Introduction

This guide includes most hazardous substances, including their current Workplace Exposure Limits at the time of printing (where applicable). For the most up-to-date version of this guide, please visit our website at www.skcltd.com. For a full list of Workplace Exposure Limits, please consult EH40, available from HSE books or www.hse.gov.uk. This guide should not be used as an alternative to obtaining a copy of EH40 and reading the full supplementary data it contains.

The following statements are taken directly from EH40 Workplace Exposure Limits.

Workplace Exposure Limits (WELs)

WELs are British occupational exposure limits and are set in order to help protect the health of workers. WELs are concentrations of hazardous substances in the air, averaged over a specified period of time, referred to as a time-weighted average (TWA). Two time periods are used: long-term (**8 hours**) and short-term (**15 minutes**).

Short-term exposure limits (STELs) are set to help prevent effects such as eye irritation, which may occur following exposure for a few minutes.

WELs and the Control of Substances Hazardous to Health Regulations 2002 (COSHH)

Substances that have been assigned a WEL are subject to the requirements of COSHH. These regulations require employers to prevent or control exposure to hazardous substances. For further information, go to www.hse.gov.uk/coshh. Under COSHH, control is defined as adequate only if a) the principles of good control practice are applied, b) any WEL is not exceeded, and c) exposure to asthmagens, carcinogens, and mutagens are reduced as low as is reasonably practicable.

The absence of a substance from the list of WELs does not indicate that it is safe. For these substances, exposure should be controlled to a level to which nearly all the working population could be exposed, day after day at work, without any adverse effects on health.

As part of the assessment required under regulation 6 of COSHH, employers should determine their own working practices and in-house standards for control of exposure. In some cases, there may be sufficient information available for employers to set an 'in-house' working standard, e.g., from manufacturers and suppliers of the substances, publications of industry associations, occupational medicine and hygiene journals, and other agencies such as NIOSH and OSHA.

		SAMPLING									
		WEL		Vol. (liter)		Rate (ml/min)		Time			
Chemical Hazard	MDHS Method No.	TWA (ppm)	STEL (ppm)	TWA	STEL	TWA	STEL	TWA (hr)	STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Acetaldehyde	102	20 ppm (37 mg/m³)	50 ppm (92 mg/m³)			1000		8	15	HPLC	CF/CST 225-9003 or ST 226-119 or ST 226-120 37
Acetaldehyde	102	20 ppm (37 mg/m³)	50 ppm (92 mg/m³)	diffusive	diffusive	diffusive	diffusive			HPLC	PS 500-100 67
Acetic acid	96			24		50		8		GC-FID	ST 226-01 35
Acetic anhydride	*See OSHA 102*	0.5 ppm (2.5 mg/m³)	2 ppm (10 mg/m³)	7.5	7.5	50	500	2.5	15	GC-NPD	CF/CST 225-9010 61 C/HLD 225-1 87
Acetic anhydride	*See OSHA 82*	0.5 ppm (2.5 mg/m³)	2 ppm (10 mg/m³)	0.75		50		15 min		GC-NPD	CF/CST 225-9009 61 C/HLD 225-1 87
Acetone	88	500 ppm (1210 mg/m³)	1500 ppm (3620 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Acetone	96	500 ppm (1210 mg/m³)	1500 ppm (3620 mg/m³)	2	0.75	20	50	100 min	15	GC-FID	ST 226-01 35
Acetonitrile	88	40 ppm (68 mg/m³)	60 ppm (102 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Acetonitrile	96	40 ppm (68 mg/m³)	60 ppm (102 mg/m³)	10		20 (50)		8 (3.3)		GC-FID	ST 226-09 35
o-Acetylsalicylic acid	14/3	5mg/m³		120		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Acrolein (acrylaldehyde)	*See OSHA 52/ NIOSH 2501*	0.1 ppm (0.23 mg/m³)	0.3 ppm (0.7 mg/m³)							GC-NPD	ST 226-117 OR ST 226-118 37
Acrylamide	57	0.3 mg/m³		50	3	100	200	8	15	HPLC-UV	IMP 225-36-1 59 IT 225-22 59
Acrylonitrile	88	2 ppm (4.4 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Acrylonitrile	96	2 ppm (4.4 mg/m³)		24		50		8		GC-FID	ST 226-01 35
Allyl alcohol	88	2 ppm (4.8 mg/m³)	4 ppm (9.7 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Allyl alcohol	96	2 ppm (4.8 mg/m³)	4 ppm (9.7 mg/m³)	10	3	20 (50)	200	8 (3.3)	15	GC-FID	ST 226-01 35
Aluminium alkyl compounds	*See OSHA ID-121*	2 ppm		960		2000		8		AAS	F/CST 225-3-01 77
Aluminium metal (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Aluminium metal (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Aluminium oxides (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Aluminium oxides (respirable dust)	14/3	4 mg/m³		1056		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Aluminium salts, soluble	*See OSHA ID-121*	2 mg/m³		960		2000		8		AA or AES	F/CST 225-3-01 77 C/HLD 225-1 87
Amines, aromatic (skin)	75									CI	PCH 769-3001 or PCH 769-1031 or PCH 769-1001 122
Amines, aromatic (surface)	75									CI	PCH 769-1021 or PCH 769-1001 122
2-Aminoethanol	96	1 ppm (2.5 mg/m³)	3 ppm (7.6 mg/m³)	10		20		8		GC-FID	ST 226-10-04 35
Ammonia, anhydrous	*See NIOSH 6015*	25 ppm (18 mg/m³)	35 ppm (25 mg/m³)	72	3	150	200	8	15	VAS	ST 226-10-06 35 F/CST 225-3-01 77
Ammonia, anhydrous	*See NIOSH 6016*	25 ppm (18 mg/m³)	35 ppm (25 mg/m³)	48	3	100	200	8	15	IC	ST 226-10-06 35 F/CST 225-3-01 77
Ammonium chloride (fume)	14/3	10 mg/m³	20 mg/m³	960	30	2000	2000	8	15	GR, IC-ECN	IOM 225-70A 92 FLT 225-19 76
Ammonium sulphamate	14/3	10 mg/m³	20 mg/m³	960	30	2000	2000	8	15	GR	IOM 225-70A 92 FLT 225-19 76
Aniline	96	1 ppm (4 mg/m³)		200		20	200		100	GC-FID	ST 226-10 35
Antimony & compounds (as Sb)	91	0.5 mg/m³				2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
p-Aramid respirable fibres	87	0.5 fibres/ml		Refer to method						PCM	FLT/CL 225-54 92 FLT 225-1913 76

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Aromatic carboxylic acid anhydrides *(see individual compounds)*	62									HPLC	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Arsenic & compounds (except arsine) as As	91	0.1 mg/m³		240		2000		2		XRF	IOM 225-70A 92 FLT 225-19 76
Arsine	*See NIOSH 6001*	0.05 ppm (0.16 mg/m³)		10	3	20	200	8	15	AA-GF	ST 226-01 35
Asbestos (chrysotile alone)	*See HSG 248*		0.1	240	40	1000	4000	4	10	PCM	FLT/CL 225-54 92 FLT 225-60F or FLT 225-1913 76
Asbestos, w/crocidolite/amosite/mixtures	*See HSG 248*		0.1	240	40	1000	4000	4	10	PCM	FLT/CL 225-54 92 FLT 225-60F or FLT 225-1913 76
Asphalt (petroleum fumes)	*See NIOSH 5042*	5 mg/m³	10 mg/m³	360	60	1000	4000	6	15	GR	FLT 225-27-07 74 SP 225-27 87 F/CST 225-2LF 86
Azodicarbonamide	92	1 mg/m³	3 mg/m³	960	30	2000	2000	8	15	HPLC	IOM 225-79A 92 FLT 225-58F 79 FLT 225-2708 74
Barium compounds (soluble) (as Ba)	91	0.5 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Barium sulphate (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Barium sulphate (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F 79
Benzene	72	1 ppm (3.25mg/m³)		2.5		5		8		GC-FID	ST 226-09 or ST 226-110 37
Benzene	80	1 ppm (3.25mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Benzene	88	1 ppm (3.25mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Benzene	96	1 ppm (3.25mg/m³)		10	3	20	200	8	15	GC-FID	ST 226-01 35
Benzyl butyl phthalate	32	5 mg/m³		50		10		8		GC-FID	ST 226-35 √ 35
Benzyl butyl phthalate	96	5 mg/m³		50		10		8		GC-FID	ST 226-35 √ 35
Benzyl chloride	88	0.5 ppm (2.6 mg/m³)	1.5 ppm (7.9 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Benzyl chloride	96	0.5 ppm (2.6 mg/m³)	1.5 ppm (7.9 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
Beryllium & compounds (as Be)	29/2	0.002 mg/m³		960	120	2000	2000	8	60	AA	IOM 225-70A 92 FLT 225-19 76
Bisphenol A	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Bornan-2-one	88	2 ppm (13 mg/m³)	3 ppm (19 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Bornan-2-one	96	2 ppm (13 mg/m³)	3 ppm (19 mg/m³)	10		20(50)		8(3.3)		GC-FID	ST 226-01 35
Boron tribromide	*See OSHA CSI*		1 ppm (10 mg/m³)		5		1000		5	IC	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Bromacil (ISO)	*See OSHA CSI*	1 ppm (11 mg/m³)	2 ppm (22 mg/m³)	50		1000		50		HPLC-UV	IMP 225-36-1 59 IT 225-22 59
Bromine	*See NIOSH 6011*	0.1 ppm (0.66 mg/m³)	0.2 ppm (1.3 mg/m³)	250	15	1000	1000	4	15	IC	CF/CST 225-9006 61 C/HLD 225-1 87
Bromomethane	*See OSHA PV2040*	5 ppm (20 mg/m³)	15 ppm (59 mg/m³)	3		50		1		GC-FID	ST 226-83 § 37
1,3-Butadiene	53/2	10 ppm (22 mg/m³)		5	7.5	10	500	8	15	GC-FID	ST 900 mg 13X MOLECU-LAR SIEVE NA SKC
1,3-Butadiene	63/2	10 ppm (22 mg/m³)		diffusive	diffusive	diffusive	diffusive	8	15	GC-FID	PS 690-102 70
1,3-Butadiene	80	10 ppm (22 mg/m³)		24		50		8		GC-ECD	ST 226-358 39
1,3-Butadiene	88	10 ppm (22 mg/m³)		diffusive	diffusive	diffusive	diffusive	8	15	GC-FID	PS 575-001 64
1,3-Butadiene	96	10 ppm (22 mg/m³)		10		20		8		GC-FID	ST 226-09 35
Butan-1-ol	72		50 ppm (154 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Butan-1-ol	80		50 ppm (154 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Butan-1-ol	88		50 ppm (154 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Butan-1-ol	96		50 ppm (154 mg/m³)	10	3	20-50	200	8	15	GC-FID	ST 226-01 35
Butan-2-ol	72	100 ppm (308 mg/m³)	150 ppm (462 mg/m³)	24		50		8		GC-ECD	ST 226-357 or ST 226-358 39
Butan-2-ol	88	100 ppm (308 mg/m³)	150 ppm (462 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Butan-2-ol	96	100 ppm (308 mg/m³)	150 ppm (462 mg/m³)	10	3	20-50	200	8(3.3)	15	GC-FID	ST 226-01 35
Butan-2-one (MEK)	88	200 ppm (600 mg/m³)	300 ppm (899 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Butan-2-one (MEK)	96	200 ppm (600 mg/m³)	300 ppm (899 mg/m³)	10	3	20-50	200	8(3.3)	15	GC-FID	ST 226-81A 36
Butane	72	600 ppm (1450 mg/m³)	750 ppm (1810 mg/m³)	Refer to method						GC-FID	ST NA SKC
2-Butoxyethanol	72	25 ppm	50 ppm	24		50		8		GC-ECD	ST 226-358 39
2-Butoxyethanol	80	25 ppm	50 ppm	24		50		8		GC-ECD	ST 226-358 39
2-Butoxyethanol acetate	88	20 ppm (133 mg/m³)	50 ppm (332 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 or PS 575-002 64
n-Butyl acetate	72, 96	150 ppm (724 mg/m³)	200 ppm (966 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
n-Butyl acetate	80	150 ppm (724 mg/m³)	200 ppm (966 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
n-Butyl acetate	88	150 ppm (724 mg/m³)	200 ppm (966 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
sec-Butyl acetate	88	200 ppm (966 mg/m³)	250 ppm (1210 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
sec-Butyl acetate	96	200 ppm (966 mg/m³)	250 ppm (1210 mg/m³)	10	0.75	20	50	8	15	GC-FID	ST 226-01 35
t-Butyl acetate	72	200 ppm (966 mg/m³)	250 ppm (1210 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
t-Butyl acetate	88	200 ppm (966 mg/m³)	250 ppm (1210 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
n-Butyl acrylate	80	1 ppm (5 mg/m³)	5 ppm (26 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	ST 226-37 36
n-Butyl acrylate	88	1 ppm (5 mg/m³)	5 ppm (26 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Butyl carbitol	*See OSHA PV2095*	10 ppm (67.5 mg/m³)	15 ppm (101.2 mg/m³)	10		200		50 min		GC-FID	ST 226-01 35
n-Butyl chloroformate	*See ASTM D6209*	1 ppm (5.7 mg/m³)		varies		225		varies		GC-MS	ST 226-131 38
Butyl lactate	*See OSHA PV2080*	5 ppm (30 mg/m³)		10		200		8		GC-FID	ST 226-01 35
2-sec-Butylphenol	*See OSHA PV2128*	5 ppm (31 mg/m³)		20		200		100 min		HPLC-UV	ST 226-95 37
Cadmium & compounds (except oxide fume & sulphide pigments)	10/2	0.025 mg/m³		960	30	2000	2000	8	15	AAS	IOM 225-70A 92 FLT 225-19 76
Cadmium & compounds (except oxide fume & sulphide pigments)	91	0.025 mg/m³		960	30	2000	2000	8	15	XRF	IOM 225-70A 92 FLT 225-19 76
Cadmium oxide fume (as Cd)	10/2	0.025 mg/m³	0.05 mg/m³	960	30	2000	2000	8	15	AAS	IOM 225-70A 92 FLT 225-19 76

