [Participant Code]. [WebCode].
4E9LZM	ITEM 1: The spectrum shows some aromatics compounds that could indicate a mixture of gasoline (or gasoline's traces) and a HPD.
4UJVRV	Item 2 is not a substance likely to be encountered in routine casework.
6LKZHH	in the report attached the Ignitable substance will be specified for item 1 and 2.
6P6EYH	My Item 2 results on page 2 Question 1 list only Medium Other-Miscellaneous. The conclusion section in Question 4 also lists the mixture classes/subclasses seen in Item 2. Unclear if the mixture components or the overall class/subclass for Item 2 should be entered for Question 1. As no one reference could be located that contained all the components seen in Item 2, a Medium Aromatic Product reference and a Medium Other-Miscellaneous reference were used as comparison references and included all the necessary components/ratios when added together. There could be a product/reference in existence that contains all the components seen in Item 2, therefore, this was reported as a Medium Other-Miscellaneous. The mixture information was included as these were the references used for comparison. Item 2 required my lab to order additional ignitable liquid references. It generally takes about a month for my department to order and receive a purchase. As this test wasn't received until the middle of August, this resulted in a tight turnaround for these references. Suggest providing a longer amount of time from receipt until the deadline if using more unusual

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
	products in the test. [Work notes not provided by participant.]
6T4QVH	NOTES: Item 001-02 Compared with Chevron Pillips Heavy Aromatic Distillate. Reference was obtained and analyzed. See attached data and technical information. Item 001-02 contains large aromatic components as well as significant cyclic-alkanes. According to ASTM Aromatic classification, cycloalkanes cannot be present in significant amounts. The best classification is Miscellaneous.
6UF3KU	Having a fire debris proficiency test with a conclusion of a miscellaneous product does not properly determine an analyst's ability to classify ignitable liquids. Unlike the other ignitable liquid classifications, there are no specific criteria required to form a conclusion of miscellaneous. As there are no specific criteria that need to be met, this item was just a test in being able to search a database for a similar product and not a test in my ability to properly classify common ignitable liquids.
7D4B9T	Item#2 is an incredibly random product to have added. I had to spend a full week tracking a similar commercial product down.
7H3PVJ	The materials added to item 2 made the interpretation of the instrumental data extremely difficult due to the semi-presence/absence of multiple class characteristics and the potentially unusual range, the presence of single highly different relative abundance ratio(s), and the strong presence of compounds for which no reference material appeared to be available but appear to flammable.
7PEF8G	ON ITEM 2 AROMATIC PRODUCTS AND NAPHTHENIC-PARAFFINIC PRODUTS WERE DETECTED
8NMHUJ	Notes for Item 1.2: Abundant ethylbenzene in comparison to other C2 alkyl benzenes. Abundant aromatics overall with oxygenated compound (2-butoxyethanol) present. Similarities to CCN 3315 (medium range misc. product consisting of aromatic, oxygenated, and other volatile compounds), however, standard lacks abundant C3 alkyl benzenes as found in test sample. CCN 3315 contains abundant indane as compared to test sample. ASTM 1618-19 for aromatic products..."The relative intragroup ratios of the isomers of xylenes and C3-alkylbenzenes do not vary significantly among petroleum products. Therefore, the relative ratios of these compounds should match, or nearly match, the ratios found in petroleum products, if they are reported."
8PEAAF	Item 01: Heavy Petroleum Distillate. Gaussian distribution of n-alkanes in HPD range (carbon range C9-C18). C17/pristane and C18/phytane doublets present. Overlay with known HPD reference (unweathered kerosene) looks good. Item 02: Some key diagnostic features of gasoline present, including toluene, C2, C3, and C4 alkylbenzenes, indane, and decane. However, large octahydro-4,7 methano-1H-indene peak present at greater abundance than the other peaks in the spectrum. Other cyclohexane peaks present at greater than or equal abundance than the aromatic peaks, including substituted tricyclo decane peaks (doublet) and bi-2-cyclohexen-1-yl. Since the sample was not burned, these compounds are unlikely to be pyrolysis/matrix products. Other significant differences between item 02 and a typical gasoline include an elevated indane peak and diminished toluene and C2 alklybenzene peaks with no correlating increase in the C4 alkylbenzene peaks, as would be seen in an evaporated gasoline. A small 2-butoxyethanol peak is also present. This sample does not meet the criteria for an aromatic product because alkanes, indanes/indenes, and cyclohexanes are also present. A somewhat-similar reference was found in the NCFS library, SRN 279. This reference sample was a good fit with most of the sample, including the octahydro-4,7 methano-1H-indene peak, the tricyclo decane peaks, and the bi-2-cyclohexen-1-yl peak. However, the aromatic peaks were less defined and abundant in the reference than in the sample. Miscellaneous call made. Item 03: Negative for ILR
9J6YP8	Item 2: This product is not referenced in our database
9PR2ZB	Item 1: Gaussian distribution of n-alkanes present in HPD range, including C17/pristane and C18/phytane doublets. Pattern also bears strong resemblance to HPD known. Positive for HPD. Item 2: Pattern resembles a gasoline with extra peaks at first glance, but n-alkanes are diminished, more indanes present than usual, and intra-group ratios of C2 and C4 alkylbenzenes don't resemble those of known gasoline. In fact, other than lower 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, and 1,2,3-trimethylbenzene peaks, a reference belonging to the Miscellaneous class overlays with sample

