



EXPLOSIVES
AccuStandard

Technical Update

*Individual Standards
including TATP, HMTD,
HNS & others.*

**2009
Update**

EPA Method 8330

EPA Method 529

EPA Method 8095

DIN 38407-21

*Custom Standards &
Synthesis*

Reference Standards for the Analysis of Explosives

Explosives reference standards have classically been used for the remediation of soil and water in locations where explosives have been stored. In recent years, these standards have also been used to calibrate luggage screening detectors at airports and secure locations such as embassies. The other major use is to train animals to sniff out explosives, such as the dogs used by police departments and the military.

AccuStandard offers over 54 single analyte compounds such as TATP, TEGDN, HMTD, PETN and others. These are offered as dilute solutions. AccuStandard also offers mixtures for use when analyzing to US EPA

Methods 8330, 8095 and 529, German DIN 38407-21 and others. AccuStandard also manufactures custom formulations for unique requirements.

These explosives reference standards are shipped in a highly dilute solution form and are in compliance with all regulations from DOT, ATF&E and other authorities.

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DIN 38407-21 - Explosives and Related Compounds
Gun Surveillance Standard

Explosive Standards

Explosives

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Amino-4,6-dinitrotoluene ■	35572-78-2	1 mg/mL	AcCN:MeOH	M-8330-13	
		0.1 mg/mL	AcCN:MeOH	M-8330-13-0.1X	
4-Amino-2,6-dinitrotoluene ■	19406-51-0	1 mg/mL	AcCN:MeOH	M-8330-14	
		0.1 mg/mL	AcCN:MeOH	M-8330-14-0.1X	
Ammonium picrate	131-74-8	0.1 mg/mL	AcCN	M-8330-ADD-27	
DEGDN New	693-21-0	100 µg/mL	AcCN:MeOH	M-8330-ADD-36	
1,2-Diaminopropane	78-90-0	0.1 mg/mL	MeOH	M-8330-ADD-9	
2,4-Diamino-6-nitrotoluene ■	6629-29-4	0.1 mg/mL	AcCN	M-8330-ADD-12	
2,6-Diamino-4-nitrotoluene ■	59229-75-3	0.1 mg/mL	AcCN	M-8330-ADD-13	
2,3-Dimethyl-2,3-dinitrobutane (DMNB)	3964-18-9	100 µg/mL	AcCN	M-8330-ADD-21	
3,5-Dinitroaniline	618-87-1	0.1 mg/mL	AcCN:MeOH	M-8330-ADD-4	
1,2-Dinitrobenzene	528-29-0	1 mg/mL	MeOH	M-8330-SS	
1,3-Dinitrobenzene	99-65-0	1 mg/mL	AcCN:MeOH	M-8330-01	
		0.1 mg/mL	AcCN:MeOH	M-8330-01-0.1X	
1,2-Dinitroglycerin New	621-65-8	100 µg/mL	AcCN:MeOH	M-8330-ADD-33	
1,3-Dinitroglycerin New	623-87-0	100 µg/mL	AcCN:MeOH	M-8330-ADD-34	
2,4-Dinitrotoluene ■	12-14-2	1 mg/mL	AcCN:MeOH	M-8330-02	
		0.1 mg/mL	AcCN:MeOH	M-8330-02-0.1X	
2,6-Dinitrotoluene ■	606-20-2	1 mg/mL	AcCN:MeOH	M-8330-03	
		0.1 mg/mL	AcCN:MeOH	M-8330-03-0.1X	
3,4-Dinitrotoluene	610-39-9	1 mg/mL	MeOH	M-8330-IS	
3,5-Dinitrotoluene ■	618-85-9	100 µg/mL	AcCN:MeOH	M-8330-ADD-39	
