

Explosive Standards Reference Guide



AccuStandard®

Explosive standards are traditionally used for the remediation of soil and water in locations where explosives have been stored. These same standards are being used to calibrate baggage screening detectors at airports and other secure locations (embassies and other government buildings). They also are used by police departments, government agencies (i.e. TSA, Homeland Security) and the military in K-9 odor recognition training for explosives. Recent advances in analytical instrumentation have demonstrated detection in the part per trillion range.¹

AccuStandard has working relationships with both government and private sector K-9 training facilities and laboratories that provide valuable information and insight into the latest developments in explosives.

To assist in all aspects of explosive detection and analysis, we synthesize an array of explosives as well as metabolites, degradation products, and raw materials. AccuStandard is the only U.S. commercial source for TATP, HMTD, and HNS.

In addition to catalog items we offer special formulations for EPA method and customer-specific applications.

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**Widest Selection of
Explosives and associated
Metabolites**

¹ Anal. Chem. 2017, 89, 6482-6490 Ong, T.H. et al

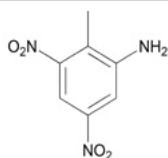


Bomb detection dogs are imprinted and trained to detect various types of explosives using pharmaceutical-type tins. Holes are drilled into the top of the tin to provide an odor cone for each explosive. The dog is repeatedly subjected to each odor and is rewarded when it properly alerts to it. Through this positive reinforcement process, the dog "learns" the odors associated with each explosive.



Individual Explosive Standards

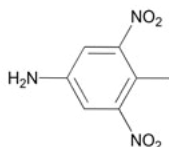
2-Amino-4,6-dinitrotoluene ♦



CAS 35572-78-2 MF $C_7H_7N_3O_4$ MW 197.15
log Pow 2.2 SG 1.50 g/cm³ MP 174-175 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-13-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-13	1 mL

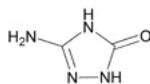
4-Amino-2,6-dinitrotoluene ♦



CAS 19406-51-0 MF $C_7H_7N_3O_4$ MW 197.15
log Pow 2.2 SG 1.50 g/cm³ MP 171 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-14-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-14	1 mL

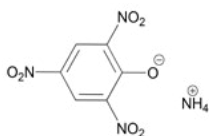
3-Amino-1,2,4-triazol-5-one ♦ NEW



CAS N/A MF $C_2H_2N_4O$ MW 100.08 log Pow N/A
SG N/A MP 188-189 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-55	1 mL

Ammonium picrate



CAS 131-74-8 MF $C_6H_6N_3O_7$ MW 246.13
log Pow -1.4 SG N/A MP 265-271 °C

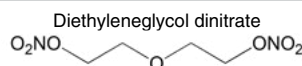
Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-27	1 mL

Property Key

CAS	Chemical Abstract Service Number
MF	Molecular Formula
MW	Molecular Weight
log Pow	Partition Coefficient
SG	Specific Gravity (g/cm ³)
MP	Melting Point (°C)

♦ TNT Metabolites

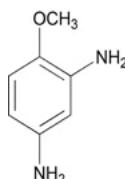
DEGDN



CAS 693-21-0 MF $C_4H_8N_2O_7$ MW 196.12
log Pow 0.98 SG 1.41 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-36	1 mL

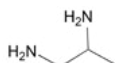
2,4-Diaminoanisole NEW



CAS 615-05-4 MF $C_7H_{10}N_2O$ MW 138.17
log Pow N/A SG N/A MP 67-68 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-58	1 mL

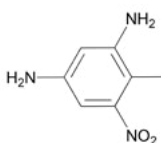
1,2-Diaminopropane



CAS 78-90-0 MF $C_3H_9N_2$ MW 74.12
log Pow -1.20 SG 0.86 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-9	1 mL

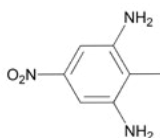
2,4-Diamino-6-nitrotoluene ♦



CAS 6629-29-4 MF $C_7H_9N_3O_2$ MW 167.17
log Pow -2.23 SG 1.40 g/cm³ MP 211 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-12	1 mL

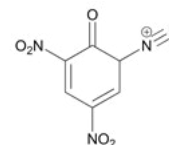
2,6-Diamino-4-nitrotoluene ♦



CAS 59229-75-3 MF $C_7H_9N_3O_2$ MW 167.17
log Pow -2.23 SG 1.40 g/cm³ MP 219 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-13	1 mL

Diazodinitrophenol



CAS 4682-03-5 MF $C_6H_2N_4O_5$ MW 210.10
log Pow 2.09 SG N/A MP 152-154 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-48	1 mL
1000 µg/mL in AcCN	M-8330-ADD-48-10X	1 mL

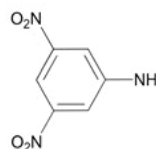
2,3-Dimethyl-2,3-dinitrobutane (DMNB)



CAS 3964-18-9 MF $C_6H_{12}N_2O_4$ MW 176.17
log Pow -0.24 SG 1.15 g/cm³ MP 214-215 °C (dec)

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-21	1 mL

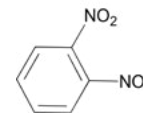
3,5-Dinitroaniline



CAS 618-87-1 MF $C_6H_5N_3O_4$ MW 183.12
log Pow 1.89 SG 1.59 g/cm³ MP 162 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-4	1 mL