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Cadmium oxide fume (as Cd)	91	0.025 mg/m³	0.05 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Cadmium sulphide & pigments (as Cd)	10/2	0.03 mg/m³		1056		2000		8		AAS	IOM 225-70A 92 FLT 225-19 76
Cadmium sulphide & pigments (as Cd)	91	0.03 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Caesium hydroxide	91	2 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Calcium carbonate (inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Calcium carbonate (respirable)	14/3	4 mg/m³		1056		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Calcium cyanamide	*See OSHA ID-121*	0.05 mg/m³	1 mg/m³	960		2000		8		AA or AES	F/CST 225-3-01 77 FLT 225-19 76 C/HLD 225-1 87
Calcium hydroxide	*See NIOSH 7020*	5 mg/m³		240		1000		4		AA-F	F/CST 225-3-01 77 C/HLD 225-1 87
Calcium oxide	*See NIOSH 7020*	2 mg/m³		240		1000		4		AA-F	F/CST 225-3-01 77 FLT 225-19 76 C/HLD 225-1 87
Calcium silicate (inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Calcium silicate (respirable)	14/3	4 mg/m³		1056		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Captan (ISO)	94	5 mg/m³	15 mg/m³	240		2000 (500)		8		HPLC-UV	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Carbon black	14/3	3.5 mg/m³	7 mg/m³	960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Carbon dioxide	*See OSHA ID-172/ NIOSH 6603*	5000 ppm (9150 mg/m³)	15000 ppm (27400 mg/m³)							GC	SB 263-03 or SB 253-03 or SB 232-03 48
Carbon disulphide	96	5 ppm (15 mg/m³)		10	3	20 (50)	200	8 (3.3)	15	GC	ST 226-01 35 ST 226-44 36
Carbon monoxide	*See OSHA ID-210*	30 ppm (35 mg/m³)	200 ppm (232 mg/m³)							GC	SB 263-03 or SB 253-03 or SB 232-03 48
Carbon tetrachloride	72	2 ppm (13 mg/m³)			12		200		60	GC-FID	ST 226-01 35
Carbon tetrachloride	80	2 ppm (13 mg/m³)		24		50		8		GC-ECD	ST NA SKC
Carbon tetrachloride	88	2 ppm (13 mg/m³)		diffusive	diffusive	diffusive	diffusive	5	15	GC-FID	ST 575-001 64
Carbon tetrachloride	96	2 ppm (13 mg/m³)		10		20-50		8		GC-FID	ST 226-01 35
Cellulose (inhalable dust)	14/3	10 mg/m³	20 mg/m³	960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Cellulose (respirable dust)	14/3	4 mg/m³		1056		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Chlorine	*See NIOSH 6011*		0.5 ppm (1.5 mg/m³)	90	15	1000	1000	1.5	15	IC	CF/CST 225-9006 61
Chlorine dioxide	*See OSHA ID-202*	0.1 ppm (0.28 mg/m³)	0.3 ppm (0.84 mg/m³)	120	7.5	500	500	4	15	IC-ECN	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
1-Chloro-2,3-epoxypropane (epichlorohydrin)	72, 80	0.5 ppm (1.9 mg.m³)	1.5 ppm (5.8 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
1-Chloro-2,3-epoxypropane (epichlorohydrin)	88	0.5 ppm (1.9 mg/m³)	1.5 ppm (5.8 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
1-Chloro-2,3-epoxypropane (epichlorohydrin)	96	0.5 ppm (1.9 mg/m³)	1.5 ppm (5.8 mg/m³)	10		20-50		8		GC-FID	ST 226-01 35
1-Chloro-4-nitrobenzene	*See NIOSH 2005*	1 mg/m³	2 mg/m³	96		200		8		GC-FID	ST 226-10 35
Chloroacetaldehyde	*See NIOSH 2015*		1 ppm (3.3 mg/m³)		3		200		15	GC-ECD	ST 226-15GWS 35
2-Chloroacetophenone	*See OSHA CSI*	0.05 ppm (0.32 mg/m³)		12		200		1		HPLC-UV	ST 226-47-01 36
Chlorobenzene	72, 96	1 ppm (4.7 mg/m³)	3 ppm (14 mg/m³)	10		20(50)		8(3.3)		GC-FID	ST 226-01 35
Chlorobenzene	88	1 ppm (4.7 mg/m³)	3 ppm (14 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Chlorodifluoromethane	96	1000 ppm (3590 mg/m³)		varies		varies		varies		GC-FID	ST 226-01 35
Chloroethane	96	50 ppm (134 mg/m³)		3		50		1		GC-FID	ST 226-09 35
2-Chloroethanol	96		1 ppm (3.4 mg/m³)	10	3	20(50)	200	8(3.3)	15	GC-FID	ST 226-81A 36
Chloroform	80	2 ppm (9.9 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Chloroform	88	2 ppm (9.9 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Chloroform	96	2 ppm (9.9 mg/m³)		10		200		8		GC-FID	ST 226-01 35
Chloromethane	96	50 ppm (105 mg/m³)	100 ppm (210 mg/m³)		0.5		100		5	GC-FID	ST 226-09 or ST 226-01 35
bis-Chloromethyl ether	*See OSHA 10*	0.001 ppm (0.005 mg/m³)		50		500		100 min		GC-ECD	IMP 225-36-2 59 IT 225-22 59
Chloropyrifos (ISO)	94	0.2 mg/m³	0.6 mg/m³	240		500		8		HPLC-UV	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Chlorosulphonic acid	*See NIOSH 7903*	1 mg/m³		48		200		4		IC	ST 226-10-03 35
Chromium (VI) in chromium plating mist	52/3	0.05 mg/m³		960	120	2000	2000	8	60	CLR	Chromic acid test kit 510-2000 and IOM 225-70A 92 FLT 225-9026 61
Chromium & inorganic compounds	12/2	0.5 mg/m³		960		2000		8		AAS	IOM 225-70A 92 FLT 225-19 76
Chromium & inorganic compounds	91	0.5 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Chromium II & III compounds (as Cr)	12/2	0.5 mg/m³		960		2000		8		AAS	IOM 225-70A 92 FLT 225-19 76
Chromium II & III compounds (as Cr)	91	0.5 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Chromium VI compounds (as Cr)	52/3	0.05 mg/m³		240	30	2000	2000	2	15	CLR	IOM 225-70A 92 FLT 225-9026 61
Cobalt & cobalt compounds (as Co)	30/2	0.1 mg/m³		960	30	2000	2000	8	15	AA	IOM 225-70A 92 FLT 225-19 76
Cobalt & cobalt compounds (as Co)	91	0.1 mg/m³		240		2000		2		XRF	IOM 225-70A 92 FLT 225-19 76
Colophony	83/2			960	30	2000	2000	8	15	GC-FID	CST 225-8050K(kit)
Copper dust & mists (as Cu)	91	1 mg/m³	2 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Copper fume	91	0.2 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Cotton dust	14/3	2.5 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Cryofluorane (INN)	96	1000 ppm (7110 mg/m³)	1250 ppm (8890 mg/m³)	3		20		2.5		GC-FID	ST 226-01 or ST 226-09 35
Cumene	72, 80	25 ppm (125 mg/m³)	50 ppm (250 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Cumene	88	25 ppm (125 mg/m³)	50 ppm (250 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Cumene	96	25 ppm (125 mg/m³)	50 ppm (250 mg/m³)	10		20	50	8	15	GC-FID	ST 226-01 35