EGDN	628-96-6	0.1 mg/mL	AcCN	M-8330-ADD-5	
Guanidine nitrate	506-93-7	0.1 mg/mL	MeOH	M-8330-ADD-10	
Hexanitrodiphenylamine New	131-73-7	100 µg/mL	AcCN:MeOH	M-8330-ADD-37	
Hexanitrostilbene (HNS) ■	20062-22-0	0.1 mg/mL	AcCN	M-8330-ADD-26	
Hexamethylenetriperoxide diamine (HMTD)	283-66-9	0.1 mg/mL	AcCN	M-8330-ADD-25	
HMX	2691-41-0	1 mg/mL	AcCN:MeOH	M-8330-04	
		0.1 mg/mL	AcCN:MeOH	M-8330-04-0.1X	
Hydrazine	302-01-2	0.1 mg/mL	MeOH	M-8330-ADD-8	
2-Hydroxylamino-4,6-dinitrotoluene ■ (3 month stability)		0.1 mg/mL	AcCN	M-8330-ADD-18	
4-Hydroxylamino-2,6-dinitrotoluene ■ (3 month stability)		0.1 mg/mL	AcCN	M-8330-ADD-20	
Nitrobenzene ■	98-95-3	1 mg/mL	AcCN:MeOH	M-8330-06	
		0.1 mg/mL	AcCN:MeOH	M-8330-06-0.1X	
N-Nitrodimethylamine New	4164-28-7	100 µg/mL	AcCN	M-8330-ADD-40	
Nitroglycerin	55-63-0	0.1 mg/mL	EtOH	M-8330-ADD-1	
		1.0 mg/mL	EtOH:MeOH (97:3)	M-8330-ADD-1-10X	
1-Nitroglycerin New	624-43-1	100 µg/mL	AcCN:MeOH	M-8330-ADD-31	
2-Nitroglycerin New	620-12-2	100 µg/mL	AcCN:MeOH	M-8330-ADD-32	
Nitroguanidine	556-88-7	0.1 mg/mL	MeOH	M-8330-ADD-6	
Nitromethane	75-52-5	0.1 mg/mL	MeOH	M-8330-ADD-7	
2-Nitrotoluene ■	88-72-2	1 mg/mL	AcCN:MeOH	M-8330-07	
		0.1 mg/mL	AcCN:MeOH	M-8330-07-0.1X	
3-Nitrotoluene ■	99-08-1	1 mg/mL	AcCN:MeOH	M-8330-08	
		0.1 mg/mL	AcCN:MeOH	M-8330-08-0.1X	
4-Nitrotoluene ■	99-99-0	1 mg/mL	AcCN:MeOH	M-8330-09	
		0.1 mg/mL	AcCN:MeOH	M-8330-09-0.1X	
PETN	78-11-5	0.1 mg/mL	MeOH	M-8330-ADD-2	
		1.0 mg/mL	MeOH	M-8330-ADD-2-10X	
Picramic acid	831-52-7	100 µg/mL	AcCN:MeOH	M-8330-ADD-22	
Picric acid	88-89-1	0.1 mg/mL	AcCN:MeOH	M-8330-ADD-3	
Propyleneglycol dinitrate	6423-43-4	100 µg/mL	MeOH	M-8330-ADD-35	
PYX	38082-89-2	0.1 mg/mL	AcCN	M-8330-ADD-11	
RDX	121-82-4	1 mg/mL	AcCN:MeOH	M-8330-05	
		0.1 mg/mL	AcCN:MeOH	M-8330-05-0.1X	
TATP	17088-37-8	0.1 mg/mL	AcCN	M-8330-ADD-24	
TEGDN New		0.1 mg/mL	AcCN	M-8330-ADD-41	
2,2',6,6'-Tetranitro-4,4'-azotoluene ■		0.1 mg/mL	AcCN	M-8330-ADD-17	
4,4',6,6'-Tetranitro-2,2'-azotoluene ■		0.1 mg/mL	AcCN	M-8330-ADD-19	
2,2',6,6'-Tetranitro-4,4'-azoxytoluene ■		0.1 mg/mL	AcCN	M-8330-ADD-15	
Tetryl	479-45-8	1 mg/mL	AcCN:MeOH	M-8330-10	
		0.1 mg/mL	AcCN:MeOH	M-8330-10-0.1X	
TNT	118-96-7	1 mg/mL	AcCN:MeOH	M-8330-11	
		0.1 mg/mL	AcCN:MeOH	M-8330-11-0.1X	
1,3,5-Triamino-2,4,6-trinitrobenzene	3058-38-6	40 µg/mL	DMF	M-8330-ADD-14-DMF	
2,4,6-Triaminotoluene trihydrochloride	634-87-7	10 mg	NEAT	M-8330-ADD-23N	
Trimethylethane trinitrate	3032-55-1	100 µg/mL	AcCN:MeOH	M-8330-ADD-28	
1,3,5-Trinitrobenzene ■	99-35-4	1 mg/mL	AcCN:MeOH	M-8330-12	
		0.1 mg/mL	AcCN:MeOH	M-8330-12-0.1X	
2,4,6-Trinitroresorcinol	82-71-3	1.0 mg/mL	AcCN:MeOH	M-8330-ADD-29	