1,2-Dinitrobenzene



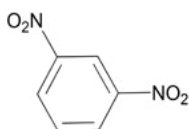
CAS 528-29-0 MF $C_6H_4N_2O_4$ MW 168.11
log Pow 1.69 SG 1.49 g/cm³ MP 118 °C

Matrix	Cat. No.	Unit
1000 µg/mL in MeOH	M-8330-SS	1 mL

AcCN:MeOH Ratio 50:50

Individual Explosive Standards

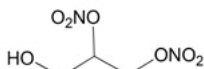
1,3-Dinitrobenzene



CAS 99-65-0 MF $C_6H_4N_2O_4$ MW 168.11
log Pow 1.49 SG 1.49 g/cm³ MP 89-90 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-01-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-01	1 mL

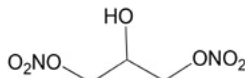
1,2-Dinitroglycerin



CAS 621-65-8 MF $C_3H_6N_2O_7$ MW 182.09
log Pow 0.83 SG 1.59 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-33	1 mL

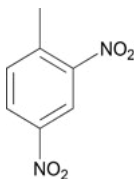
1,3-Dinitroglycerin



CAS 623-87-0 MF $C_3H_6N_2O_7$ MW 182.09
log Pow 0.71 SG 1.59 g/cm³ MP 26 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-34	1 mL

2,4-Dinitrotoluene ♦



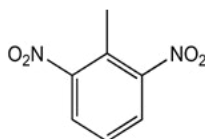
CAS 121-14-2 MF $C_7H_6N_2O_4$ MW 182.13
log Pow 1.98 SG 1.41 g/cm³ MP 71 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-02-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-02	1 mL

Property Key

CAS	Chemical Abstract Service Number
MF	Molecular Formula
MW	Molecular Weight
log Pow	Partition Coefficient
SG	Specific Gravity (g/cm ³)
MP	Melting Point (°C)

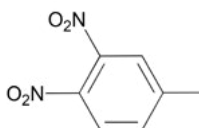
2,6-Dinitrotoluene ♦



CAS 606-20-2 MF $C_7H_6N_2O_4$ MW 182.13
log Pow 2.10 SG 1.41 g/cm³ MP 66 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-03-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-03	1 mL

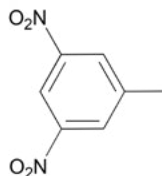
3,4-Dinitrotoluene



CAS 610-39-9 MF $C_7H_6N_2O_4$ MW 182.13
log Pow 2.08 SG 1.41 g/cm³ MP 58 °C

Matrix	Cat. No.	Unit
1000 µg/mL in MeOH	M-8330-IS	1 mL

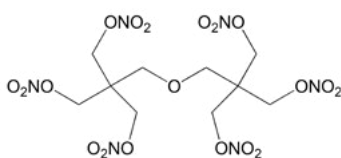
3,5-Dinitrotoluene ♦



CAS 618-85-9 MF $C_7H_6N_2O_4$ MW 182.13
log Pow 2.18 SG 1.41 g/cm³ MP 93 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-39	1 mL

Dipentaerythritol hexanitrate

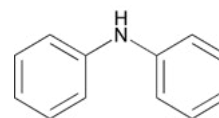


CAS 13184-80-0 MF $C_{10}H_{16}N_6O_{19}$ MW 524.26
log Pow 1.23 SG 1.66 g/cm³ MP 75 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-43	1 mL

AcCN:MeOH Ratio 50:50

Diphenylamine

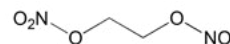


CAS 122-39-4 MF $C_{12}H_{11}N$ MW 169.22
log Pow 3.50 SG 1.09 g/cm³ MP 52-54 °C

Matrix	Cat. No.	Unit
1000 µg/mL in Ethanol	ALR-041S-ET-10X	1 mL

EGDN

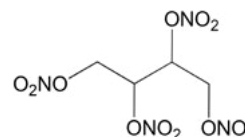
Dinitroethylene glycol



CAS 628-96-6 MF $C_2H_4N_2O_6$ MW 152.06
log Pow 1.16 SG 1.52 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-5	1 mL

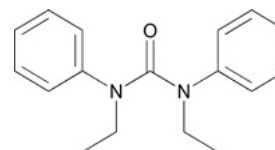
Erythritol tetranitrate (ETN)



CAS 7297-25-8 MF $C_4H_8N_4O_{12}$ MW 302.11
log Pow 1.85 SG 1.76 g/cm³ MP 61 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-47	1 mL
1000 µg/mL in AcCN	M-8330-ADD-47-10X	1 mL

Ethylcentralite



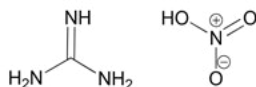
CAS 85-98-3 MF $C_{17}H_{20}N_2O$ MW 268.35
log Pow 4.20 SG 1.12 g/cm³ MP 79 °C

Matrix	Cat. No.	Unit
1000 µg/mL in AcCN:MeOH	M-8330-ADD-50	1 mL

♦ TNT Metabolites

Individual Explosive Standards

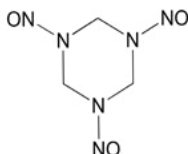
Guanidine nitrate



CAS 506-93-4 MF $\text{CH}_5\text{N}_3 \cdot \text{HNO}_3$ MW 122.08
log Pow -8.35 SG N/A MP 213-214 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-10	1 mL