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Cyanamide	*See OSHA CSI*	0.58 ppm (1 mg/m³)		10		100		100 mins		HPLC-UV	ST 226-30-18 35
Cyanides (except HCN, cyanogen & cyanogen chloride	*See NIOSH 7904*	5 mg/m³		120		500		4		ISE	FLT 225-2705 74 CST 225-2LF 86 IMP 225-36-2 59 IT 225-22 59 C/HLD 225-1 87
Cyanogen chloride	*See OSHA CSI*		0.3 ppm (0.77 mg/m³)		1		200		5	GC-NPD	ST 226-117 37
Cyclohexane	88	100 ppm (350 mg/m³)	300 ppm (1050 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Cyclohexane	96	100 ppm (350 mg/m³)	300 ppm (1050 mg/m³)	10		20		8		GC-FID	ST 226-01 35
Cyclohexanol	88	50 ppm (208 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Cyclohexanol	96	50 ppm (208 mg/m³)		10		20-50		8(3.3)		GC-FID	ST 226-01 35
Cyclohexanone	88	10 ppm (41 mg/m³)	20 ppm (82 mh/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-003 64
Cyclohexanone	96	10 ppm (41 mg/m³)	20 ppm (82 mh/m³)	10		20	50	8	15	GC-FID	ST 226-01 35
Cyclohexylamine	*See OSHA PV2016*	10 ppm (41 mg/m³)		20		200		100 min		GC-FID	ST 226-98 37
2,4-D (ISO)	*See NIOSH 5602*	10 mg/m³	20 mg/m³	480		1000		8		GC-ECD	ST 226-58 36
6,6'-Di-tert-butyl-4,4'-thiodi-m-cresol	*See OSHA CSI*	10 mg/m³	20 mg/m³	varies		varies		varies		HPLC-UV	F/CST 225-706 or CYC 225-69-37 95 FLT 225-7 79
2,6-Di-tert-butyl-p-cresol	*See OSHA PV2108*	10 mg/m³		100		1000		100 min		GC-FID	ST 226-57 36
Dialkyl 79 phthalate	*See OSHA 104*	5 mg/m³		240		1000		4		GC-FID	ST 226-56 36
Diallyl phthalate	*See OSHA CSI*	5 mg/m³		60		1000		1		GC-FID	ST 226-30-16 35
Diatomaceous earth (natural respirable dust)	14/3	1.2 mg/m³		960 (1056)		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Dibenzoyl peroxide	*See NIOSH 5009*	5 mg/m³		90		1500		1		HPLC-UV	F/CST 225-3-01 76
Dibismuth tritelluride	91	10 mg/m³	20 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Diboron trioxide	14/3	10 mg/m³	20 mg/m³	960 (1056)		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
1,2-Dibromoethane	88	0.5 ppm (3.9 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,2-Dibromoethane	96	0.5 ppm (3.9 mg/m³)		10	3	20	200	8	15	GC-ECD	ST 226-01 35
Dibutyl hydrogen phosphate	*See NIOSH 5017*	1 ppm (8.7 mg/m³)	2 ppm (17 mg/m³)	240		2000		2		GC-FPD	FLT 225-17-01 74 CST 225-2LF 86 C/HLD 225-1 87
Dibutyl phthalate	32	5 mg/m³	10 mg/m³	50		100		8		GC-FID	ST 226-35 √ 35
2,2-Dichloro-4,4'-methylene dianiline (MbOCA)	75	0.005 mg/m³			200		2000		each 100 min	HPLC	IOM 225-70A 92 FLT 225-58F 79
2,2'-Dichloro-4,4'-methylene dianiline (MbOCA)	75	0.005 mg/m³		100		1000		100 min		GC-ECD	CF/CST 225-9004 61 C/HLD 225-1 87
1,3-Dichloro-5,5-dimethylhydantion	Contact SKC Ltd	0.2 mg/m³	0.4 mg/m³								
Dichloroacetylene	*See OSHA CSI*		0.1 ppm (0.39 mg/m³)		1		200		5	GC-FID	ST 226-01 35
1,2-Dichlorobenzene (ortho-dichlorobenzene)	88	25 ppm (153 mg/m³)	50 ppm (306 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,2-Dichlorobenzene (ortho-dichlorobenzene)	96	25 ppm (153 mg/m³)	50 ppm (306 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
1,4-Dichlorobenzene (para-dichlorobenzene)	88	25 ppm (153 mg/m³)	50 ppm (306 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,4-Dichlorobenzene (para-dichlorobenzene)	96	25 ppm (153 mg/m³)	50 ppm (306 mg/m³)	3		20		2.5		GC-FID	ST 226-01 35
1,1-Dichloroethane	96	100 ppm		10	3	200	200	8	15	GC-FID	ST 226-01 35
1,2-Dichloroethane (ethylene dichloride)	72, 80	5 ppm (21 mg/m³)		24		50		8		GC-ECD	ST 226-358 39
1,2-Dichloroethane (ethylene dichloride)	88	5 ppm (21 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,2-Dichloroethane (ethylene dichloride)	96	5 ppm (21 mg/m³)		10	3	20	200	8	15	GC-FID	ST 226-01 35
1,2-Dichloroethylene cis:trans isomers 60:40	88	200 ppm (806 mg/m³)	250 ppm (1010 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,2-Dichloroethylene cis:trans isomers 60:40	96	200 ppm (806 mg/m³)	250 ppm (1010 mg/m³)	5		50		100 min		GC-FID	ST 226-01 35
Dichlorofluoromethane	96	10 ppm (43 mg/m³)		3		20		2.5		GC-FID	ST 226-01 35
Dichloromethane	72, 80	100 ppm (350 mg/m³)	300 ppm (1060 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Dichloromethane	88	100 ppm (350 mg/m³)	300 ppm (1060 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Dichloromethane	96	100 ppm (350 mg/m³)	300 ppm (1060 mg/m³)	2	1.5	20	100	1.6	15	GC-FID	ST 226-01 35
Dicylohexyl phthalate	32	5 mg/m³		50		100		8		GC-FID	ST 226-35 √ 35
Dicylopentadiene	88	5 ppm (27 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Diethyl ether	88	100 ppm (310 mg/m³)	200 ppm (620 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Diethyl ether	96	100 ppm (310 mg/m³)	200 ppm (620 mg/m³)	3		20		2.5		GC-FID	ST 226-01 35
Diethyl phthalate	32	5 mg/m³	10 mg/m³	50		100		8		GC-FID	ST 226-35 √ 35
Diethyl sulphate	89	0.05 ppm (0.32 mg/m³)								GC-MS	ST 226-357 39
Diethylamine	96	5 ppm (15 mg/m³)	10 ppm (30 mg/m³)	24	3	50	200	8	15	GC-FID	ST 226-10 35
Dihydrogen selenide (as Se)	*See OSHA CSI*	0.02 ppm (0.07 mg/m³)	0.05 ppm (0.17 mg/m³)	480		1000		8		AA	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Diisobutyl phthalate	32	5 mg/m³		50		100		8		GC-FID	ST 226-35 √ 35
Diisodecyl phthalate	32	5 mg/m³		50		100		8		GC-FID	ST 226-35 √ 35
Diisononyl phthalate	32	5 mg/m³		50		100		8		GC-FID	ST 226-35 √ 35
Diisooctyl phthalate	32	5 mg/m³		50	50	100	500	8	100	GC-FID	ST 226-35 √ 35
Diisopropyl ether	88	250 ppm (1060 mg/m³)	310 ppm (1310 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Diisopropyl ether	96	250 ppm (1060 mg/m³)	310 ppm (1310 mg/m³)	3		20		2.5		GC-FID	ST 226-01 35
Diisopropylamine	*See OSHA CSI*	5 ppm (21 mg/m³)		120		1000		1		GC-ECD	IMP 225-36-2 59 IT 225-22 59
Dimethoxymethane	88	1000 ppm (3160 mg/m³)	1250 ppm (3950 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Dimethoxymethane	96	1000 ppm (3160 mg/m³)	1250 ppm (3950 mg/m³)	2		20		1.5		GC-FID	ST 226-01 35
Dimethyl ether		400 ppm (766 mg/m³)	500 ppm (958 mg/m³)							CLR	DT 810-161
Dimethyl phthalate	*See OSHA 104*	5 mg/m³	10 mg/m³	240		1000		4		GC-FID	ST 226-56 36
Dimethyl sulphate	89	0.05 ppm (0.32 mg/m³)								GC-MS	ST 226-357 39
Dimethyl sulphate	96	0.05 ppm (0.26 mg/m³)		12		50		4		GC-ECN	ST 226-114 37
N,N-Dimethylacetamide	96	10 ppm (36 mg/m³)	20 ppm (72 mg/m³)	48		100		8		GC-FID	ST 226-10 35