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
	better than gasoline known. Could be a mixture of gasoline and a miscellaneous product, but a mixture would still meet Miscellaneous criteria. Positive for Miscellaneous product. Item 3: Negative for ILR.
9U7ZP7	We used ASTME 1618-19 scheme for the interpretation of the analysis result.
9ZB4CJ	Normally our reports do not use ASTM 1618-19 Ignitable liquid classification scheme
AJHT22	Item 2 contained 2-butoxyethanol and an aromatic product. Because 2-butoxyethanol is not a major peak (one of the top 5 most abundant peaks), this sample is classified as miscellaneous. A search of the ILRC indicated SRN 279 Power Service Diesel Kleen Cetane Boost would potentially be a good reference for Item 2. However, neither the ILRC data nor sample data of that reference purchased and run in my laboratory contained a sufficient amount of 2-butoxyethanol needed to classify that reference as a medium miscellaneous product. Therefore, several similar Power Service Diesel products were purchased locally, run on my instrument, and observed to contain a sufficient amount of 2-butoxyethanol similar to the abundance detected in Item 2.
AVXH7X	Please note: Item 2 also contained an oxygenate, 2-Butoxyethanol, as a minor component.
B7UDQR	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 activated charcoal strips 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. Item 3 (comparison sample) Contains ethylbenzene, m,p-xylene, o-xylene, propylbenzene, 1-methyl-3-ethylbenzene, 1-methyl-4ethylbenzene, 1,3,5-trimethylbenzene, 1-methyl-2-ethylbenzene, 1,2,4- trimethylbenzene, decane, 1,2,3-trimethylbenzene, and indane. Library search reveals the presence of numerous aromatics and condensed ring aromatic compounds. Library search reveals the presence of several alkanes. Due to the presence of these alkanes, the others-miscellaneous class was chosen. It was not expected to see aromatics and of this abundance in a comparison sample. Light to medium range.
BP86NZ	It would be preferred to have the samples submitted already in cans to avoid having to transfer both the sample and the bags into a can because if the outside of the bag was contaminated, that contamination would have also been extracted. Also, bags are susceptible to puncturing.
BZMHXX	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.
C2WEQL	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 compounds (e.g. some aerosol or liquid products). The absence of ILR in an exhibit can be due to any of a number of factors, including: ILR was never present in exhibit. ILR was present, but not in the portion of exhibit collected. ILR was present in the submitted exhibit, but at levels too low for identification. ILR was originally present but subsequently lost (evaporation) prior to analysis. ILR was originally present but consumed in the fire
CY3UG9	Item 2 : Exo-tetrahydrodicylcopentadiene is a flammable liquid. Endo-tetrahydrodicyclopentadiene is a flammable solid. (Exo and Endo) tetrahydrodicyclopentadiene are both flammable, but neither fit into any of the seven major categories of ignitable liquids. In normal casework, a standard would be ordered and analyzed under the same conditions as fire debris samples. In the event the retention time and the mass spectral data for the unknown and the standard(s) match, this sample would be reported as "A mixture containing a medium aromatic product and exo (and/or) endo -tetrahydrodicyclopentadiene was found. This can be from a blended product or from a physical mixture. Examples of medium aromatic products include, but are not limited to, automotive parts cleaners, specialty cleaning solvents, insecticide vehicles, brush cleaners, and fuel additives. Examples of exo (and/or) endo -tetrahydrodicyclopentadiene include, but are not limited to, fuel additives and