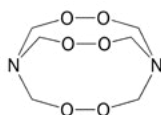
Hexahydro-1,3,5-trinitroso-1,3,5-triazine (R-Salt)



CAS 13980-04-6 MF $\text{C}_3\text{H}_6\text{N}_6\text{O}_3$ MW 174.12
log Pow -1.78 SG 1.92 g/cm³ MP 106-107 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-46	1 mL
1000 µg/mL in AcCN	M-8330-ADD-46-10X	1 mL

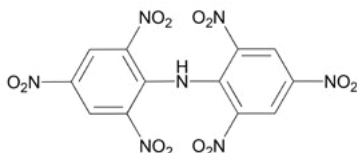
Hexamethylene triperoxide diamine (HMTD)



CAS 283-66-9 MF $\text{C}_6\text{H}_{12}\text{N}_2\text{O}_8$ MW 208.17
log Pow 1.01 SG 1.47 g/cm³ MP 162-164 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-25	1 mL

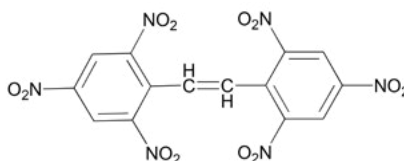
Hexanitrodiphenylamine



CAS 131-73-7 MF $\text{C}_{12}\text{H}_5\text{N}_7\text{O}_{12}$ MW 439.21
log Pow 3.35 SG 1.94 g/cm³ MP 244 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-37	1 mL

Hexanitrostilbene (HNS) ♦

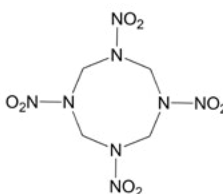


CAS 20062-22-0 MF $\text{C}_{14}\text{H}_6\text{N}_6\text{O}_{12}$ MW 450.23
log Pow 1.23 SG 1.85 g/cm³ MP 320 °C (dec)

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-26	1 mL

HMX

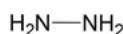
Cyclotetramethylene-tetranitramine



CAS 2691-41-0 MF $\text{C}_4\text{H}_8\text{N}_8\text{O}_8$ MW 296.16
log Pow 0.16 SG 1.95 g/cm³ MP 275 °C (dec)

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-04-0.1X	1 mL
1000 µg/mL in AcCN: MeOH	M-8330-04	1 mL

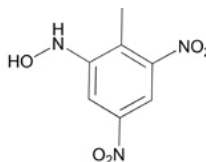
Hydrazine



CAS 302-01-2 MF H_2N_2 MW 32.05 log Pow -2.07
SG 1.01 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-8	1 mL

2-Hydroxylamino-4,6-dinitrotoluene ♦

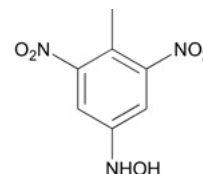


(3 months stability)

CAS 59283-76-0 MF $\text{C}_7\text{H}_7\text{N}_3\text{O}_5$ MW 213.15
log Pow 1.79 SG 1.64 g/cm³ MP 142-143 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-18 *	1 mL

4-Hydroxylamino-2,6-dinitrotoluene ♦

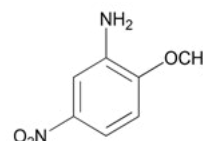


(3 months stability)

CAS 59283-75-9 MF $\text{C}_7\text{H}_7\text{N}_3\text{O}_5$ MW 213.15
log Pow 1.79 SG 1.64 g/cm³ MP 142-143 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-20 *	1 mL

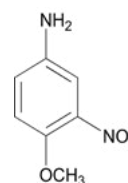
2-Methoxy-5-nitroaniline NEW



CAS 99-59-2 MF $\text{C}_7\text{H}_8\text{N}_2\text{O}_3$ MW 168.15
log Pow 1.16 SG 0.99 g/cm³ MP 117-119 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-56	1 mL

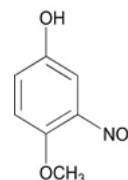
4-Methoxy-3-nitroaniline NEW



CAS 577-72-0 MF $\text{C}_7\text{H}_8\text{N}_2\text{O}_3$ MW 168.15
log Pow N/A SG N/A MP 97 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-57	1 mL

4-Methoxy-3-nitrophenol NEW



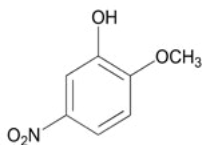
CAS 15174-02-4 MF $\text{C}_7\text{H}_7\text{NO}_4$ MW 169.14
log Pow N/A SG N/A MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-59	1 mL

* To delay premature breakdown of thermally labile products in transit a ColdPAK is required.