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Dimethylamine	96	2 ppm (3.8 mg/m³)	6 ppm (11 mg/m³)							GC-FID	ST 226-10 35
2-Dimethylaminoethanol	*See OSHA CSI*	2 ppm (7.4 mg/m³)	6 ppm (22 mg/m³)	24		200		8		GC-FID	ST 226-10-04 35
N,N-Dimethylaniline	88	5 ppm (25 mg/m³)	10 ppm (50 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
N,N-Dimethylaniline	96	5 ppm (25 mg/m³)	10 ppm (50 mg/m³)	24	3	50	200	8	15	GC-FID	ST 226-10 35
N,N-Dimethylethylamine	*See OSHA PV2096*	10 ppm (30 mg/m³)	15 ppm (46 mg/m³)	40		100		40 min		GC-NPD	ST 226-18 35
Dimethylformamide	88	5 ppm (15 mg/m³)	10 ppm (30 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
2,6-Dimethylheptan-4-one	88	25 ppm (148 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
2,6-Dimethylheptan-4-one	96	25 ppm (148 mg/m³)		10		20(50)		8(3.3)		GC-FID	ST 226-01 35
Dinitrobenzene (all isomers)	*See OSHA CSI*	0.15 ppm (1 mg/m³)	0.5 ppm (3.5 mg/m³)	60		1000		1		HPLC-UV	ST 226-30-16 35
Dinonyl phthalate	32	5 mg/m³		50		100		8		GC-FID	ST 226-35 √ 35
1,4-Dioxane	88	20 ppm (73 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
1,4-Dioxane	96	20 ppm (73 mg/m³)		10		20		8		GC-FID	ST 226-01 35
Diphenyl ether (vapour)	88	1 ppm (7.1 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Diphenyl ether (vapour)	96	1 ppm (7.1 mg/m³)		30		100		5		GC-FID	ST 226-35-01 35
Diphenylamine	*See OSHA 78*	10 mg/m³	20 mg/m³	100		1000		100 min		HPLC-UV	CF/CST 225-9004 61 C/HLD 225-1 87
Diphosphorus pentasulphide	*See OSHA ID-128SG*	1 mg/m³	2 mg/m³	960	30	2000	2000	8	15	IC	F/CST 225-802 73 C/HLD 225-1 87
Diphosphorus pentoxide	*See OSHA ID-111*	1 mg/m³	2 mg/m³	480		1000		8		IC	F/CST 225-3-01 77 C/HLD 225-1 87
Dipropylene glycol methyl ether	72	50 ppm (308 mg/m³)		24		50		8		GC-ECD	ST 226-357 or ST 226-358 39
Dipropylene glycol methyl ether	88	50 ppm (308 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Diquat dibromide (ISO)	*See OSHA CSI*	0.5 mg/m³	1 mg/m³	120		1000		8		HPLC/UV	IOM 225-70A 92 FLT 225-58F 79
Disodium disulphite	*See OSHA ID-121*	5 mg/m³		960		2000		8		AA or AES	F/CST 225-3-01 77 C/HLD 225-1 87
Disodium tetraborate (anhydrous)	*See OSHA ID-125G*	1 mg/m³		480		2000		4		ICP-AES	F/CST 225-3-01 or F/CST 225-3100 77 C/HLD 225-1 87
Disodium tetraborate (decahydrate)	*See OSHA ID-125G*	5 mg/m³		480		2000		4		ICP-AES	F/CST 225-3-01 or F/CST 225-3100 77 C/HLD 225-1 87
Disodium tetraborate (pentahydrate)	*See OSHA ID-125G*	1 mg/m³		480		2000		4		ICP-AES	F/CST 225-3-01 or F/CST 225-3100 77 C/HLD 225-1 87
Disulphur dichloride	*See OSHA CSI*		1 ppm (5.6 mg/m³)	480		1000		8		CLR	IMP 225-36-2 59 IT 225-22 59
Diuron (ISO)	*See NIOSH 5601*	10 mg/m³		240		1000		4		HPLC-UV	ST 226-58 or ST 226-30-16 35
Dusts (inhalable)	14/3			960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Dusts (respirable)	14/3			1056		2000 (2200)		8		GR	IOM 225-70A 92 FLT 225-58F 79 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Emery (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Emery (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Endosulfan (ISO)	94	0.1 mg/m³	0.3 mg/m³	240		500		8		HPLC-UV	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Enflurane	80	50 ppm (383 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Enflurane	88	50 ppm (383 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Ethane-1,2-diol (particulate)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Ethane-1,2-diol (vapour)	88	20 ppm (52 mg/m³)	40 ppm (104 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Ethanethiol	*See NIOSH 2542*	0.5 ppm (1.3 mg/m³)	2 ppm (5.2 mg/m³)	48	12	100	200	8	60	GC-FPD	F/CST 225-9007 61
Ethanol	72	1000 ppm (1920 mg/m³)		24		50		8		GC-ECD	ST 226-358 39
Ethanol	88	1000 ppm (1920 mg/m³)		diffusive	diffusive	diffusive	diffusive	8	15	GC-FID	PS 575-002 64
Ethanol	96	1000 ppm (1920 mg/m³)		1		50		20 min		GC-FID	ST 226-01 35
2-(Methoxyethoxy) ethanol	*See OSHA CSI*	10 ppm (50.1 mg/m³)		6		100		1		GC-FID	ST 226-01 35
2-Ethoxyethanol	72	2 ppm (8 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
2-Ethoxyethanol	80	2 ppm (8 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
2-Ethoxyethanol	88	2 ppm (8 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
2-Ethoxyethanol	96	2 ppm (8 mg/m³)		5		20		4		GC-FID	ST 226-01 35
2-Ethoxyethyl acetate	72	2 ppm (11 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
2-Ethoxyethyl acetate	80	2 ppm (11 mg/m³)		24		50		8		GC-ECD	ST 226-357 or ST 226-358 39
2-Ethoxyethyl acetate	88	2 ppm (11 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Ethyl acetate	72, 80	200 ppm	400 ppm	24		50		8		GC-ECD	ST 226-357 or ST 226-358 39
Ethyl acetate	88	200 ppm	400 ppm	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Ethyl acetate	96	200 ppm	400 ppm	10		20		8		GC-FID	ST 226-01 35
Ethyl acrylate	72	5 ppm (21 mg/m³)	10 ppm (42 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Ethyl acrylate	88	5 ppm (21 mg/m³)	10 ppm (42 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Ethyl acrylate	96	5 ppm (21 mg/m³)	10 ppm (42 mg/m³)	10		20		8		GC-FID	ST 226-01 35
Ethyl benzene	72	100 ppm (441 mg/m³)	125 ppm (552 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Ethyl benzene	80	100 ppm (441 mg/m³)	125 ppm (552 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Ethyl benzene	88	100 ppm (441 mg/m³)	125 ppm (552 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Ethyl benzene	96	100 ppm (441 mg/m³)	125 ppm (552 mg/m³)	12		50		4		GC-FID	ST 226-01 35
Ethyl cyanoacrylate	*See OSHA 55*		0.3 ppm (1.5 mg/m³)	12		100		2		HPLC-UV	ST 226-98 37
Ethyl formate	96	100 ppm (308 mg/m³)	150 ppm (462 mg/m³)	10		20		8		GC-FID	ST 226-01 35
Ethylamine	*See OSHA 36*	2 ppm (3.8 mg/m³)	6 ppm (11 mg/m³)	10		200		50 min		HPLC-UV	ST 226-96 37
Ethylene oxide	88	5 ppm (9.2 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-005 64
Ethylene oxide	96	5 ppm (9.2 mg/m³)								GC-FID	ST 226-01 35
Ethylenediamine	*See NIOSH 2540*	1 ppm (4.3 mg/m³)		10		100		1.7		HPLC-UV	ST 226-30-18 35

