

SAM 2012 Appendix A: Selected Chemical Methods

The fitness of a method for an intended use is related to site-specific data quality objectives (DQOs) for a particular environmental remediation activity. These selected chemical methods have been assigned the tiers (below) to indicate a level of method usability for the specific analyte and sample type. The assigned tiers reflect the conservative view for DQOs involving timely implementation of methods for analysis of a high number of samples (such that multiple laboratories are necessary), low limits of identification and quantification, and appropriate quality control.

Tier I: Analyte/sample type is a target of the method(s). Data are available for all aspects of method performance and quality control measures supporting its use for analysis of environmental samples following a contamination event. Evaluation and/or use of the method(s) in multiple laboratories indicate that the method can be implemented with no additional modifications for the analyte/sample type.

Tier II: (1) The analyte/sample type is a target of the method(s) and the method(s) has been evaluated for the analyte/sample type by one or more laboratories, or (2) the analyte/sample type is not a target of the method(s), but the method has been used by laboratories to address the analyte/sample type. In either case, available data and/or information indicate that modifications will likely be needed for use of the method(s) to address the analyte/sample type.

Tier III: The analyte/sample type is not a target of the method(s), and/or no reliable data supporting the method's fitness for its intended use are available. Data from other analytes or sample types, however, suggest that the method(s), with significant modification, may be applicable.

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Acephate	30560-19-1	LC-MS-MS	Sample Prep	Adapted from J. Chromatogr. A, (2007) 1154(1): 3-25	II	Adapted from Chromatographia, 63(5/6): 233-237	II	538 (EPA OW)	I	Adapted from J. Chromatogr. A, (2007) 1154(1): 3-25	III	Adapted from J. Chromatogr. A, (2007) 1154(1): 3-25	III
			Determinative										
Acrylamide	79-06-1	HPLC	Sample Prep	Water extraction	III	8316 (EPA SW-846)	II	8316 (EPA SW-846)	II	PV2004 (OSHA)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8316 (EPA SW-846)								8316 (EPA SW-846)	
Acrylonitrile	107-13-1	HPLC / GC-MS	Sample Prep	5035A (EPA SW-846)	II	524.2 (EPA OW)	II	524.2 (EPA OW)	II	PV2004 (OSHA)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8260C (EPA SW-846)								8260C (EPA SW-846)	
Aldicarb (Temik)	116-06-3	HPLC	Sample Prep	8318A (EPA SW-846)	II	D7645-10 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8318A (EPA SW-846)	
Aldicarb sulfone	1646-88-4	HPLC	Sample Prep	8318A (EPA SW-846)	II	D7645-10 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8318A (EPA SW-846)	
Aldicarb sulfoxide	1646-87-3	HPLC	Sample Prep	8318A (EPA SW-846)	III	D7645-10 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8318A (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Allyl alcohol	107-18-6	GC-MS	Sample Prep	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	TO-15 ¹ (EPA ORD)	III	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)		8260C (EPA SW-846)					
4-Aminopyridine	504-24-5	HPLC	Sample Prep	8330B (EPA SW-846)	III	3535A/8330B (EPA SW-846)	III	3535A/8330B (EPA SW-846)	III	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative			8330B (EPA SW-846)		8330B (EPA SW-846)				8330B (EPA SW-846)	
Ammonia	7664-41-7	Visible spectrophotometry	Sample Prep	Not of concern	NA	4500-NH ₃ B (SM)	I	350.1 (EPA OW)	I	6015 (NIOSH)	I	Not of concern	NA
			Determinative			4500- NH ₃ G (SM)							