Individual Explosive Standards

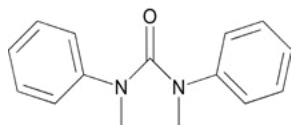
2-Methoxy-5-nitrophenol **NEW**



CAS 636-93-1 MF $C_7H_7NO_4$ MW 169.14
log Pow 1.88 SG N/A MP 103-107 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-60	1 mL

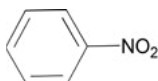
Methylcentralite



CAS 611-92-7 MF $C_{15}H_{16}N_2O$ MW 240.30
log Pow 3.22 SG 1.16 g/cm³ MP 122 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-49	1 mL

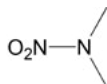
Nitrobenzene ♦



CAS 98-95-3 MF $C_6H_5NO_2$ MW 123.11
log Pow 1.85 SG 1.22 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-06-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-06	1 mL

N-Nitrodimethylamine



CAS 4164-28-7 MF $C_2H_6N_2O_2$ MW 90.08
log Pow -0.52 SG 1.10 g/cm³ MP 58 °C

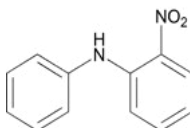
Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-40	1 mL

Property Key

CAS	Chemical Abstract Service Number
MF	Molecular Formula
MW	Molecular Weight
log Pow	Partition Coefficient
SG	Specific Gravity (g/cm ³)
MP	Melting Point (°C)

♦ TNT Metabolites

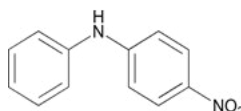
2-Nitrodiphenylamine



CAS 119-75-5 MF $C_{12}H_{10}N_2O_2$ MW 214.22
log Pow 3.66 SG 1.28 g/cm³ MP 74-76 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-51	1 mL

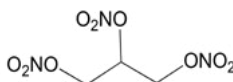
4-Nitrodiphenylamine



CAS 836-30-6 MF $C_{12}H_{10}N_2O_2$ MW 214.22
log Pow 3.74 SG 1.28 g/cm³ MP 132-136 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-52	1 mL

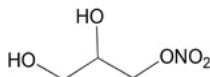
Nitroglycerin



CAS 55-63-0 MF $C_3H_5N_3O_9$ MW 227.09
log Pow 1.62 SG 1.67 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in ETOH	M-8330-ADD-1	1 mL
1000 µg/mL in ETOH:MeOH(97:3)	M-8330-ADD-1-10X	1 mL

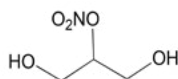
1-Nitroglycerin



CAS 624-43-1 MF $C_3H_7NO_5$ MW 137.09
log Pow -0.86 SG 1.48 g/cm³ MP 61 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-31	1 mL

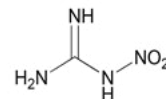
2-Nitroglycerin



CAS 620-12-2 MF $C_3H_7NO_5$ MW 137.09
log Pow -0.86 SG 1.48 g/cm³ MP 54 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-32	1 mL

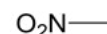
Nitroguanidine



CAS 556-88-7 MF $CH_4N_4O_2$ MW 104.07
log Pow -0.89 SG 2.01 g/cm³ MP 239 °C (dec)

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-6	1 mL

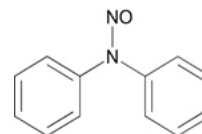
Nitromethane



CAS 75-52-5 MF CH_3NO_2 MW 61.04
log Pow -0.35 SG 1.06 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-7	1 mL

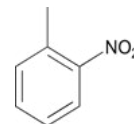
N-Nitrosodiphenylamine



CAS 86-30-6 MF $C_{12}H_{10}N_2O$ MW 198.22
log Pow 3.16 SG 1.23 g/cm³ MP 66-67 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	APP-9-150	1 mL

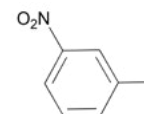
2-Nitrotoluene ♦



CAS 88-72-2 MF $C_7H_7NO_3$ MW 137.14
log Pow 2.30 SG 1.17 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-07-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-07	1 mL

3-Nitrotoluene ♦

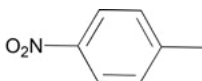


CAS 99-08-1 MF $C_7H_7NO_3$ MW 137.14
log Pow 2.45 SG 1.16 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-08-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-08	1 mL

Individual Explosive Standards

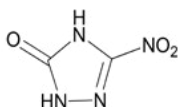
4-Nitrotoluene ♦



CAS 99-99-0 MF C₇H₇NO₃ MW 137.14
log Pow 2.37 SG 1.39 g/cm³ MP 51-54 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-09-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-09	1 mL

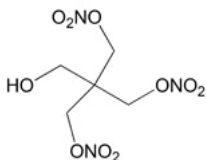
3-Nitro-1,2,4-triazol-5-one (NTO)



CAS 932-64-9 MF C₂H₂O₃N₄ MW 130.10
log Pow -2.72 SG 2.55 g/cm³ MP 265-268 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-53	1 mL

Pentaerythritol trinitrate

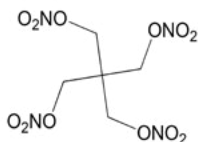


CAS 1607-17-6 MF C₅H₉N₃O₁₀ MW 271.14
log Pow 0.99 MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-44	1 mL

PETN

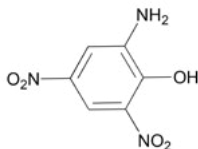
Pentaerythritol tetranitrate



CAS 78-11-5 MF C₅H₈N₄O₁₂ MW 316.14
log Pow 2.38 SG 1.68 g/cm³ MP 140 °C

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-2	1 mL
1000 µg/mL in MeOH	M-8330-ADD-2-10X	1 mL