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
2-Ethylhexyl chloroformate	Contact SKC Ltd	1 ppm (8 mg/m³)									
bis-2-Ethylhexyl phthalate (dioctyl phthalate)	32	5 mg/m³	10 mg/m³	50	50	100	500	8	100	GC-FID	ST 226-35 √ 35
bis-2-Ethylhexyl phthalate (dioctyl phthalate)	96	5 mg/m³	10 mg/m³	50		10		8		GC-FID	ST 226-36 ¶ 36
4-Ethylmorpholine	*See OSHA CSI*	5 ppm (24 mg/m³)	20 ppm (96 mg/m³)	10		20		8		GC-FID	ST 226-10 35
Ferrous foundary particulate (inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Ferrous foundary particulate (respirable)	14/3	4 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Flour dust	14/3	10 mg/m³	30 mg/m³			2000	2000	8	15	GR	IOM 225-70A 92 FLT 225-58F 79
Fluoride (inorganic as F)	35/2	2.5 mg/m³		960	30	2000	2000	8	15	IC	IOM 225-70A 92 FLT 225-19 † 76
Fluorine	*See OSHA CSI*	1 ppm (1.6 mg/m³)	1 ppm (1.6 mg/m³)	480		1000		8		CLR	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Formaldehyde	102	2 ppm (2.5 mg/m³)	2 ppm (2.5 mg/m³)	varies		varies		varies		HPLC	CF/CST 225-9003 or ST 226-119 or ST 226-120 37
Formaldehyde	78	2 ppm (2.5 mg/m³)	2 ppm (2.5 mg/m³)	diffusive	diffusive	diffusive	diffusive			HPLC	PS 500-100 67
Formamide	*See OSHA CSI*	20 ppm (37 mg/m³)	30 ppm (56 mg/m³)	10	1.5	100	100	100 min	100 min	GC-NPD	ST 226-10 35
Formic acid	*See NIOSH 2011*	5 ppm (9.6 mg/m³)		24		200		2		IC-ECN	FLT 225-2708 74 CST 225-3-25LF 86 ST 226-10-03 35 C/HLD 225-1 87
2-Furaldehyde (furfural)	72	2 ppm (8 mg/m³)	5 ppm (20 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
2-Furaldehyde (furfural)	*See OSHA 72*	2 ppm (8 mg/m³)	5 ppm (20 mg/m³)	10		20		8		GC-FID	ST 226-81A or ST 226-118 37
Germane	*See OSHA CSI*	0.2 ppm (0.64 mg/m³)	0.6 ppm (1.9 mg/m³)	48		200		4		AA-GF	ST 226-01 35
Glutaraldehyde	102	0.05 ppm (0.2 mg/m³)	0.05 ppm (0.2 mg/m³)	varies		varies		varies		HPLC	CF/CST 225-9003 or ST 226-119 or ST 226-120 37
Glutaraldehyde	102	0.05 ppm (0.2 mg/m³)	0.05 ppm (0.2 mg/m³)	diffusive	diffusive	diffusive	diffusive			HPLC	PS 500-100 67
Glutaraldehyde	93	0.05 ppm (0.2 mg/m³)	0.05 ppm (0.2 mg/m³)			200				HPLC	CF/CST 225-9003 61 C/HLD 225-1 87
Glycerol mist	*See NIOSH 0600*	10 mg/m³		375		2500		2.5		GR	CYC 225-01-02 95 FLT 225-8-01 73 CST 225-3LF 86 C/HLD 225-1 87
Grain dust	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Graphite (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Graphite (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Gypsum (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Gypsum (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Halogeno platinum compounds as Pt	91	0.002 mg/m³		30		50		8		AAS	IOM 225-70A 92 FLT 225-19 76
Halothane	80	10 ppm (82 mg/m³)		24		50		8		GC-ECD	ST 226-357 or ST 226-358 39
Halothane	88	10 ppm (82 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Hardwood dust	14/3	5 mg/m³								GR	IOM 225-70A 92 FLT 225-58F 79
Heptan-2-one	88	50 ppm (237 mg/m³)	100 ppm (475 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Heptan-2-one	96	50 ppm (237 mg/m³)	100 ppm (475 mg/m³)							GC-FID	ST 226-01 35
Heptan-3-one	88	35 ppm (166 mg/m³)	100 ppm (475 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 or PS 575-002 64
Heptan-3-one	96	35 ppm (166 mg/m³)	100 ppm (475 mg/m³)							GC-FID	ST 226-01 35
n-Heptane	72, 80	500 ppm (2085 mg/m³)								GC-FID	ST 226-357 39
n-Heptane	88	500 ppm (2085 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
n-Heptane	96	500 ppm (2085 mg/m³)								GC-FID	ST 226-01 35
Hexan-2-one	88	5 ppm (21 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Hexan-2-one	96	5 ppm (21 mg/m³)		10		20		8		GC-FID	ST 226-01 35
n-Hexane	72	20 ppm (72 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
n-Hexane	80	20 ppm (72 mg/m³)		24		50		8		GC-ECD	ST 226-358 39
n-Hexane	88	20 ppm (72 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
n-Hexane	96	20 ppm (72 mg/m³)		4		20		3.3		GC-FID	ST 226-01 35
1,6-Hexanolactam (dust & vapour)	*See OSHA PV2012*	10 mg/m³	20 mg/m³	100	15	1000	1000	8	15	HPLC-UV	ST 226-57 36
1,6-Hexanolactam (dust only)	14/3	1 mg/m³	3 mg/m³	1056		2000 (2200)		8		GR	IOM 225-70A 92 FOAM 225-772 or CYC 225-69 95 FLT 225-58F 79
Hydrazine	86	0.02 ppm (0.03 mg/m³)	0.1 ppm (0.13 mg/m³)	240		1000		4		IC-UV	CF/CST 225-9012 61 C/HLD 225-1 87
Hydrogen bromide	*See OSHA ID-165SG*		3 ppm (10 mg/m³)	48	4.5	200	300	4	15	IC	ST 226-10-03 35
Hydrogen chloride (gas & aerosol mists)	*See OSHA ID-174SG*	1 ppm (2 mg/m³)	5 ppm (8 mg/m³)	48	4.5	200	300	4	15	IC	ST 226-10-03 35
Hydrogen cyanide	56/2		10 ppm (11 mg/m³)	40	15	200	1000	3	15	ISE	IMP 225-36-2 59 IT 225-22 59 IOM 225-70A 92 FLT 225-19 £ 76
Hydrogen fluoride (as F)	35/2	1.8 ppm (1.5 mg/m³)	3 ppm (2.5 mg/m³)		30		2000		15	ISE	IOM 225-70A 92 FLT 225-19 † 76
Hydrogen peroxide	*See OSHA ID-126SG*	1 ppm (1.4 mg/m³)	2 ppm (2.8 mg/m³)	100		1000		100 min		DPP	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Hydrogen sulphide	*See OSHA 1008*	5 ppm (7 mg/m³)	10 ppm (14 mg/m³)							IC	ST 226-177 38
Hydroquinone	98/2 *See OSHA 5004*	0.5 mg/m³			30		2000		15	HPLC-UV	IOM 225-70A 92 FLT 225-58F 79 ST 226-35-03 36
4-Hydroxy-4-methylpentan-2-one	88	50 ppm (241 mg/m³)	75 ppm (362 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
4-Hydroxy-4-methylpentan-2-one	96	50 ppm (241 mg/m³)	75 ppm (362 mg/m³)	10		20		8		GC-FID	ST 226-01 35
2-Hydroxypropyl acrylate	*See OSHA PV2078*	0.5 ppm (2.7 mg/m³)		10		100		100 min		GC-FID	ST 226-73 36
Indene	*See OSHA CSI*	10 ppm (48 mg/m³)	15 ppm (72 mg/m³)	10		20		8		GC-FID	ST 226-110 37
Indium & compounds (as In)	91	0.1 mg/m³	0.3 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Iodine	*See NIOSH 6005*		0.1 ppm (1.1 mg/m³)	15		1000		15		IC	ST 226-67 36
Iodoform	*See OSHA CSI*	0.6 ppm (9.8 mg/m³)	1 ppm (16 mg/m³)	10		100		100 min		GC-ECD	F/CST 225-706 79 C/HLD 225-1 87 ST 226-93 37
Iodomethane	88	2 ppm (12 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Iodomethane	96	2 ppm (12 mg/m³)		10		20		8		GC-FID	ST 226-01 35
Iron oxide (fume) (as Fe)	91	5 mg/m³	10 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Iron salts (as Fe)	91	1 mg/m³	2 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Isobutyl acetate	72	150 ppm (724 mg/m³)	187 ppm (903 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Isobutyl acetate	88	150 ppm (724 mg/m³)	187 ppm (903 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Isobutyl acetate	96	150 ppm (724 mg/m³)	187 ppm (903 mg/m³)	10		20		8		GC-FID	ST 226-01 35
Isocyanates (all) (as -NCO)	25/3	0.02 mg/m³	0.07 mg/m³	960		2000		8		HPLC	IOM 225-79A 92 FLT 225-9011 61
Isoflurane	80	50 ppm (383 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Isoflurane	88	50 ppm (383 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Isooctyl alcohol (mixed isomers)	88	50 ppm (271 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Isopentane	88	600 ppm (1800 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Isopentane	96	600 ppm (1800 mg/m³)		varies		varies		varies		GC-FID	ST 226-01 35
Isopropyl acetate	72		200 ppm (849 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Isopropyl acetate	88		200 ppm (849 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Isopropyl acetate	96		200 ppm (849 mg/m³)	9		50		3		GC-FID	ST 226-01 35
Isopropyl chloroformate	*Contact SKC Ltd.*	1 ppm (5.1 mg/m³)									
Kaolin (respirable dust)	14/3	2 mg/m³		1056		varies		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Ketene	*See OSHA CSI*	0.5 ppm (0.87 mg/m³)	1.5 ppm (2.6 mg/m³)	50	15	1000	1000	50 min	15	CLR	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Lead & inorganic compounds	6/3			960	30	2000	2000	8	15	AAS	IOM 225-70A 92 FLT 225-19 76
Lead & inorganic compounds	91			960	30	2000	2000	8	15	XRF	IOM 225-70A 92 FLT 225-19 76
Limestone (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Limestone (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Liquified petroleum gas	*See OSHA CSI*	1000 ppm (1750 mg/m³)	1250 ppm (2180 mg/m³)							DET TB	DT 810-100A
Lithium hydride	14/3	0.025 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Lithium hydroxide	*See OSHA ID-121*		1 mg/m³	960		2000		8		AA or AES	F/CST 225-3-01 77 C/HLD 225-1 87
Machine made mineral fibre (MMMF) (except for ceramic refractory)	59	5 mg/m³ & 2 fibres/ml		240		1000		8		GR + PCM	FLT/CL 225-54 92 FLT 225-1913 76
Magnesite (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Magnesite (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Magnesium oxide (as Mg) (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Magnesium oxide (as Mg) (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Malathion	*See OSHA 62*	10 mg/m³		60		1000		1		GC-FPD	ST 226-30-16 35
Maleic anhydride	72	1 mg/m³	3 mg/m³	24		50		8		GC-ECD	ST 226-357 39
Manganese & inorganic compounds	91	0.5 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Manganese in welding fume	*See ISO 10882-1*	0.5 mg/m³				750				GR	H/SET 225-6200 89 MINI 225-6201 89 CAL 225-6202 89 FLT 225-8050 89
Marble (total inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Marble (total respirable)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Mercaptoacetic acid	*See OSHA CSI*	1 ppm (3.8 mg/m³)		120		1000		2		HPLC-UV	IMP 225-36-1 59 IT 225-22 59
Mercury & compounds (except alkyl compounds)	*See NIOSH 6009*	0.02 mg/m³		48		200		4		AA	ST 226-17-1A 35 F/CST 225-3-01 77
Methacrylic acid	*See OSHA PV2005*	20 ppm (72 mg/m³)	40 ppm (143 mg/m³)	24		100		4		HPLC-UV	ST 226-30-08 35
Methanethiol	*See OSHA 26*	0.5 ppm (1 mg/m³)		20		200		100 min		GC-FPD	F/CST 225-9007 59 C/HLD 225-1 87
Methanol	72	200 ppm (266 mg/m³)	250 ppm (333 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Methanol	80	200 ppm (266 mg/m³)	250 ppm (333 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Methanol	96	200 ppm (266 mg/m³)	250 ppm (333 mg/m³)	5	3	20	200	4	15	GC-FID	ST 226-51 36
2-Methoxyethanol	72, 80	1 ppm (3 mg/m³)		24		50		8		GC-ECD	ST 226-358 39
2-Methoxyethanol	88	1 ppm (3 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
2-Methoxyethanol	96	1 ppm (3 mg/m³)		10		20		8		GC-FID	ST 226-01 35
2-Methoxyethyl acetate	72	1 ppm (5 mg/m³)		8		15		8		GC-FID	ST 226-37 36
2-Methoxyethyl acetate	88	1 ppm (5 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 or PS 575-001 64
2-Methoxyethyl acetate	96	1 ppm (5 mg/m³)		10	7.5	20	500	8	15	GC-FID	ST 226-01 35
1-Methoxypropan-2-ol	72	100 ppm (375 mg/m³)	150 ppm (560 mg/m³)							GC-FID	ST 226-357 39
1-Methoxypropan-2-ol	88	100 ppm (375 mg/m³)	150 ppm (560 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
1-Methoxypropyl acetate	72	50 ppm (274 mg/m³)	100 ppm (548 mg/m³)							GC-FID	ST 226-358 35
1-Methoxypropyl acetate	88	50 ppm (274 mg/m³)	100 ppm (548 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
1-Methoxypropyl acetate	96	50 ppm (274 mg/m³)	100 ppm (548 mg/m³)							GC-FID	ST 226-01 35
Methyl acetate	72, 80	200 ppm (616 mg/m³)	250 ppm (770 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Methyl acetate	88	200 ppm (616 mg/m³)	250 ppm (770 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Methyl acetate	96	200 ppm (616 mg/m³)	250 ppm (770 mg/m³)	5	3	20	200	4	15	GC-FID	ST 226-01 35
Methyl acrylate	72	5 ppm (18 mg/m³)	10 ppm (36 mg/m³)	24		50		8		GC-FID	ST 226-357 39
Methyl acrylate	88	5 ppm (18 mg/m³)	10 ppm (36 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Methyl acrylate	96	5 ppm (18 mg/m³)	10 ppm (36 mg/m³)	varies		varies		varies		GC-FID	ST 226-01 35
Methyl cyanoacrylate	*See OSHA 55*		0.3 ppm (1.4 mg/m³)	12	3	100	200	8	15	HPLC-UV	ST 226-98 37
Methyl ethyl ketone peroxide (MEKP)	*See OSHA 77*		0.2 ppm (1.5 mg/m³)		15		1000		15	HPLC-UV	ST 226-93 37
Methyl isocyanate	*See OSHA 54*		0.02 ppm	15		50		5		HPLC-FD	ST NA SKC
Methyl methacrylate	72	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Methyl methacrylate	80	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	25		50		8		GC-ECD	ST 226-115 37
Methyl methacrylate	88	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Methyl methacrylate	96	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	5		20		4		GC-FID	ST 226-30-06 35
1-Methyl-2-pyrrolidone	72	25 ppm (103 mg/m³)	75 ppm (309 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
1-Methyl-2-pyrrolidone	96	25 ppm (103 mg/m³)	75 ppm (309 mg/m³)	10		200		8		GC-FID	ST 226-01 35
N-Methyl-2-pyrrolidone	72, 80	10 ppm (40 mg/m³)	20 ppm (80 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
N-Methyl-2-pyrrolidone	96	10 ppm (40 mg/m³)	20 ppm (80 mg/m³)	10		200		8		GC-FID	ST 226-01 35
Methyl-tert-butyl-ether	88	50 ppm (183.5 mg/m³)	100 ppm (367 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Methyl-tert-butyl-ether	96	50 ppm (183.5 mg/m³)	100 ppm (367 mg/m³)	96		200		8		GC-FID	ST 226-09 35
Methylacryonitrile	*See OSHA 37*	1 ppm (2.8 mg/m³)		20		200		100 min		GC-NPD	ST 226-01 35
N-Methylaniline	*See NIOSH 3511*	0.5 ppm (2.2 mg/m³)		100		1000		100 min		GC-FID	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
3-Methylbutan-1-ol	88	100 ppm (366 mg/m³)	125 ppm (458 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
3-Methylbutan-1-ol	96	100 ppm (366 mg/m³)	125 ppm (458 mg/m³)	10	3	20(50)	200	8(3.3)	15	GC-FID	ST 226-01 35
Methylcyclohexanol	88	50 ppm (237 mg/m³)	75 ppm (356 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Methylcyclohexanol	96	50 ppm (237 mg/m³)	75 ppm (356 mg/m³)	12		25		8		GC-FID	ST 226-01 35
2-Methylcyclohexanone	72, 80	50 ppm (233 mg/m³)	75 ppm (350 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
2-Methylcyclohexanone	96	50 ppm (233 mg/m³)	75 ppm (350 mg/m³)	4		20		3.3		GC-FID	ST 226-01 35
4,4-Methylenebis(orthochloroaniline) (MbOCA)	75			200		500				HPLC	IOM 225-70A 92 FLT 225-58F or F/CST 225-9004 61
4,4'-Methylenedianiline (MDA)	75	0.01 ppm (0.08 mg/m³)		200		2000			100 min	HPLC	IOM 225-70A 92 FLT 225-58F or F/CST 225-9004 61
5-Methylheptane-3-one	88	10 ppm (53 mg/m³)	20 ppm (107 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 or PS 575-002 64
5-Methylheptane-3-one	96	10 ppm (53 mg/m³)	20 ppm (107 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
5-Methylhexan-2-one	72	20 ppm (95 mg/m³)	100 ppm (475 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
5-Methylhexan-2-one	88	20 ppm (95 mg/m³)	100 ppm (475 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
4-Methylpentan-2-ol	88	25 ppm (106 mg/m³)	40 ppm (170 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
4-Methylpentan-2-ol	96	25 ppm (106 mg/m³)	40 ppm (170 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
4-Methylpentan-2-one	72, 80	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
4-Methylpentan-2-one	88	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
4-Methylpentan-2-one	96	50 ppm (208 mg/m³)	100 ppm (416 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
2-Methylpentane-2,4-diol	*See OSHA PV2101*	25 ppm (123 mg/m³)	25 ppm (123 mg/m³)		3		200		15	GC-FID	ST 226-01 35
2-Methylpropan-1-ol	72	50 ppm (154 mg/m³)	75 ppm (231 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
2-Methylpropan-1-ol	88	50 ppm (154 mg/m³)	75 ppm (231 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
2-Methylpropan-1-ol	96	50 ppm (154 mg/m³)	75 ppm (231 mg/m³)	10		20(50)		8(3.3)		GC-FID	ST 226-01 35
Mica (total inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Mica (total respirable)	14/3	0.8 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Molybdenum compounds (insoluble) (as Mo)	91	10 mg/m³	20 mg/m³	240		1000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Molybdenum compounds (soluble) (as Mo)	91	5 mg/m³	10mg/m³	240		1000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Monochloroacetic acid	*See NIOSH 2008*	0.3 ppm (1.2 mg/m³)		48		100		8		IC-ECN	ST 226-47-01 36
Nickel (insoluble compounds except nickel tetracarbonyl) (as Ni)	42/2	0.5 mg/m³		960	30	2000	2000	8	15	AA	IOM 225-70A 92 FLT 225-19 76
Nickel (insoluble compounds except nickel tetracarbonyl) (as Ni)	91	0.5 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Nickel (soluble compounds except nickel tetracarbonyl) (as Ni)	42/2	0.1 mg/m³		960	30	2000	2000	8	15	AA	IOM 225-70A 92 FLT 225-19 76
Nickel (soluble compounds except nickel tetracarbonyl) (as Ni)	91	0.1 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Nicotine	96	0.5 mg/m³	1.5 mg/m³	360		1000		6		GC-NPD	ST 226-30-04 35
Nitric acid	*See NIOSH 7903*		1 ppm (2.6 mg/m³)	48	3	200	200	4	15	IC	ST 226-10-03 35
Nitrobenzene	72	0.2 ppm (1 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Nitrobenzene	96	0.2 ppm (1 mg/m³)		48		100		8		GC-FID	ST 226-10 35
Nitrogen oxides	*See NIOSH 6014*			1.5-6		25		1-4		VIS	ST 226-40 36
Nitromethane	*See NIOSH 2527*	100 ppm (254 mg/m³)	150 ppm (381 mg/m³)	2.4		20		2		GC-NSD	ST 226-111A 37
2-Nitropropane	96	5 ppm (19 mg/m³)				20		1.5		GC-FID	ST 226-110 37
Nitrous oxide	88	100 ppm (183 mg/m³)		diffusive	diffusive	diffusive	diffusive				PS 590-300 69 TD P226530
Oil mist	84			960	30	2000	2000	8	15	GR	IOM 225-70A 92 FLT 225-19 76
Orthophosphoric acid	*See NIOSH 7903*	1 mg/m³	2 mg/m³	48	3	200	200	4	15	IC	ST 226-10-03 35