Ammonium metavanadate (analyze as total vanadium)	7803-55-6	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Arsenic, Total	7440-38-2	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Arsenic trioxide (analyze as total arsenic)	1327-53-3	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Arsine (analyze as total arsenic in non-air samples)	7784-42-1	GFAA / ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	6001 (NIOSH)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)								6010C/6020A (EPA SW-846)	
Asbestos	1332-21-4	TEM	Sample Prep	D5755-03 (soft surfaces-microvac) (ASTM)	III	Not of concern	NA	Not of concern	NA	10312:1995 (ISO)	I	D6480-05 (hard surfaces-wipes) (ASTM)	I
			Determinative										
Boron trifluoride	7637-07-2	ISE	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	ID216SG (OSHA)	I	Not of concern	NA
			Determinative										
Brodifacoum	56073-10-0	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	D7644-10 (ASTM)	II	D7644-10 (ASTM)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)								8321B (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Bromadiolone	28772-56-7	HPLC / LC-MS-MS	Sample Prep	3541/3545A (EPA SW-846)	III	D7644-10 (ASTM)	II	D7644-10 (ASTM)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)								8321B (EPA SW-846)	
BZ [Quinuclidinyl benzilate]	6581-06-2	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	II	3520C/3535A (EPA SW-846)	II	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)		8321B (EPA SW-846)		8321B (EPA SW-846)				8321B (EPA SW-846)	
Calcium arsenate (analyze as total arsenic)	7778-44-1	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Carbofuran (Furadan)	1563-66-2	HPLC / LC-MS-MS	Sample Prep	8318A (EPA SW-846)	II	D7645-10 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8318A (EPA SW-846)	
Carbon disulfide	75-15-0	GC-MS	Sample Prep	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	524.2 (EPA OW)	I	TO-15 (EPA ORD)	I	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)							
Carfentanil	59708-52-0	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)		8321B (EPA SW-846)		8321B (EPA SW-846)					
Chlorfenvinphos	470-90-6	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Chlorine	7782-50-5	Visible spectrophotometry	Sample Prep	Not of concern	NA	4500-Cl G (SM)	I	4500-Cl G (SM)	I	Adapted from Analyst (1999) 124(12): 1853-1857	II	Not of concern	NA
			Determinative							4500-Cl G (SM)			
2-Chloroethanol	107-07-3	GC-MS / GC-FID	Sample Prep	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	2513 (NIOSH)	I	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)		8260C (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples	Aqueous Liquid Samples	Drinking Water Samples	Air Samples	Wipes					
3-Chloro-1,2-propanediol	96-24-2	GC-MS	Sample Prep	Adapted from Eur. J. Lipid Sci. Technol. (2011) 113: 345-355	II	Adapted from J. Chromatogr. A (2000) 866: 65-77	II	Adapted from J. Chromatogr. A (2000) 866: 65-77	II	TO-10A ² (EPA ORD)	III	Adapted from Eur. J. Lipid Sci. Technol. (2011) 113: 345-355	III
			Determinative										
Chloropicrin	76-06-2	GC-MS / GC-ECD	Sample Prep	3570 (EPA SW-846)	II	551.1 (EPA OW)	I	551.1 (EPA OW)	I	PV2103 (OSHA)	I	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D ³ (EPA SW-846)								8270D ³ (EPA SW-846)	
Chlorosarin	1445-76-7	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A ² (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Chlorosoman	7040-57-5	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A ² (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
2-Chlorovinylarsonous acid (2-CVAA) (degradation product of Lewisite) (analyze as total arsenic)	85090-33-1	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Chlorpyrifos	2921-88-2	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	525.2 (EPA OW)	II	TO-10A (EPA ORD)	I	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)						8270D (EPA SW-846)	
Chlorpyrifos oxon	5598-15-2	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	525.2 (EPA OW)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)						8270D (EPA SW-846)	