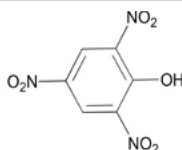
Picramic acid



CAS 96-91-3 MF C₆H₅N₃O₅ MW 199.12
log Pow 0.93 SG N/A MP 169 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-22	1 mL

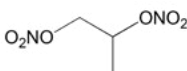
Picric acid



CAS 88-89-1 MF C₆H₃N₃O₇ MW 229.10
log Pow 1.44 SG 1.86 g/cm³ MP 122-123 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-3	1 mL

Propyleneglycol dinitrate

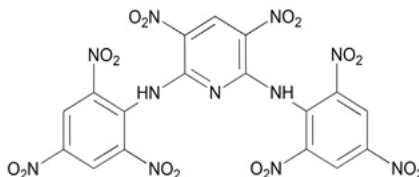


CAS 6423-43-4 MF C₃H₆N₂O₆ MW 166.09
log Pow 1.59 SG 1.42 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-35	1 mL

PYX

2,6-bis,bis(Picrylamino)-3,5-dinitropyridine

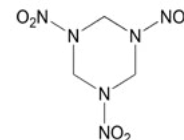


CAS 38082-89-2 MF C₁₇H₇N₁₁O₁₆ MW 621.30
log Pow N/A SG 2.01 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-11	1 mL

RDX

Cyclotrimethylene-trinitramine

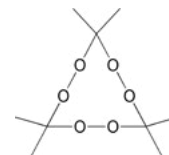


CAS 121-82-4 MF C₃H₆N₆O₆ MW 222.12
log Pow 0.87 SG 1.90 g/cm³ MP 205-208 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-05-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-05	1 mL

TATP

Triacetone triperoxide



CAS 17088-37-8 MF C₉H₁₈O₆ MW 222.24
log Pow 4.63 SG 1.00 g/cm³ MP 94-96 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-24 *	1 mL

TEGDN

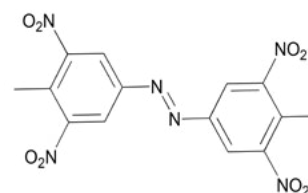
Triethyleneglycol dinitrate



CAS 111-22-8 MF C₆H₁₂N₂O₈ MW 240.17
log Pow 0.62 SG 1.34 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-41-R1	1 mL

2,2',6,6'-Tetranitro-4,4'-azotoluene ♦



CAS N/A MF C₁₄H₁₀N₄O₈ MW 390.26
log Pow N/A SG N/A MP N/A

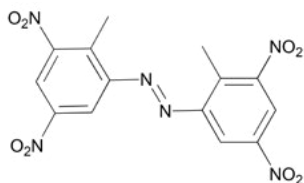
Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-17	1 mL

AcCN:MeOH Ratio 50:50

* To delay premature breakdown of thermally labile products in transit a ColdPAK is required.

Individual Explosive Standards

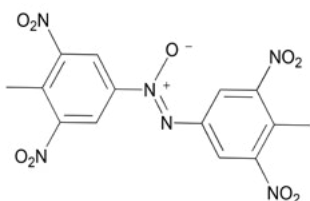
4,4',6,6'-Tetranitro-2,2'-azotoluene ♦



CAS N/A MF $C_{14}H_{10}N_6O_8$ MW 390.26
log Pow N/A SG N/A MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-19	1 mL

2,2',6,6'-Tetranitro-4,4'-azoxytoluene ♦

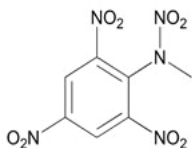


CAS N/A MF $C_{14}H_{10}N_6O_9$ MW 406.26
log Pow N/A SG N/A MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN	M-8330-ADD-15	1 mL

Tetryl

N-Methyl-N,2,4,6-tetranitroaniline

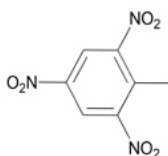


CAS 479-45-8 MF $C_7H_5N_5O_8$ MW 287.14
log Pow 1.64 SG 1.80 g/cm³ MP 130 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-10-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-10	1 mL

TNT

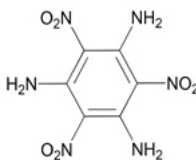
Trinitrotoluene



CAS 118-96-7 MF $C_7H_5N_3O_6$ MW 227.13
log Pow 1.6 SG 1.61 g/cm³ MP 81 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-11-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-11	1 mL

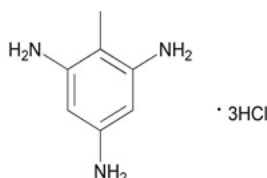
1,3,5-Triamino-2,4,6-trinitrobenzene



CAS 3058-38-6 MF $C_6H_6N_6O_6$ MW 258.15
log Pow -2.93 SG 1.96 g/cm³ MP 278 °C

Matrix	Cat. No.	Unit
40 µg/mL in DMF	M-8330-ADD-14-DMF	1 mL

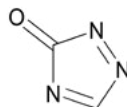
2,4,6-Triaminotoluene trihydrochloride (TNT free)



CAS 634-87-7 MF $C_7H_{11}N_3 \cdot 3HCl$ MW 246.56
log Pow -0.76 SG 1.22 g/cm³ MP 109-110 °C