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Orthotoluidine	75			200		500				HPLC	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Osmium tetraoxide (as Os)	91	0.0002 ppm (0.002 mg/m³)	0.0006 ppm (0.006 mg/m³)	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Oxalic acid	*See OSHA PV2115*	1 mg/m³	2 mg/m³	100		1000		100 min		IC	F/CST 225-3-01 77 C/HLD 225-1 87
2,2'-Oxydiethanol	*See NIOSH 5523*	23 ppm (101 mg/m³)		60		1000		1		GC-FID	ST 226-57 36
Ozone	*See OSHA ID-214*		0.2 ppm (0.4 mg/m³)	90		500		3		IC	CF/CST 225-9014 61 C/HLD 225-1 87
Paracetamol (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Paraffin wax (fume)	*See OSHA PV2047*	2 mg/m³	6 mg/m³	100		1000		100 min		GC-FID	F/CST 225-706 79 C/HLD 225-1 87
Paraquat dichloride (ISO) (respirable dust)	14/3	0.08 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Pentacarbonyliron (as Fe)	*See OSHA CSI*	0.01 ppm (0.08 mg/m³)		480	30	2000	2000	4	15	CLR	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Pentaerythritol (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Pentaerythritol (respirable dust)	14/3	4 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Pentan-2-one	88	200 ppm (716 mg/m³)	250 ppm (895 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Pentan-2-one	96	200 ppm (716 mg/m³)	250 ppm (895 mg/m³)	10		20(50)		8(3.3)		GC-FID	ST 226-01 35
Pentan-3-one	88	200 ppm (716 mg/m³)	250 ppm (895 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Pentane	72, 80	600 ppm (1800 mg/m³)		varies		varies		varies		GC-FID	ST 226-358 39
Pentane	88	600 ppm (1800 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Pentane	96	600 ppm (1800 mg/m³)		varies		varies		varies		GC-FID	ST 226-01 35
Pentyl acetates (all isomers)	88	50 ppm (270 mg/m³)	100 ppm (541 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Pentyl acetates (all isomers)	96	50 ppm (270 mg/m³)	100 ppm (541 mg/m³)	varies		varies		varies		GC-FID	ST 226-01 35
Peroxodisulphate salts	79			960	30	2000	2000	8	15	IC	IOM 225-70A 92 FLT 225-19 76
Phenol	96	2 ppm (7.8 mg/m³)	4 ppm (16 mg/m³)	24	3	100	200	4	15	GC-FID	ST 226-95 37
p-Phenyldiamine	*See OSHA 87*	0.1 mg/m³		100		1000		100 min		HPLC-UV	CF/CST 225-9004 61 C/HLD 225-1 87
2-Phenylpropene (alpha-methyl styrene)	72	50 ppm (246 mg/m³)	100 ppm (491 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
2-Phenylpropene (alpha-methyl styrene)	88	50 ppm (246 mg/m³)	100 ppm (491 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 or PS 575-003 64
2-Phenylpropene (alpha-methyl styrene)	96	50 ppm (246 mg/m³)	100 ppm (491 mg/m³)	10	3	20	200	8	15	GC-FID	ST 226-01 35
Phorate (ISO)	*See NIOSH 5600*	0.05 mg/m³	0.2 mg/m³	240		1000		4		GC-FPD	ST 226-58 36
Phosgene	*See OSHA 61*	0.02 ppm (0.08 mg/m³)	0.06 ppm (0.25 mg/m³)	240		1000		4		GC-NPD	ST 226-117 37
Phosphine	*See NIOSH 6002*	0.1 ppm (0.14 mg/m³)	0.2 ppm (0.28 mg/m³)	12	3	100	200	2	15	UV-VAS	ST 226-165A 38
Phosphorus pentachloride	*See OSHA CSI*	0.1 ppm (0.87 mg/m³)	0.2 ppm (2 mg/m³)	48		200		4		CLR	F/CST 225-803 73 IMP 225-36-1 59 IT 225-22 59 SCN 225-26 87
Phosphorus trichloride	*See OSHA CSI*	0.2 ppm (1.1 mg/m³)	0.5 ppm (2.9 mg/m³)	240		1000		4		IC	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Phosphorus yellow	*See OSHA CSI*	0.1 mg/m³	0.3 mg/m³	96		200		8		GC-FPD	ST 226-35-03 36
Phthalic anhydride	62	4 mg/m³	12 mg/m³	960	30	2000	2000	8	15	HPLC	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Picloram (ISO)	*See OSHA PV2049*	10 mg/m³	20 mg/m³	60		1000		1		GR	FLT 225-8-01 73 CST 225-3LF 86
Picric acid	*See OSHA CSI*	0.1 mg/m³	0.3 mg/m³	180		1500		2		HPLC-UV	IOM 225-70A 92 FLT 225-19 76
Piperazine	*See OSHA CSI*	0.1 mg/m³	0.3 mg/m³	10		100		8		HPLC-UV	ST 226-30-18 35
Piperazine dihydrochloride	14/3	0.1 mg/m³	0.3 mg/m³	120		1000		8		GC-NPD	IOM 225-70A 92 FLT 225-58F 79
Piperidine	*See OSHA CSI*	1 ppm (3.5 mg/m³)		6		200		30 min		GC-FID	ST 226-01 35
Plaster of Paris (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Plaster of Paris (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Platinum (soluble compounds)	46/2	0.002 mg/m³		960	120	2000	2000	8	60	AA	IOM 225-70A 92 FLT 225-19 76
Platinum as metal	46/2	5 mg/m³		960	120	2000	2000	8	60	AA	IOM 225-70A 92 FLT 225-19 76
Polychlorinated biphenyls (PCB)	*See ASTM 4861*	0.1 mg/m³		960		2000		8		GC-ECD	PUF 226-124 38 PUF 226-92 37
Polychlorinated biphenyls (PCB)	*See OSHA PV2088*	0.1 mg/m³		60		1000		1		GC-ECD	ST 226-30-16 35
Polyvinylchloride (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Polyvinylchloride (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Portland cement (inhalable dust)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Portland cement (respirable dust)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Potassium hydroxide	14/3		2 mg/m³	10		2000		5		AA or AES	IOM 225-70A 92 FLT 225-19 76
Prop-2-yn-1-ol	*See OSHA 97*	1 ppm (2.3 mg/m³)	3 ppm (7 mg/m³)	6		50		2		GC-ECD	ST 226-178 38
Propan-1-ol	72	200 ppm (500 mg/m³)	250 ppm (625 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Propan-1-ol	72	200 ppm (500 mg/m³)	250 ppm (625 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Propan-1-ol	88	200 ppm (500 mg/m³)	250 ppm (625 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 or PS 575-002 64
Propan-1-ol	88	200 ppm (500 mg/m³)	250 ppm (625 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 or PS 575-002 64
Propan-1-ol	96	200 ppm (500 mg/m³)	250 ppm (625 mg/m³)	varies		varies		varies		GC-FID	ST 226-01 35
Propan-1-ol	96	200 ppm (500 mg/m³)	250 ppm (625 mg/m³)	10	3	20(50)	200	8(3.3)	15	GC-FID	ST 226-01 35
Propan-2-ol	72	400 ppm (999 mg/m³)	500 ppm (1250 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
Propan-2-ol	88	400 ppm (999 mg/m³)	500 ppm (1250 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Propan-2-ol	96	400 ppm (999 mg/m³)	500 ppm (1250 mg/m³)	3	3	20	200	2.5	15	GC-FID	ST 226-01 35
Propane-1,2-diol (particulates)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Propane-1,2-diol (total vapour & particulates)	*See OSHA PV2051*	150 ppm (474 mg/m³)		60	15	1000	1000	1	15	GC-FID	ST 226-57 36
Propionic acid	*See OSHA CSI*	10 ppm (31 mg/m³)	15 ppm (46 mg/m³)	10		20		8		GC-FID	ST 226-15 35
Propoxur (ISO)	*See NIOSH 5601*	0.5 mg/m³	2 mg/m³	240		1000		4		HPLC-UV	ST 226-58 36
Propranolol	14/3	2 mg/m³	6 mg/m³	960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
n-Propyl acetate	72	200 ppm (849 mg/m³)	250 ppm (1060 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
n-Propyl acetate	88	200 ppm (849 mg/m³)	250 ppm (1060 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
n-Propyl acetate	96	200 ppm (849 mg/m³)	250 ppm (1060 mg/m³)	10	3	20(50)	200	8(3.3)	15	GC-FID	ST 226-01 35
Propylene oxide	72	5 ppm (12 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Propylene oxide	80, 88	5 ppm (12 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Propylene oxide	96	5 ppm (12 mg/m³)		5		20		4.2		GC-FID	ST 226-01 35
Pulverized fuel ash (inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Pulverized fuel ash (respirable)	14/3	4 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Pyrethrum	*See OSHA 70*	1 mg/m³		60		1000		1		GC-ECD	ST 226-30-16 35
Pyridine	72	5 ppm (16 mg/m³)	10 ppm (33 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Pyridine	88	5 ppm (16 mg/m³)	10 ppm (33 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Pyridine	96	5 ppm (16 mg/m³)	10 ppm (33 mg/m³)	40		100		8		GC-FID	ST 226-01 35
2-Pyridylamine	*See OSHA PV2143*	0.5 ppm (2 mg/m³)	2 ppm (7.8 mg/m³)	240		1000		4		GC-NPD	F/CST 225-9004 61
Pyrocatechol	*See OSHA PV2014*	5 ppm (23 mg/m³)		100		1000		100 min		HPLC-UV	ST 226-57 36
Refractory ceramic & special purpose fibres		5 mg/m³ (1 fibre/mm)		240		1000		8		PCM	FLT/CL 225-54 92 FLT 225-1913 76
Rhodium (metal fume & dust) as Rh	91	0.1 mg/m³	0.3 mg/m³	960	30	2000	2000	8	15	XRF	IOM 225-70A 92 FLT 225-19 76
Rhodium (soluble salts) as Rh	91	0.001 mg/m³	0.003 mg/m³	960	30	2000	2000	8	15	XRF	IOM 225-70A 92 FLT 225-19 76
Rosin-based solder flux fume	83/2	0.05 mg/m³	0.15 mg/m³	960	30	2000	2000	8	15	GC-FID	CST 225-8050K (kit) FLT 225-8050 89
Rotenone (ISO)	*See NIOSH 5007*	5 mg/m³	10 mg/m³	120		1000		2		HPLC-UV	FLT 225-17-01 74 CST 225-2LF 86 C/HLD 225-1 87
Rouge (total inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Rouge (total respirable)	14/3	4 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Rubber fume	47/2	0.6 mg/m³		960	500	2000	2000	8		GR + SE	IOM 225-70A 92 FLT 225-58F 79
Rubber process dust	14/3	6 mg/m³		960	30	2000	2000	8	15	GR	IOM 225-70A 92 FLT 225-58F 79
Selenium & compounds (except hydrogen selenide) (as Se)	91	0.1 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Silane		0.5 ppm (0.67 mg/m³)	1 ppm (1.3 mg/m³)	480		1000		4		AAS-GF	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Silica amorphous (inhalable dust)	14/3	6 mg/m³		960	30	2000	2000	8	15	GR	IOM 225-70A 92 FLT 225-5-25 73
Silica amorphous (respirable dust)	14/3	2.4 mg/m³		1056	30	2200 (2000)	2200/ 2000	8	15	GR	CYC 225-69 95 FLT 225-5-25 or IOM 225-70A 92 FOAM 225-772 92 FLT 225-5-25 73
Silica fused (respirable dust)	14/3	0.08 mg/m³		1056	33	2200	2200/ 2000	8	15	GR	CYC 225-69 95 FLT 225-5-25 or IOM 225-70A 92 FOAM 225-772 92 FLT 225-5-25 73
Silica, crystalline (respirable)	14/3	0.1 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-5-25 or IOM 225-70A 92 FOAM 225-772 92 FLT 225-5-25 73
Silicone carbide (not whiskers) (total inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Silicone carbide (not whiskers) (total respirable)	14/3	4 mg/m³		1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Silver (soluble compounds as Ag)	91	0.01 mg/m³		960	30	2000	2000	8	15	XRF	IOM 225-70A 92 FLT 225-19 76
Silver, metallic	91	0.1 mg/m³		240	60	2000	2000	0.5	2	XRF	IOM 225-70A 92 FLT 225-19 76
Sodium azide (as NaN_3)	*See OSHA ID-211*	0.1 mg/m³	0.3 mg/m³		5		1000		5 min	IC-UV	ST 226-55 36 FLT 225-8-01 73 CST 225-2LF 86 SPC 225-23 87 C/HLD 225-1 87
Sodium hydrogen sulphite	*See OSHA ID-121*	5 mg/m³		960		2000		8		AA or AES	F/CST 225-3-01 77
Sodium hydroxide	14/3		2 mg/m³	960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Sodium-2-(2,4-dichlorophenoxy) ethyl sulphate	*See OSHA CSI*	10 mg/m³	20 mg/m³	varies	varies	varies	varies			CLR	IOM 225-70A 92 FLT 225-19 76
Softwood dust	14/3	5 mg/m³		960	30	2000	2000	8	15	GR	IOM 225-70A 92 FLT 225-58F 79
Starch (respirable)	14/3	4 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Starch (total inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Styrene	72, 80	100 ppm (430 mg/m³)	250 ppm (1080 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Styrene	88	100 ppm (430 mg/m³)	250 ppm (1080 mg/m³)	diffusive	diffusive	diffusive	diffusive	8	15	GC-FID	PS 575-003 64
Styrene	96	100 ppm (430 mg/m³)	250 ppm (1080 mg/m³)	10	5	20(50)	330	8(3.3)	15	GC-FID	ST 226-01 35
Subtilisins (Bacillus subtilis BPN & Carlsberg)	*See OSHA CSI* Σ	0.00004 mg/m³						8		FP	IOM 225-70A 92 FLT 225-58F 79
Sucrose	14/3	10 mg/m³	20 mg/m³	960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Sulfotep (tetraethyl dithisopyrophosphate, TEPD)	*See OSHA CSI*	0.1 mg/m³		480		1000		100 min		GC-FPD	ST 226-30-16 35