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
	jet fuel."
DJAP7D	Notes for Item 1.2: Predominant aromatic compounds detected in the C8 to C12 carbon range. Oxygenated compound (2-butoxyethanol) detected. Possible medium aromatic/miscellaneous product however, no available reference material for conclusive classification is available. Similarities to medium miscellaneous products CCN 11653 and 3115 exist. However, the relative intragroup ratios of C2- and C3-alkylbenzenes as well as indane were inconsistent. Meta/para-xylene and propyl benzene were lower than their respective isomers when compared to the references. Additionally, 1,2,3-trimethylbenzene was considerably higher in the reference material whereas indane was significantly higher in both references.
F8L894	When searching for medium aromatic products in an ignitable liquid database, the oxygenated compound 2-butoxyethanol was found in a "Miscellaneous" category with a predominant aromatic profile. This 2-butoxyethanol was found at minor levels in these samples. This same oxygenated compound was found in my Item 2 TIC, however, at an even lower abundance (trace). Due to the predominant profile being aromatics and within a C8-C13 medium range, this is all that was reported. However, I would still like to note that 2-butoxyethanol was present, as found in some database samples.
G2ENDQ	Explanation of Terms: The following descriptions are meant to provide context to the types of opinions reached in fire debris / ignitable liquid examinations. Identification: The sample contained an ignitable liquid or residues of an ignitable liquid. Not Identified: Compounds were detected that may be present in some ignitable liquids. Possible factors that prevented identification of an ignitable liquid may include one or more of the following: The detected compounds may originate from substrate materials and/or pyrolysis of substrate materials. Other compounds in the sample impeded data interpretation. An unexplained absence of components and/or differences in ratios of compound types compared to a reference liquid was observed. No comparable sample in the reference collection was found Not Detected: The data did not indicate the presence of an ignitable liquid.
GBYUDF	Item 1: It mainly contains normal hydrocarbons in a Gaussian distribution, in addition to which naphthenic hydrocarbons and characteristic aromatic components in a typical distribution. FAME content cannot be detected. Acetone can also be identified in the sample, but it is also found in the blank sample in a similar amount, so it cannot be considered of foreign origin. Item 2: Characteristic aromatic profile that differs from the distribution observed in gasolines. The most intense peak of the chromatogram can be assigned to 4H-DCPD. Other naphtenic compounds also can be identified together with traces of decane, undecane, dodacane and tridacane and 2-butoxyethanol. Very characteristic, uncommon component composition. Acetone can also be identified in the sample, but it is also found in the blank sample in a similar amount, so it cannot be considered of foreign origin. We do not encountered an IL/ILR even similar composition in the previous 5 years.
GGUPC2	We have an information sheet similar to Table I in ASTM E-1618 "Ignitable Liquid Classification Scheme with Examples of Known Products for Each Class" , which we send along with the report.
H4GAW2	A very low level of medium petroleum distillate (MPD) was detected in Item 2, but not reported due to the low relative abundance of the alkane profile compared to the aromatic profile in the extracted ion chromatograms. Item 1 analyzed using adsorption temperature 66C on 9/17/24.
H9Q3X8	Item 2 was classified as miscellaneous as it was primarily aromatic but also has a prominent tetrahydrodicyclopentadiene (or similar C10H16- compound ID "indicated" as standard not available) that is a component of synthetic jet fuel and was found in the ILRC database in SRN-038 Power Service Diesel Fuel Supplement. SRN-038 also had a similar aromatic profile and was classified as miscellaneous.
HD4M6T	Item 2 contains 2-Butoxyethanol and an aromatic product. It is unknown if the item contains a single commercial component product or a mixture of two products. Because the 2-Butoxyethanol is not a major peak (one of the top 5 most abundant peaks), this sample is classified as miscellaneous. A search of the ILRC indicated SRN 279 Power Service Diesel Kleen Cetane Boost would potentially be a good reference for Item 2. However, neither the ILRC nor a sample of that reference purchased and