Crimidine	535-89-7	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	3511 (EPA SW-846)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D ⁴ (EPA SW-846)		8270D ⁴ (EPA SW-846)		8270D ⁴ (EPA SW-846)					
Cyanide, Amenable to chlorination	NA	Visible spectrophotometry	Sample Prep	3135.2I (EPA RLAB)	I	3135.2I (EPA RLAB)	I	3135.2I (EPA RLAB)	I	Not of concern	NA	3135.2I (EPA RLAB)	III
			Determinative										
Cyanide, Total	57-12-5	Visible spectrophotometry	Sample Prep	ISM01.3 CN (EPA CLP)	I	ISM01.3 CN (EPA CLP)	I	335.4 (EPA OW)	I	6010 (NIOSH)	I	ISM01.3 CN (EPA CLP)	III
			Determinative										

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Cyanogen chloride	506-77-4	GC-MS/GC-ECD	Sample Prep	Adapted from Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780470027318.a0809	II	Adapted from Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780470027318.a0809	II	Adapted from Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780470027318.a0809	II	TO-15 (EPA ORD)	III	Not of concern	NA
			Determinative										
Cyclohexyl sarin (GF)	329-99-7	GC-MS	Sample Prep	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*
			Determinative										
1,2-Dichloroethane (degradation product of HD)	107-06-2	GC-MS	Sample Prep	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	524.2 (EPA OW)	I	TO-15 (EPA ORD)	I	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)							
Dichlorvos	62-73-7	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	525.2 (EPA OW)	I	TO-10A (EPA ORD)	I	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)						8270D (EPA SW-846)	
Dicrotophos	141-66-2	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	I	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Diesel range organics	NA	GC-FID	Sample Prep	3541/3545A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative	8015C (EPA SW-846)		8015C (EPA SW-846)		8015C (EPA SW-846)					
Diisopropyl methylphosphonate (DIMP) (degradation product of GB)	1445-75-6	HPLC / LC-MS-MS	Sample Prep	E2866-12 (ASTM)	II	D7597-09 (ASTM)	II	538 (EPA OW)	I	TO-10A ² (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	II
			Determinative									8321B (EPA SW-846)	
Dimethylphosphite	868-85-9	GC-MS	Sample Prep	3570 (EPA SW-846)	II	Not of concern	NA	Not of concern	NA	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)								8270D (EPA SW-846)	
Dimethylphosphoramidic acid (degradation product of GA)	33876-51-6	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)		8321B (EPA SW-846)		8321B (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Diphacinone	82-66-6	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	D7644-10 (ASTM)	II	D7644-10 (ASTM)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)								8321B (EPA SW-846)	
Disulfoton	298-04-4	GC-MS / GC-FPD	Sample Prep	3570 (EPA SW-846)	II	525.2 (EPA OW)	II	525.2 (EPA OW)	II	5600 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)								8270D (EPA SW-846)	
Disulfoton sulfone oxon ⁵	2496-91-5	GC-MS / GC-FPD	Sample Prep	3541/3545A (EPA SW-846)	III	525.2 (EPA OW)	III	525.2 (EPA OW)	III	5600 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)								8270D (EPA SW-846)	
Disulfoton sulfoxide	2497-07-6	GC-MS / GC-FPD	Sample Prep	3541/3545A (EPA SW-846)	III	525.2 (EPA OW)	II	525.2 (EPA OW)	II	5600 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)								8270D (EPA SW-846)	
Disulfoton sulfoxide oxon ⁵	2496-92-6	GC-MS / GC-FPD	Sample Prep	3541/3545A (EPA SW-846)	III	525.2 (EPA OW)	III	525.2 (EPA OW)	III	5600 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)								8270D (EPA SW-846)	
1,4-Dithiane (degradation product of HD)	505-29-3	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	3511 (EPA SW-846)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
EA2192 [S-2-(diisopropylamino)ethyl methylphosphonothioic acid] (hydrolysis product of VX)	73207-98-4	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)		8321B (EPA SW-846)		8321B (EPA SW-846)					