Matrix	Cat. No.	Unit
Neat	M-8330-ADD-23N-5MG	5 mg

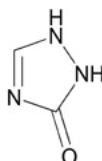
1,2,4-Triazol-5-one NEW



CAS 42131-33-9 MF $C_2H_2N_3O$ MW 83.05
log Pow N/A SG N/A MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-61	1 mL

1,2,4-Triazolin-3-one NEW

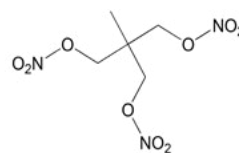


CAS 930-33-6 MF $C_2H_3N_3O$ MW 85.07
log Pow N/A SG N/A MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in MeOH	M-8330-ADD-62	1 mL

♦ TNT Metabolites

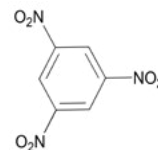
Trimethylolethane trinitrate



CAS 3032-55-1 MF $C_5H_9N_3O_9$ MW 255.14
log Pow 2.46 SG 1.51 g/cm³ MP N/A

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-ADD-28	1 mL

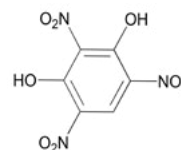
1,3,5-Trinitrobenzene ♦



CAS 99-35-4 MF $C_6H_3N_3O_6$ MW 213.10
log Pow 1.18 SG 1.70 g/cm³ MP 122 °C

Matrix	Cat. No.	Unit
100 µg/mL in AcCN:MeOH	M-8330-12-0.1X	1 mL
1000 µg/mL in AcCN:MeOH	M-8330-12	1 mL

2,4,6-Trinitroresorcinol



CAS 82-71-3 MF $C_6H_3N_3O_8$ MW 245.10
log Pow 1.06 SG 2.01 g/cm³ MP 175-176 °C

Matrix	Cat. No.	Unit
1000 µg/mL in AcCN:MeOH	M-8330-ADD-29	1 mL

AcCN:MeOH Ratio 50:50

Synthesis Department

In response to customer requirements, AccuStandard has developed procedures to synthesize explosives and metabolites.

Explosive Methods

Method 8330 Multi-Component Formulations for Explosive Analysis

The following A and B mixes provide better resolution between possible coeluting analytes to better optimize the HPLC system. We suggest when first performing Method 8330 development, to purchase the high concentration 14 x 1 mL set "M-8330-R-10X-SET"

Mix A

M-8330A * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 7 comps.

M-8330A-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 7 comps.

1,3-Dinitrobenzene	RDX
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
HMX	TNT
Nitrobenzene	

M-8330A-R * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 8 comps.

M-8330A-R-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 8 comps.

2-Amino-4,6-dinitrotoluene	Nitrobenzene
1,3-Dinitrobenzene	RDX
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
HMX	TNT

Composite Explosive Mixture

M-8330-R-0.1X 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 14 comps.

M-8330-R-0.5X 1 x 1 mL
0.5 mg/mL each in AcCN:MeOH (50:50) 14 comps.

1,3-Dinitrobenzene	3-Nitrotoluene
2,4-Dinitrotoluene	4-Nitrotoluene
2,6-Dinitrotoluene	Tetryl
HMX	TNT
RDX	1,3,5-Trinitrobenzene
Nitrobenzene	2-Amino-4,6-dinitrotoluene
2-Nitrotoluene	4-Amino-2,6-dinitrotoluene

Internal Standard

M-8330-IS 1 x 1 mL
M-8330-IS-PAK 5 x 1 mL

1.0 mg/mL in MeOH

3,4-Dinitrotoluene

Explosives by HPLC Set

M-8330-R-SET * 14 x 1 mL
Each at 100 µg/mL in AcCN:MeOH (50:50)

M-8330-R-10X-SET * 14 x 1 mL
Each at 1000 µg/mL in AcCN:MeOH (50:50)

1,3-Dinitrobenzene (01)	3-Nitrotoluene (08)
2,4-Dinitrotoluene (02)	4-Nitrotoluene (09)
2,6-Dinitrotoluene (03)	Tetryl (10)
HMX (04)	TNT (11)
RDX (05)	1,3,5-Trinitrobenzene (12)
Nitrobenzene (06)	2-Amino-4,6-dinitrotoluene (13)
2-Nitrotoluene (07)	4-Amino-2,6-dinitrotoluene (14)

* To delay premature breakdown of thermally labile products in transit a ColdPAK is required.

Mix B

M-8330B * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 5 comps.

M-8330B-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 5 comps.

Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene
2-Nitrotoluene	

M-8330B-R * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 7 comps.

M-8330B-R-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 7 comps.

2-Amino-4,6-dinitrotoluene	2-Nitrotoluene
4-Amino-2,6-dinitrotoluene	3-Nitrotoluene
Tetryl	4-Nitrotoluene
2,6-Dinitrotoluene	

M-8330B-R2 * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 6 comps.

M-8330B-R2-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 6 comps.