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Sulphuric acid	*See NIOSH 7903*	0.05 mg/m³		48		200		4		IC	ST 226-10-03 35
Sulphuric acid	*See OSHA 113*	0.05 mg/m³		480		2000		4		IC	PPI 225-3861 96
Sulphuryl difluoride	*See NIOSH 6012*	5 ppm (21 mg/m³)	10 ppm (42 mg/m³)	10		20		8		IC-ECN	ST 226-16 35
Talc (respirable dust)	14/3	1 mg/m³		1056	33	2200	2200	8	15	GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Tantalum	91	5 mg/m³	10 mg/m³	240	6	2000	2000	0.5	2	XRF	IOM 225-70A 92 FLT 225-19 76
Tellurium & compounds (except hydrogen telluride) as Te	91	0.1 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Terphenyls (all isomers)	*See OSHA CSI*		0.5 ppm (4.8 mg/m³)		8.5		1700		5	HPLC-FD	F/CST 225-709 79 C/HLD 225-1 87
1,1,2,2-Tetrabromomethane	96	0.5 ppm (7.2 mg/m³)		96		200		8		GC-FID	ST 226-10 35
Tetracarbonylnickel	*See OSHA CSI*		0.1 ppm (0.24 mg/m³)	480		1000		8		AA-GF	F/CST 225-709 79 C/HLD 225-1 87 IMP 225-36-2 59 IT 225-22 59
1,1,2,2-Tetrachloroethane	88			diffusive	diffusive	diffusive	diffusive	8	15	GC-FID	PS 575-001 64
1,1,2,2-Tetrachloroethane	96			10	3	20	200	8	15	GC-FID	ST 226-01 35
Tetrachloroethylene	72, 80	50 ppm (345 mg/m³)	100 ppm (689 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Tetrachloroethylene	88	50 ppm (345 mg/m³)	100 ppm (689 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
Tetrachloroethylene	96	50 ppm (345 mg/m³)	100 ppm (689 mg/m³)	3		20		2.5		GC-FID	ST 226-01 35
Tetrachlorophthalic anhydride	62			240	7.5	500	500	8	15	HPLC	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Tetraethyl lead (as Pb)				960	120	2000	2000	8	60	AA	IOM 225-70A 92 FLT 225-19 76
Tetrahydrofuran	88	50 ppm (150 mg/m³)	100 ppm (300 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Tetrahydrofuran	96	50 ppm (150 mg/m³)	100 ppm (300 mg/m³)	9	1.5	20(50)	100	7(3)	15	GC-FID	ST 226-01 35
Tetrasodium pyrophosphate	*See OSHA ID-111*	5 mg/m³		960		2000		8		GR IC	FLT 225-5 76 CST 225-2LF 86 C/HLD 225-1 87
Thallium (soluble compounds) (as Tl)	91	0.1 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Thionyl chloride	*See OSHA CSI*		1 ppm (4.9 mg/m³)		15		1000		15	IC	IMP 225-36-2 59 IMP 225-36-5 59 IT 225-22 59
Tin compounds (inorganic except SnH_4) (as Sn)	91	2 mg/m³	4 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Tin compounds (organic except cyhexatin) (ISO) (as Sn)	*See NIOSH 5504*	0.1 mg/m³	0.2 mg/m³	480		1000		8		HPLC AA-GF	ST 226-30 35 F/CST 225-706 79 C/HLD 225-1 87
Titanium dioxide - respirable	14/3	4 mg/m³		1056		2200 (2000)		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Titanium dioxide (inhalable)	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Toluene	72	50 ppm (191 mg/m³)	100 ppm (384 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Toluene	80	50 ppm (191 mg/m³)	100 ppm (384 mg/m³)	24		50		8		GC-ECD	ST 226-357 or ST 226-358 39
Toluene	88	50 ppm (191 mg/m³)	100 ppm (384 mg/m³)	diffusive	diffusive	diffusive	diffusive	8	15	GC-FID	PS 575-001 64
Toluene	96	50 ppm (191 mg/m³)	100 ppm (384 mg/m³)	6	3	100	200	1	15	GC-FID	ST 226-01 35
o-Toluidine	75	0.2 ppm (0.89 mg/m³)		200		500				HPLC	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
o-Toluidine	96	0.2 ppm (0.89 mg/m³)		48		100		8		GC-FID	ST 226-10 35
o-Toluidine	96			48		100		8		GC-FID	ST 226-10 35
Tri-o-tolyl phosphate	*See NIOSH 5037*	0.1 mg/m³	0.3 mg/m³	90		1000		1.5		GC-FPD	F/CST 225-3-01 77 C/HLD 225-1 87
Tributyl phosphate (all isomers)	*See NIOSH 5034*	5 mg/m³	5 mg/m³	90		1500		1		GC-FPD	F/CST 225-3-01 77 C/HLD 225-1 87
1,2,4-Trichlorobenzene	80	1 ppm	5 ppm	varies		varies		varies		GC-ECD	FLT 225-17-03 74 ST 226-30-04 35 CST Special order C/HLD 225-1 87
1,1,1-Trichloroethane	72, 80	100 ppm (555 mg/m³)	200 ppm (1110 mg/m³)	24		50		8		GC-ECD	ST 226-358 39
1,1,1-Trichloroethane	88	100 ppm (555 mg/m³)	200 ppm (1110 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,1,1-Trichloroethane	96	100 ppm (555 mg/m³)	200 ppm (1110 mg/m³)		3		200		15	GC-FID	ST 226-01 35
1,1,2-Trichloroethane	72			24		50		8		GC-ECD	ST 226-358 39
1,1,2-Trichloroethane	88			diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
1,1,2-Trichloroethane	96			10	3	20	200	8	15	GC-FID	ST 226-01 35
Trichloroethylene	72, 80	100 ppm (550 mg/m³)	150 ppm (820 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Trichloroethylene	88	100 ppm (550 mg/m³)	150 ppm (820 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Trichloroethylene	96	100 ppm (550 mg/m³)	150 ppm (820 mg/m³)	10	3	20(50)	200	8(3.3)	15	GC-FID	ST 226-01 35
Trichloronitromethane	*See OSHA PV2103*	0.1 ppm (0.68 mg/m³)	0.3 ppm (2.1 mg/m³)	3		200		15 min		GC-ECD	ST 226-93 37
Triethylamine	*See OSHA PV2060*	2 ppm (8 mg/m³)	4 ppm (17 mg/m³)	5	3	100	200	50	15	GC-FID	ST 226-98 37
Triglycidyl isocyanurate (TGIC)	85	0.1 mg/m³		960	30	2000	2000	8	15	LC	IOM 225-70A 92 FLT 225-58F 79
Trimellitic anhydride	62	0.04 mg/m³	0.12 mg/m³	240	7.5	500	500	8	15	HPLC	IOM 225-70A 92 FLT 225-58F 79 ST 226-35 35
Trimethyl phosphite	*See NIOSH 5037*	2 ppm (10 mg/m³)		90		1000		1.5		GC-FPD	IOM 225-70A 92 FLT 225-19 76
Trimethylbenzenes (all isomers or mixtures)	72, 80	25 ppm (125 mg/m³)		24		50		8		GC-ECD	ST 226-357 39
Trimethylbenzenes (all isomers or mixtures)	88	25 ppm (125 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
3,5,5-Trimethylcyclohex-2-enone	72		5 ppm (29 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
3,5,5-Trimethylcyclohex-2-enone	88		5 ppm (29 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-002 64
3,5,5-Trimethylcyclohex-2-enone	96		5 ppm (29 mg/m³)	10		20(50)		8(3.3)		GC-FID	ST 226-01 35
2,4,6-Trinitrotoluene	*See OSHA 44*	0.5 mg/m³		60		1000		1		GC-TEA-EAP	ST 226-56 36
Triphenyl phosphate	*See NIOSH 5038*	3 mg/m³	6 mg/m³	240		1000		4		GC-FPD	F/CST 225-3-01 77 C/HLD 225-1 87
Tungsten & insoluble compounds (as W) & others	91	5 mg/m³	10 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76