Ethyl methylphosphonic acid (EMPA) (degradation product of VX)	1832-53-7	HPLC / LC-MS-MS	Sample Prep	E2866-12 (ASTM)	II	D7597-09 (ASTM)	II	D7597-09 (ASTM)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	II
			Determinative									8321B (EPA SW-846)	
Ethylchloroarsine (ED)	598-14-1	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-15 (EPA ORD)	III	9102 (NIOSH)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)	139-87-7	HPLC / LC-MS-MS	Sample Prep	3541/3545A (EPA SW-846)	III	D7599-09 (ASTM)	II	D7599-09 (ASTM)	III	TO-10A (EPA ORD)	III	EPA 600/R-11/143 (EPA/NIOSH)	II
			Determinative	8321B (EPA SW-846)									
Ethylene oxide	75-21-8	GC-MS	Sample Prep	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	TO-15 (EPA ORD)	I	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)		8260C (EPA SW-846)					
Fenamiphos	22224-92-6	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	525.2 (EPA OW)	I	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)						8270D (EPA SW-846)	
Fentanyl	437-38-7	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	II	3520C/3535A (EPA SW-846)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)		8321B (EPA SW-846)		8321B (EPA SW-846)				8321B (EPA SW-846)	
Fluoride	16984-48-8	IC-conductivity detection	Sample Prep	Not of concern	NA	300.1, Rev 1.0 (EPA OW)	I	300.1, Rev 1.0 (EPA OW)	I	Not of concern	NA	Not of concern	NA
			Determinative										
Fluoroacetamide	640-19-7	GC-MS	Sample Prep	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	II	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	II	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	II	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	III	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	III
			Determinative										
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)	NA	LC-MS	Sample Prep	Adapted from J. Chromatogr. A (2007) 1139: 271-278	III	Adapted from J. Chromatogr. B (2010) 878: 1045-1050	III	Adapted from J. Chromatogr. B (2010) 878: 1045-1050	III	S301-1 (NIOSH)	III	Adapted from J. Chromatogr. A (2007) 1139: 271-278	III
			Determinative							Adapted from J. Chromatogr. A (2007) 1139: 271-278			
2-Fluoroethanol	371-62-0	GC-MS / GC-FID	Sample Prep	5035A (EPA SW-846)	III	5030C (EPA SW-846)	III	5030C (EPA SW-846)	III	2513 (NIOSH)	III	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)		8260C (EPA SW-846)					
Formaldehyde	50-00-0	FGC-ECD / HPLC	Sample Prep	8315A (EPA SW-846)	I	8315A (EPA SW-846)	I	556.1 (EPA OW)	I	2016 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8315A (EPA SW-846)	
Gasoline range organics	NA	GC-FID	Sample Prep	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	5030C (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative	8015C (EPA SW-846)		8015C (EPA SW-846)		8015C (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	HPLC	Sample Prep	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative			8330B (EPA SW-846)		8330B (EPA SW-846)				8330B (EPA SW-846)	
Hexamethylenetriperoxidediamine (HMTD)	283-66-9	LC-MS	Sample Prep	8330B (EPA SW-846)	II	3535A/8330B (EPA SW-846)	II	3535A/8330B (EPA SW-846)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	Adapted from Analyst (2001) 126:1689- 1693		Adapted from Analyst (2001) 126:1689- 1693		Adapted from Analyst (2001) 126:1689- 1693				Adapted from Analyst (2001) 126:1689- 1693	
Hydrogen bromide	10035-10-6	IC-conductivity detection	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	7903 (NIOSH)	I	Not of concern	NA
			Determinative										
Hydrogen chloride	7647-01-0	IC-conductivity detection	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	7903 (NIOSH)	I	Not of concern	NA
			Determinative										
Hydrogen cyanide	74-90-8	Visible spectrophotometry	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	6010 (NIOSH)	I	Not of concern	NA
			Determinative										
Hydrogen fluoride	7664-39-3	IC-conductivity detection	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	7903 ⁶ (NIOSH)	I	Not of concern	NA