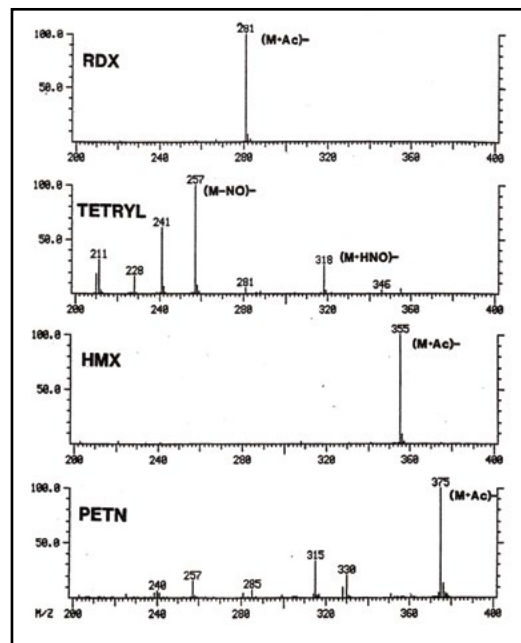
4-Amino-2,6-dinitrotoluene	2-Nitrotoluene
Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene

Surrogate Standard

M-8330-SS 1 x 1 mL

1.0 mg/mL in MeOH

1,2-Dinitrobenzene



Negative ion thermospray mass spectra for RDX, HMX, PETN and tetryl from Berberich, D.W., Yost, R.A., and Fetterhoff, D.D., J. Forensic Sci., 33, 946, 1988.

Explosive Methods

Method 529 Explosive & Related Compounds by SPE & Capillary Column GC/MS

Method 529 Calibration Curve

All in µg/mL in Ethyl acetate

M-529-	01	02	03	04	05	06	07	08	09
2-Amino-4,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Amino-2,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3,5-Dinitroaniline	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3-Dinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,4-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,6-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
RDX	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Nitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3,5-Trinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Tetryl	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
TNT	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10

Full Scan MS Calibration Set

M-529-MS-SET 6 x 1 mL
M-529-03, M-529-05, M-529-06,
M-529-07, M-529-08, M-529-09

SIM Calibration Set

M-529-SIM-SET 7 x 1 mL
M-529-01, M-529-02, M-529-03, M-529-04,
M-529-05, M-529-06, M-529-07

Storage Condition.: Freeze (<-10°C)

Internal Standard Stock Solution

M-529-IS

2.0 mg/mL Ethyl acetate

1 x 1 mL

3,4-Dinitrotoluene

Surrogate Analyte Stock Solutions

M-529-SS1

M-529-SS1-PAK

1000 µg/mL each in MeOH

SAVE

1 x 1 mL

5 x 1 mL

2 comps.

1,3,5-Trimethyl-2-nitrobenzene

1,2,4-Trimethyl-5-nitrobenzene

Internal Standard Fortification Solution

M-529-ISFS

200 µg/mL each in Ethyl acetate:AcCN (96:4)

1 x 1 mL

14 comps.

2-Amino-4,6-dinitrotoluene

Nitrobenzene

4-Amino-2,6-dinitrotoluene

2-Nitrotoluene

3,5-Dinitroaniline

3-Nitrotoluene

1,3-Dinitrobenzene

4-Nitrotoluene

2,4-Dinitrotoluene

1,3,5-Trinitrobenzene

2,6-Dinitrotoluene

Tetryl

RDX

TNT

M-529-SS2

M-529-SS2-PAK

1000 µg/mL each in CH₂Cl₂

SAVE

1 x 1 mL

5 x 1 mL

Nitrobenzene-d₅

Surrogate Analyte Fortification Solution

M-529-SAFS

100 µg/mL each in MeOH

1 x 1 mL

3 comps.

1,3,5-Trimethyl-2-nitrobenzene

Nitrobenzene-d₅

1,2,4-Trimethyl-5-nitrobenzene

Method 8095 Explosives by GC/ECD

This method is a companion to EPA Method 8330, utilizing the sensitivity and selectivity of the ECD.

Explosive Stock Solution A

M-8095-SSA-100X

M-8095-SSA-100X-PAK

100 µg/mL each in AcCN:MeOH (50:50)

SAVE

1 x 1 mL

5 x 1 mL

10 comps.

2-Amino-4,6-dinitrotoluene

1,3,5-Trinitrobenzene

4-Amino-2,6-dinitrotoluene

TNT

1,3-Dinitrobenzene

RDX

2,6-Dinitrotoluene

Tetryl

2,4-Dinitrotoluene

HMX

Explosive Stock Solution B

M-8095-SSB-100X

M-8095-SSB-100X-PAK

At stated conc. in AcCN:MeOH (50:50)

SAVE

1 x 1 mL

5 x 1 mL

7 comps.

Nitrobenzene (500 µg/mL)

Nitroglycerin (500 µg/mL)

3-Nitrotoluene (500 µg/mL)

PETN (500 µg/mL)

2-Nitrotoluene (500 µg/mL)

3,5-Dinitroaniline (100 µg/mL)

4-Nitrotoluene (500 µg/mL)

Explosive Surrogate Standards

M-8095-SS-01

M-8095-SS-01-PAK

100 µg/mL in AcCN

SAVE

1 x 1 mL

5 x 1 mL

3,4-Dinitrotoluene

M-8095-SS-03

M-8095-SS-03-PAK

100 µg/mL in AcCN

SAVE

1 x 1 mL

5 x 1 mL

2,5-Dinitrotoluene

M-8095-SS-02

M-8095-SS-02-PAK

100 µg/mL in AcCN

SAVE

1 x 1 mL

5 x 1 mL

2-Methyl-4-nitroaniline

Explosive Standards

DIN Explosive Standards

DIN 38407-21 Explosives

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection.