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
	run in my laboratory contained a sufficient amount of 2-Butoxyethanol needed to classify that reference as a medium miscellaneous product. Therefore, several similar Power Service Diesel products were purchased locally, run on our instrument, and did contain a sufficient amount of 2-Butoxyethanol that was similar to the abundance detected in Item 2.
HWYFQQ	Item 1: High Petroleum Distillate are also found in Diesel fuel or Kerosen. Item 2: Tetrahydrodicyclopentadiene Isomeres are also found in JP-10 Jet Fuel.
JBVHX3	Had difficulty finding a single reference that was consistent with Item 2, but compared collectively to two separate references: Klean Strip Turpatine (NCFS SRN 310) and one that I purchased based on research of the compounds in the sample, primarily by using the NCFS database, Power Service Diesel Supplement Cetane Boost. The SDS sheet of the Diesel Supplement reference indicates that after in July 2024 1,2,4-Trimethylbenzene was added to the formulation. This compound was mostly missing from the reference chromatogram, so perhaps the product I purchased was a lot produced prior to the change. A similar product, Product Service Diesel 911 was purchased and run as a reference as well, but not compared due to similarity with the Cetane Boost product. I didn't feel like it added additional value in comparison.
JJM3T3	HPD could be seen on alkane EIC, but less than 10x the aromatic profile, not reported out. Additional component that could not be classified under ASTM E1618 (4,7-Methano-1H-indene, octahydro-) also not reported out.
JPEC32	The following statements appear on all ignitable liquid reports issued by our laboratory. 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.
JPUYUB	In item 2 we have detected a wetheared gasoline, because we have observed very low amount of toluene. Also the sample presents matrix contribution.
K9QLYE	Item 2 was tricky.
KHAN8E	This laboratory does not employ the ASTM classification scheme and does not have access to U.S. products to enable a comparison to the items tested to be undertaken.
KNYZ93	Item 1 could possibly be a mixture of a low ratio of gasoline with an HPD.
MEMN64	If this were casework, I would have reached out to the agency to inquire about potential sources on scene for Item 2.
MNADDW	A medium aromatic product was detected in item 1. A heavy petroleum distillate 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. The results in Item #3 do not eliminate the possibility that an ignitable liquid was present at the incident in question.
N8YM2W	Item 02 is identified as a miscellaneous product with the major component class of aromatics because the aromatics in this product are the predominant ion profile.
N9FJRB	Fuel additives with this type of profile include some diesel fuel supplement products.
NN6T7Z	For item 2 the following notes were documented: No comparable standards could be located/identified that matched the ration of the three peaks in the castle region (ethylbenzene, p & o-xylenes). All libraries in the computer for Rumble were searched, along with online searches for different products and a search of the ILRC Database was performed. Toluene was not present in the sample, but 4,7-methano-1H-indene, octahydro (a chemical found in perfumes) was present and in high abundance (equal to 1,2,4-trimethylbenzene). The ratios of the castle region and the lack of toluene, indicate the sample was not gasoline. Therefore an inconclusive medium aromatic is being