			Determinative										
Hydrogen sulfide	7783-06-4	IC-conductivity detection	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	6013 (NIOSH)	I	Not of concern	NA
			Determinative										
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)	1832-54-8	HPLC / LC-MS-MS	Sample Prep	E2866-12 (ASTM)	II	D7597-09 (ASTM)	II	D7597-09 (ASTM)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	II
			Determinative									8321B (EPA SW-846)	
Kerosene	64742-81-0	GC-FID	Sample Prep	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	5030C (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative	8015C (EPA SW-846)		8015C (EPA SW-846)		8015C (EPA SW-846)					
Lead arsenate (analyze as total arsenic)	7645-25-2	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Lewisite 1 (L-1) ⁷ [2-chlorovinyl]dichloroarsine (analyze as total arsenic)	541-25-3	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Lewisite 2 (L-2) [bis(2-chlorovinyl)chloroarsine] (analyze as total arsenic)	40334-69-8	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Lewisite 3 (L-3) [tris(2-chlorovinyl)arsine] (analyze as total arsenic)	40334-70-1	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Lewisite oxide (degradation product of Lewisite) (analyze as total arsenic)	1306-02-1	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Mercuric chloride (analyze as total mercury)	7487-94-7	Visible spectrophotometry / CVAA / CVAFS	Sample Prep	7473 ⁸ (EPA SW-846)	I	245.1 ⁹ (EPA OW)	I	245.1 (EPA OW)	I	Not of concern	NA	9102 (NIOSH)	I
			Determinative									7473 ⁸ (EPA SW-846)	
Mercury, Total	7439-97-6	Visible spectrophotometry / CVAA / CVAFS	Sample Prep	7473 ⁸ (EPA SW-846)	I	245.1 ⁹ (EPA OW)	I	245.1 (EPA OW)	I	IO-5 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative									7473 ⁸ (EPA SW-846)	
Methamidophos	10265-92-6	LC-MS-MS	Sample Prep	Adapted from J. Chromatogr. A (2007) 1154(1): 3-25	II	Adapted from Chromatographia (2006) 63(5/6): 233-237	II	538 (EPA OW)	I	Adapted from J. Chromatogr. A (2007) 1154(1): 3-25	III	Adapted from J. Chromatogr. A (2007) 1154(1): 3-25	III
			Determinative										
Methomyl	16752-77-5	HPLC / LC-MS-MS	Sample Prep	8318A (EPA SW-846)	II	D7645-10 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8318A (EPA SW-846)	
Methoxyethylmercuric acetate (analyze as total mercury)	151-38-2	Visible spectrophotometry / CVAA / CVAFS	Sample Prep	7473 ⁸ (EPA SW-846)	I	245.1 ⁹ (EPA OW)	I	245.1 (EPA OW)	I	IO-5 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative									7473 ⁸ (EPA SW-846)	
Methyl acrylonitrile	126-98-7	HPLC / GC-MS	Sample Prep	5035A (EPA SW-846)	II	524.2 (EPA OW)	II	524.2 (EPA OW)	II	PV2004 (OSHA)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8260C (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Methyl fluoroacetate (analyze as fluoroacetate ion)	453-18-9	LC-MS	Sample Prep	J. Chromatogr. A (2007) 1139: 271-278	III	J. Chromatogr. B (2010) 878: 1045-1050	III	J. Chromatogr. B (2010) 878: 1045-1050	III	S301-1 (NIOSH)	III	J. Chromatogr. A (2007) 1139: 271-278	III
			Determinative							J. Chromatogr. A (2007) 1139: 271-278			
Methyl hydrazine	60-34-4	Visible spectrophotometry/ HPLC-UV	Sample Prep	3541/3545A (EPA SW-846)	III	J. Chromatogr. (1993) 617: 157-162	II	J. Chromatogr. (1993) 617: 157-162	II	3510 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	J. Chromatogr. (1993) 617: 157-162								J. Chromatogr. (1993) 617: 157-162	
Methyl isocyanate	624-83-9	HPLC	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	OSHA 54	I	Not of concern	NA
			Determinative										
Methyl paraoxon	950-35-6	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Methyl parathion	298-00-0	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	I	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Methylamine	74-89-5	HPLC	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	OSHA 40	I	Not of concern	NA
			Determinative										