See page 196 for abbreviations.

Chemical Hazard	MDHS Method No.	SAMPLING WEL TWA (ppm)	WEL STEL (ppm)	Vol. (liter) TWA	Vol. (liter) STEL	Rate (ml/min) TWA	Rate (ml/min) STEL	Time TWA (hr)	Time STEL (min)	Analytical Method	SKC Collecting Equipment and Page No.
Tungsten & soluble compounds (as W)	91	1 mg/m³	3 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Turpentine	*See NIOSH 1551*	100 ppm (566 mg/m³)	150 ppm (850 mg/m³)	10		20(50)		8(3.3)		GC-FID	ST 226-01 35
Vanadium pentoxide	91	0.05 mg/m³		960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Vanadium pentoxide	*See NIOSH 7504*	0.05 mg/m³		600		2600		4		XRD	F/CST 225-803 73 CYC 225-01-02 95 C/HLD 225-1 87
Vinyl chloride	96	3 ppm (7.8 mg/m³)		5		50		1.6		GC-FID	ST 226-01 35
Vinylidene chloride	88	10 ppm (40 mg/m³)		diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Vinylidene chloride	96	10 ppm (40 mg/m³)		5		20		4		GC-FID	ST 226-01 35
Welding fume particulate	*See ISO 10882-1*					750				GR	H/SET 225-6200 89 MINI 225-6201 89 CAL 225-6202 89 FLT 225-8050 89
Wood dust (inhalable)	14/3			1056		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Wood dust (respirable)	14/3			1056		2200		8		GR	CYC 225-69 95 FLT 225-58F or IOM 225-70A 92 FOAM 225-772 92 FLT 225-58F 79
Wool process dust	14/3	10 mg/m³		960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Xylene (o-,m-,p-, or mixed isomers)	72, 80	50 ppm (220 mg/m³)	100 ppm (441 mg/m³)	24		50		8		GC-ECD	ST 226-357 39
Xylene (o-,m-,p-, or mixed isomers)	88	50 ppm (220 mg/m³)	100 ppm (441 mg/m³)	diffusive	diffusive	diffusive	diffusive			GC-FID	PS 575-001 64
Xylene (o-,m-,p-, or mixed isomers)	96	50 ppm (220 mg/m³)	100 ppm (441 mg/m³)	21	3	50	200	7	15	GC-FID	ST 226-01 35
Yttrium	91	1 mg/m³	3 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Zinc chloride (fume)	91	1 mg/m³	2 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Zinc distearate (inhalable dust)	91	10 mg/m³	20 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76
Zinc distearate (respirable dust)	91	4 mg/m³		1056		2200 (2000)		8		XRF	CYC 225-69 95 FLT 225-19 or IOM 225-70A 92 FOAM 225-772 92 FLT 225-19 79
Zinc oxide	14/3			960		2000		8		GR	IOM 225-70A 92 FLT 225-58F 79
Zirconium compounds (as Zr)	91	5 mg/m³	10 mg/m³	960		2000		8		XRF	IOM 225-70A 92 FLT 225-19 76

√ *Use two 226-35 tubes.*
¶ *Use two 226-36 tubes.*
§ *Use 226-44-02 if RH 50% or greater.*
† *Filter requires coating.*
£ *The filter is not analysed.*
∑ *Contact HSE for more details on sampling and analysis.*

See page 196 for abbreviations.