■ TNT Metabolites

Widest selection of Explosives and their Metabolites

HMTD, TATP & HNS

EXCLUSIVELY from AccuStandard

Technical Note

AccuStandard complies with ATF and other regulations for manufacturing and shipping explosives.

Matrix Key

(SOLUTIONS in 1 mL NEATS in mg)

AcCN:MeOH in (1:1 ratio)
AcCN Acetonitrile
DMF Dimethyl formamide
EtOH Ethanol
MeOH Methanol

Explosive Standards

Method 8330 Multi-Component Formulations for Explosive Analysis

The following A and B mixes provide better resolution between possible coeluting analytes, assisting the chemist to optimize the HPLC system. We suggest that when first performing Method 8330 development, you 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 (1:1)
M-8330A-10X ‡ 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (1:1)

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

Mix B

M-8330B ‡ 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (1:1)
M-8330B-10X ‡ 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (1:1)

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

M-8330A-R ‡ 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (1:1)
M-8330A-R-10X ‡ 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (1:1)

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

M-8330B-R ‡ 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (1:1)
M-8330B-R-10X ‡ 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (1:1)

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

Composite Explosive Mixture

M-8330-R 1 x 1 mL
M-8330-R-PAK 5 x 1 mL
1.0 mg/mL each in MeOH:AcCN (1:1) **SAVE** 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

M-8330B-R2 ‡ 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (1:1)
M-8330B-R2-10X ‡ 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (1:1)

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

Internal Standard

M-8330-IS 1 x 1 mL
M-8330-IS-PAK 5 x 1 mL
1.0 mg/mL in MeOH **SAVE**

3,4-Dinitrotoluene

Explosives by HPLC Set

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

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

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)

Explosive Standards

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

1 x 1 mL

14 comps.

2-Amino-4,6-dinitrotoluene

4-Amino-2,6-dinitrotoluene

3,5-Dinitroaniline

1,3-Dinitrobenzene

2,4-Dinitrotoluene

2,6-Dinitrotoluene

RDX

Nitrobenzene

2-Nitrotoluene

3-Nitrotoluene

4-Nitrotoluene

1,3,5-Trinitrobenzene

Tetryl

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

1,2,4-Trimethyl-5-nitrobenzene

Nitrobenzene-d₅

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 (1:1)

SAVE

1 x 1 mL

5 x 1 mL

10 comps.

2-Amino-4,6-dinitrotoluene

4-Amino-2,6-dinitrotoluene

1,3-Dinitrobenzene

2,6-Dinitrotoluene

2,4-Dinitrotoluene

1,3,5-Trinitrobenzene

TNT

RDX

Tetryl

HMX

Explosive Stock Solution B

M-8095-SSB-100X

M-8095-SSB-100X-PAK

At stated conc. in AcCN:MeOH (1:1)

SAVE

1 x 1 mL

5 x 1 mL

7 comps.

Nitrobenzene (500 µg/mL)

3-Nitrotoluene (500 µg/mL)

2-Nitrotoluene (500 µg/mL)

4-Nitrotoluene (500 µg/mL)

Nitroglycerin (500 µg/mL)

PETN (500 µg/mL)

3,5-Dinitroaniline (100 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 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 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		

Synthesis Department

We developed the procedures and synthesized these Explosives and Metabolites in response to customer requirements.



AccuStandard®

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ISO 17025
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