DIN38407-21-A 1 x 1 mL
10 µg/mL each in MeOH 12 comps.

Picric acid	Nitroglycerin
HMX	TNT
RDX	2-Nitrotoluene
Tetryl	PETN
EGDN	4-Nitrotoluene
DEGDN	3-Nitrotoluene

DIN 38407-21 Related Compounds

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection.

DIN38407-21-B 1 x 1 mL
10 µg/mL each in MeOH:AcCN (98:2) 8 comps.

1,3,5-Trinitrobenzene
1,3-Dinitrobenzene
4-Amino-2,6-dinitrotoluene
2,2',4,4',6,6'-Hexanitrodiphenylamine
2-Amino-4,6-dinitrotoluene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
Diphenylamine



Gun Surveillance Standards

Gun Surveillance Standard

EXP-GSS

At stated conc. (µg/mL) in AcCN

1 x 1 mL
9 comps.

Dimethyl phthalate	200	2,2'-Dinitrodiphenylamine	50
2,4'-Dinitrodiphenylamine	50	4,4'-Dinitrodiphenylamine	50
2,4-Dinitrodiphenylamine	50	Diphenylamine	200
2-Nitrodiphenylamine	50	N-Nitrosodiphenylamine	75
4-Nitrodiphenylamine	50		



Photo courtesy of the Connecticut Department of Emergency Services and Public Protection

Inorganic Standards for Gunshot Residue

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Aluminum	50 mL	-----	ICP-01N-10X-0.5	Tin	50 mL	-----	ICP-63N-10X-0.5
Al(NO ₃) ₃ • 9H ₂ O	100 mL	ICP-01N-1	ICP-01N-10X-1	Sn 2-5% Nitric acid tr.	100 mL	ICP-63N-1	ICP-63N-10X-1
2-5% Nitric acid	500 mL	ICP-01N-5	ICP-01N-10X-5	Hydrofluoric acid	500 mL	ICP-63N-5	ICP-63N-10X-5
Antimony	50 mL	-----	ICP-02N-10X-0.5	Zinc	50 mL	-----	ICP-70N-10X-0.5
Sb Dilute HNO ₃ tr.	100 mL	ICP-02N-1	ICP-02N-10X-1	Zn	100 mL	ICP-70N-1	ICP-70N-10X-1
Tartaric acid	500 mL	ICP-02N-5	ICP-02N-10X-5	2-5% Nitric acid	500 mL	ICP-70N-5	ICP-70N-10X-5
Barium	50 mL	-----	ICP-04N-10X-0.5				
Ba(NO ₃) ₂	100 mL	ICP-04N-1	ICP-04N-10X-1				
2-5% Nitric acid	500 mL	ICP-04N-5	ICP-04N-10X-5				
Lead	50 mL	-----	ICP-29N-10X-0.5				
Pb(NO ₃) ₂	100 mL	ICP-29N-1	ICP-29N-10X-1				
2-5% Nitric acid	500 mL	ICP-29N-5	ICP-29N-10X-5				

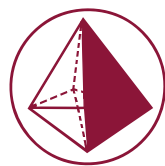
Technical Note

Gunshot residue standards may be used for ICP, ICP-MS and SEM/EDAX analysis. Custom solutions for these metals are available upon request. Contact our Technical Service Department for additional information. Organic compounds identified in the discharge of a firearm are also available. These include the 14 organic compounds listed below.

Organic Compounds for Firearm Discharge Analysis

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.
2,4-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-02-0.1X	4-Nitrodiphenylamine	100 µg/mL	AcCN	M-8330-ADD-52
C ₇ H ₆ N ₂ O ₄	1000 µg/mL	AcCN:MeOH	M-8330-02	C ₁₂ H ₁₀ N ₂ O ₂			
2,6-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-03-0.1X	1-Nitroglycerine	100 µg/mL	AcCN:MeOH	M-8330-ADD-31
C ₇ H ₆ N ₂ O ₄	1000 µg/mL	AcCN:MeOH	M-8330-03	C ₃ H ₅ N ₃ O ₉			
3,4-Dinitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-IS	2-Nitroglycerine	100 µg/mL	AcCN:MeOH	M-8330-ADD-32
C ₇ H ₆ N ₂ O ₄				C ₃ H ₅ N ₃ O ₉			
Diphenylamine	100 µg/mL	DCM	APP-9-097	N-Nitrosodiphenylamine	100 µg/mL	DCM	APP-9-150
C ₁₂ H ₁₁ N				C ₁₂ H ₁₀ N ₂ O			
Ethylcentralite	100 µg/mL	AcCN:MeOH	M-8330-ADD-50	2-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-07
C ₁₇ H ₂₀ N ₂ O				C ₇ H ₇ NO ₃			
Methylcentralite	100 µg/mL	AcCN:MeOH	M-8330-ADD-49	3-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-08
C ₁₅ H ₁₆ N ₂ O				C ₇ H ₇ NO ₃			
2-Nitrodiphenylamine	100 µg/mL	AcCN	M-8330-ADD-51	4-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-09
C ₁₂ H ₁₀ N ₂ O ₂				C ₇ H ₇ NO ₃			

See pages 1-6 for structures and physical data.



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