N-Methyldiethanolamine (MDEA) (degradation product of HN-2)	105-59-9	HPLC / LC-MS-MS	Sample Prep	3541/3545A (EPA SW-846)	III	D7599-09 (ASTM)	II	D7599-09 (ASTM)	III	TO-10A (EPA ORD)	III	EPA 600/R-11/143 (EPA/NIOSH)	II
			Determinative	8321B (EPA SW-846)									
1-Methylethyl ester ethylphosphonofluoridic acid (GE)	1189-87-3	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A ² (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)	993-13-5	HPLC	Sample Prep	E2866-12 (ASTM)	II	D7597-09 (ASTM)	II	D7597-09 (ASTM)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	II
			Determinative									8321B (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Mevinphos	7786-34-7	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	525.2 (EPA OW)	I	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)						8270D (EPA SW-846)	
Monocrotophos	6923-22-4	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Mustard, nitrogen (HN-1) [bis(2-chloroethyl)ethylamine]	538-07-8	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Mustard, nitrogen (HN-2) [2,2'-dichloro-N-methyldiethylamine N,N-bis(2-chloroethyl)methylamine]	51-75-2	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Mustard, nitrogen (HN-3) [tris(2-chloroethyl)amine]	555-77-1	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Mustard, sulfur / Mustard gas (HD)	505-60-2	GC-MS	Sample Prep	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*
			Determinative										
Nicotine compounds (analyze as nicotine)	54-11-5	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	II	3535A (EPA SW-846)	II	3535A (EPA SW-846)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	HPLC	Sample Prep	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative			8330B (EPA SW-846)		8330B (EPA SW-846)					
Osmium tetroxide (analyze as total osmium)	20816-12-0	ICP-AES	Sample Prep	3050B (EPA SW-846)	II	200.7/200.8 (EPA OW)	II	200.7/200.8 (EPA OW)	II	IO-3.1 (EPA ORD)	II	9102 (NIOSH)	III
			Determinative	6010C (EPA SW-846)						IO-3.4 (EPA ORD)		6010C (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Oxamyl	23135-22-0	HPLC / LC-MS-MS	Sample Prep	8318A (EPA SW-846)	II	D7645-10 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									8318A (EPA SW-846)	
Paraoxon	311-45-5	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Paraquat	4685-14-7	HPLC-UV/LC-MS-MS	Sample Prep	Adapted from J. Chromatogr. A (2008) 1196-1197: 110-116	II	549.2 (EPA OW)	I	549.2 (EPA OW)	I	Not of concern	NA	Adapted from J. Chromatogr. A (2008) 1196-1197: 110-116	III
			Determinative										
Parathion	56-38-2	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Pentaerythritol tetranitrate (PETN)	78-11-5	HPLC	Sample Prep	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative			8330B (EPA SW-846)		8330B (EPA SW-846)					
Phencyclidine	77-10-1	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	3511 (EPA SW-846)	II	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Phorate	298-02-2	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Phorate sulfone	2588-04-7	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					
Phorate sulfone oxon ⁵	2588-06-9	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Phorate sulfoxide	2588-03-6	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Phorate sulfoxide oxon ⁵	2588-05-8	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Phosgene	75-44-5	GC-NPD	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	OSHA 61	I	Not of concern	NA
			Determinative										
Phosphamidon	13171-21-6	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Phosphine	7803-51-2	Visible spectrophotometry	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	6002 (NIOSH)	I	Not of concern	NA
			Determinative										
Phosphorus trichloride	7719-12-2	Visible spectrophotometry	Sample Prep	Not of concern	NA	Not of concern	NA	Not of concern	NA	6402 (NIOSH)	I	Not of concern	NA
			Determinative										