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
	used for reporting purposes.
NV492Z	Nylon bags are still not ideal for fire debris, there was leaking out of the inner bag.
NZ2VT3	If this was casework, I would have contacted the agency to see if there were possible standards present at the scene to compare the pattern found on Item 2.
Q2N99Q	Agency item #1 is my item 1A Agency item #2 is my item 1B Agency item #3 is my item 1C The procedure employed does not detect the presence of light volatiles such as certain alcohols and acetone. [Participant created a manually formatted table within the free form text space. This special formatting was not transferable into the final report. Data is presented as is.]
QKFTX3	Item 2: Item consists of a mixture of a medium aromatic and olefin constituents.
QQ4QUX	Gas oil type products are e.g. diesel, light fuel oil or some fire starters. Sample 2 type of aliphatic hydrocarbon mixtures are e.g. fuel additives.
QX4TRQ	Note: Item 3 was used as a comparison sample for Items 1-2
RL33QV	The "date sample analyzed" does not accurately represent the length of time from start to finish.
RQJWLF	An Explanation of Terms would be added to the report to define the conclusions.
RTNK4Q	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.
RZNGTV	Item 1.2 (CTS Item 2) A single peak at 12.270 minutes is unidentified, several library hits were found and it maybe an ignitable liquid but no standard or product could be obtained. If a standard and reference product can be obtained then the classification could be changed to a miscellaneous product after future testing.
TT7Q3G	The adsortion time in the lab's method is 30 minutes because our evidence normally is burned materials and those ignatable liquids are at trace levels, however, due to the abundance in the samble and to sucessfully identify each substance while searching it was taken down to 15 minutes for the test.
UFXXYN	Item 1A is CTS item 1. Item 1B is CTS item 2. Item 1C is CTS item 3.
ULFZQ7	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.
UW3EYV	A search was performed on our instrument from our library of previously analyzed standards in the medium aromatic class. A search was also performed utilizing the ILRC database to see if any standards could be located. In the sample, Item 1B, there were multiple aromatic components present in the sample, but the ratios of ethylbenzene, p-xylene, and o-xylene did not match any of the standards that were searched in the databases. Indane and 4,7-Methano-1H-indene, octahydro were present in the sample. 4,7-Methano-1H-indend, octahydro was in a slightly higher abundance than 1, 2, 4, - trimethylbenzene. The first three components, of the three musketeers region (which includes ethylbenzene, p-xylene, and o-xylene) were not in ratios comparable to gasoline and there was no toluene peak. Due to being unable to locate or identify a standard suitable for comparison based on the reasoning above the results and conclusions of the analysis for Item 1B is considered inconclusive for the presence of a medium aromatic.

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
UZZJNF	2-ethylhexyl nitrate is used commercially as a cetane booster.
V2RYBW	It could not be determined if Item 2 contained multiple individual commercial products or a single commercial product. Three laboratory glass vials were repackaged with the evidence.
V3KR7F	CTS 24-5436 Item 1 has Gaussian distribution of normal alkanes from C9-C19, and also has significant branched alkane presence. The item looks like a traditional HPD in that range. CTS 24-5436 Item 2 has significant aromatic compound presence especially C3 alkylbenzene compounds. There is also a significant presence of one compound (4,7-Methano-1H-indene, octahydro). Item compared well with a Diesel Cetane Boost product. This is a blended product.
VKFFGB	Conclusions 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 could 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 could have evaporated, been totally consumed in a fire, environmentally altered or removed, or otherwise indistinguishable from background materials. Chain of Custody and GC-MS analysis details may be provide upon request Test No.: 24-5436 [Participant Code]. [Web Code].
VVH7AR	Examples of a heavy petroleum distillate include kerosene, diesel fuel, some jet fuels, and some charcoal starters. Item 1 contains early gasoline aromatics. This sample could very well be a mixture of low-level gasoline and kerosene (or some other heavy petroleum distillate). Such mixtures are difficult to distinguish from a straight heavy petroleum distillate when the ratio of gasoline drops below 1:1.
VYKJ37	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 could 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 could have evaporated, been totally consumed in a fire, environmentally altered or removed, or otherwise indistinguishable from background materials. Items 1, 2, and 3 were extracted using a passive adsorption-elution technique and were analyzed using gas chromatography/mass spectrometry (GC/MS). Both the analyzed and unanalyzed portions of the charcoal strips will be returned to the submitting agency along with the original evidence.
VYM7JJ	Item 1: Example of products: Dieseloil Fuel, oil for househeating Item 2: Example of products: Fuel Additive/Treatment - Diesel Fuel Supplement
WC6DVB	The following conclusions and caveats below are based on ASTM E1618-14. Not every fire scene requires the presence of an ignitable liquid residue to indicate that the fire was incendiary in nature. Further investigation may reveal a valid explanation for the ignitable liquid remnants. It is still possible that ignitable liquids were present at the fire scene even in the absence of an ignitable liquid residue. Volatile substances categorized as ignitable liquids may have evaporated, burned completely in a fire, environmentally relocated or changed, or otherwise mixed with the background. Chain of Custody records and details of the GC-MS analysis may be provided upon request. Test No. 24-5436 Data Sheet, continued [Participant Code]. [WebCode].
WDHFQ3	Item 2 contained the major component octahydro-4,7-methano-1H-indene also known as isomers of tricyclodecane and tetrahydrodicyclopentadiene and it has been classified medium miscellaneous based on this component being the major constituent. The identification of this compound was not conclusive due to a lack of an available reference standard. Our laboratory would not report this item as a positive ignitable liquid unless a conclusive identification to the major constituent was made.
WX7YLL	Item 001-002 (Item 2) also contains a tetrahydrodicyclopentadiene (tricyclodecane) compound as a major peak. Some isomers are used as specialty jet fuels (e.g., JP-10). No known comparable miscellaneous product containing this compound along with the observed aromatic pattern.
X94YYP	Item 1, Analyst notes: Compared to Kerosene reference material. Item 2, Analyst notes: Significant