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)	616-52-4	HPLC / LC-MS-MS	Sample Prep	E2866-12 (ASTM)	II	D7597-09 (ASTM)	II	D7597-09 (ASTM)	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	II
			Determinative									8321B (EPA SW-846)	
Propylene oxide	75-56-9	GC-MS / GC-FID	Sample Prep	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	1612 (NIOSH)	I	Not of concern	NA
			Determinative	8260C (EPA SW-846)		8260C (EPA SW-846)		8260C (EPA SW-846)					
R 33 (VR) [methylphosphonothioic acid, S-[2- (diethylamino)ethyl] O-2-methylpropyl ester]	159939-87-4	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Sarin (GB)	107-44-8	GC-MS	Sample Prep	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*
			Determinative										

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
Sodium arsenite (analyze as total arsenic)	7784-46-5	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
Sodium azide (analyze as azide ion)	26628-22-8	IC CD	Sample Prep	Adapted from J. Forensic Sci. (1998) 43(1): 200-202 ¹⁰	II	Adapted from J. Forensic Sci. (1998) 43(1): 200-202 ¹⁰	II	Adapted from J. Forensic Sci. (1998) 43(1): 200-202 ¹⁰	II	ID-211 (OSHA)	I	ID-211 (OSHA)	I
			Determinative	300.1, Rev 1.0 ¹¹ (EPA OW)									
Soman (GD)	96-64-0	GC-MS	Sample Prep	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*	CWA Protocol (EPA NHRSC)	*
			Determinative										
Strychnine	57-24-9	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Tabun (GA)	77-81-6	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3535A (EPA SW-846)	III ¹³	3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Tetraethyl pyrophosphate (TEPP)	107-49-3	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	3511 (EPA SW-846)	II	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
Tetramethylenedisulfotetramine (TETS)	80-12-6	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	EPA 600/R-11/091 (EPA/CDC)	II	TO-10A (EPA ORD)	II	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D ³ (EPA SW-846)		8270D ³ (EPA SW-846)						8270D ³ (EPA SW-846)	
Thallium sulfate (analyze as total thallium)	10031-59-1	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6020A/6010C (EPA SW-846)	
Thiodiglycol (TDG) (degradation product of HD)	111-48-8	HPLC / LC-MS-MS	Sample Prep	E2787-11 (ASTM)	II	D7598-09 (ASTM)	II	D7598-09 (ASTM)	III	TO-10A (EPA ORD)	III	E2838-11 (ASTM)	II
			Determinative										
Thiofanox	39196-18-4	HPLC	Sample Prep	3541/3545A (EPA SW-846)	III	D7645-10 (ASTM)	II	538 (EPA OW)	I	5601 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8321B (EPA SW-846)								8321B (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples		Wipes	
1,4-Thioxane (degradation product of HD)	15980-15-1	GC-MS	Sample Prep	3570 (EPA SW-846)	II	3511 (EPA SW-846)	II	3511 (EPA SW-846)	II	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	II
			Determinative	8270D ¹² (EPA SW-846)		8270D ¹² (EPA SW-846)		8270D ¹² (EPA SW-846)				8270D ¹² (EPA SW-846)	
Titanium tetrachloride (analyze as total titanium)	7550-45-0	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	Not of concern	NA	Not of concern	NA	Not of concern	NA	9102 (NIOSH)	III
			Determinative	6010C/6020A (EPA SW-846)								6010C/6020A (EPA SW-846)	
Triethanolamine (TEA) (degradation product of HN-3)	102-71-6	HPLC / LC-MS-MS	Sample Prep	3541/3545A (EPA SW-846)	III	D7599-09 (ASTM)	II	D7599-09 (ASTM)	III	TO-10A (EPA ORD)	III	EPA 600/R-11/143 (EPA/NIOSH)	II
			Determinative	8321B (EPA SW-846)									
Trimethyl phosphite	121-45-9	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III	Not of concern	NA	Not of concern	NA	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Determinative	8270D ³ (EPA SW-846)								8270D ³ (EPA SW-846)	
1,3,5-Trinitrobenzene (1,3,5-TNB)	99-35-4	HPLC	Sample Prep	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative			8330B (EPA SW-846)		8330B (EPA SW-846)				8330B (EPA SW-846)	
2,4,6-Trinitrotoluene (2,4,6-TNT)	118-96-7	HPLC	Sample Prep	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern	NA	3570/8290A Appendix A (EPA SW-846)	I
			Determinative			8330B (EPA SW-846)		8330B (EPA SW-846)				8330B (EPA SW-846)	
Vanadium pentoxide (analyze as total vanadium)	1314-62-1	ICP-AES / ICP-MS	Sample Prep	3050B (EPA SW-846)	I	200.7/200.8 (EPA OW)	I	200.7/200.8 (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			Determinative	6010C/6020A (EPA SW-846)						IO-3.4/IO-3.5 (EPA ORD)		6010C/6020A (EPA SW-846)	
VE [phosphonothioic acid, ethyl-, S-(2-(diethylamino)ethyl) O-ethyl ester]	21738-25-0	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
VG [phosphonothioic acid, S-(2-(diethylamino)ethyl) O,O-diethyl ester]	78-53-5	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Method Type	Solid Samples		Aqueous Liquid Samples		Drinking Water Samples		Air Samples	Wipes		
VM [phosphonothioic acid, methyl-, S-(2-(diethylamino)ethyl) O-ethyl ester]	21770-86-5	GC-MS	Sample Prep	3541/3545A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	3520C/3535A (EPA SW-846)	III ¹³	TO-10A (EPA ORD)	III ¹³	3570/8290A Appendix A (EPA SW-846)	III ¹³
			Determinative	8270D (EPA SW-846)		8270D (EPA SW-846)		8270D (EPA SW-846)				8270D (EPA SW-846)	
VX [O-ethyl-S-(2-diisopropylaminoethyl)methyl-phosphonothiolate]	50782-69-9	GC-MS	Sample Prep	CWA Protocol (EPA NHSRC)	*	CWA Protocol (EPA NHSRC)	*	CWA Protocol (EPA NHSRC)	*	CWA Protocol (EPA NHSRC)	*	CWA Protocol (EPA NHSRC)	*
			Determinative										
White phosphorus	12185-10-3	GC-NPD / GC-FPD	Sample Prep	7580 (EPA SW-846)	I	7580 (EPA SW-846)	I	7580 (EPA SW-846)	I	7905 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			Determinative									7580 (EPA SW-846)	

* Only laboratories approved under the ERLN umbrella are designated for handling the CWA standards needed for this method. For access to the nearest ERLN laboratory specially trained and equipped for CWA analysis, contact the EPA Headquarters Emergency Operations Center (EPA/HQ-EOC) at 202-564-3850.

Footnotes

- ¹ If problems occur when using this method, TO-10A should be used.
- ² If problems occur when using this method, the canister Method TO-15 should be used.
- ³ If problems occur with analyses, lower the injection temperature.
- ⁴ If problems occur when using this method, SW-846 Method 8321B should be used as the Determinative method. Sample preparation methods should remain the same.
- ⁵ If problems occur during measurement of oxon compounds, analysts should consider use of procedures included in Kamal, A. *et al.*, "Oxidation of selected organophosphate pesticides during chlorination of simulated drinking water." *Water Research*. 2009. 43(2): 522-534. <http://www.sciencedirect.com/science/journal/00431354>.
- ⁶ If problems occur when using this method, NIOSH Method 7906 should be used.
- ⁷ Laboratory testing is currently under way for speciation of Lewisite 1 using GC-MS techniques.
- ⁸ If equipment is not available or problems occur when analyzing solid and wipe samples, use CVAA Method 7471B (EPA SW-846).
- ⁹ If problems occur when using EPA Method 245.1 for these analytes during preparation and analysis of aqueous liquid samples, refer to EPA Method 7470A (SW-846).
- ¹⁰ Water extraction, filtration and acidification steps from the *Journal of Forensic Science*. 1998. 43(1): 200-202 should be used for the preparation of solid samples. Filtration and acidification steps from this journal should be used for preparation of aqueous liquid and drinking water samples.
- ¹¹ If analyses are problematic, refer to column manufacturer for alternate conditions.
- ¹² If problems occur when using this method, SW-846 Method 8260C and appropriate corresponding sample preparation procedures (i.e., 5035A for solid samples, and 5030C for aqueous liquid and drinking water samples) should be used.
- ¹³ Data are not available for this analyte/sample type using this method. However, the referenced SW-846 method or the CWA Protocol may be applicable.