 Copyright ©2024 CTS, Inc

TABLE 5

WebCode	Additional Comments
	medium range aromatics along with Endo-tricyclodecane, Exo-Tetrahydrocyclopentadiene, and 2,3 Dihydro-(x) Indene (all indicated). Obtained and analyzed sample of Chevron Heavy Aromatic Distillate (HAD), a blended fuel product, for comparison. ASTM criteria for the Identification of Aromatic Products includes lack of significant amounts of cycloalkanes. Reported Miscellaneous Product.
XDZQ8M	Item 1, Item 2 and Item 3 were examined visually and using gas chromatography/mass spectrometry (GC/MS). Headspace analysis followed by passive adsorption/elution extraction was performed on Item 1, Item 2 and Item 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.
YD9RFL	Ignitable liquid of Item 1 most likely originate from Diesel Fuel, the others possible products are: Charcoal Starters, Aviation Fuel, Automotive parts cleaners... Ignitable liquid of Item 2 could originate from high energy fuels, e.g. aviation fuels.
YVTJEL	1. Examples of substances with a chemical pattern similar to the substance detected in item 1 are: some lamp oils, fuel additive/treatment, crude/other fuel and diesel fuel. 2. Examples of substances with a chemical pattern similar to the substance detected in item 1 are: some fuel additive/treatment and brush cleaners. 3. Examples of substances with a chemical pattern similar to the substance detected in item 3 (control sample) are: lacquer thinners and brush cleaners.
ZCTTVW	Evidence Disposition: The unanalyzed portions of the activated charcoal strips are being returned to the submitting agency along with the submitted evidence.
ZNLE2R	In item 2, we also found 2-Ethyl-5-Methyl-THF, 5 2-Butoxy-Ethanol and Octahydro-4,7-methano indene. This finding, combined with the absence of alkanes, does not suggest the possibility of a weathered gasoline.

-End of Report-
(Appendix may follow)

 Copyright ©2024 CTS, Inc

Collaborative Testing Services ~ Forensic Testing Program

Test No. 24-5436: Ignitable Liquid Identification

DATA MUST BE SUBMITTED BY **Sept. 30, 2024, 11:59 p.m. EDT** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: HQTA4D

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 case. Investigators collected pieces of cloth remnants near two suspected ignition sites and immediately sealed the evidence in nylon bags. The police are requesting you to identify any ignitable liquid(s) that may be present on the cloth remnants.

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, etc.) from the bags when transferring to the laboratory container.

Items Submitted (Sample Pack IL):
Item 1: Questioned piece of cloth remnant sealed in a nylon evidence bag.
Item 2: Questioned piece of cloth remnant sealed in a nylon evidence bag.
Item 3: Cloth substrate intended as a comparison blank sealed in a nylon evidence bag.

1.) Using the ASTM E 1618-19 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

Date sample analyzed:

Class *Subclass*

Item 2

Date sample analyzed:

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 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 ANAB and/or A2LA. (Accreditation Release section below must be completed.)
- ○ This participant's data is **not** intended for submission to 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.

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)