Passive Sampling Guide

Chemical Hazard	Validation ** Level	Research Report	OSHA PELs Δ TWA (ppm)	OSHA PELs Δ CLG/STEL (ppm)	Sampling Rate √ (ml/min)	Measuring Range • (ppm)	Sampling Time Min (min)	Sampling Time Max (hr)	Analytical Method•	DE % §	SKC Part Number
Acetaldehyde			200			40-1200		8	DR		810-151D
Acetaldehyde			200			1.2-360		8	DR		810-152D
Acetaldehyde			200			0.1-20		8	DR		810-91D
Acetic acid	Calculated		10	15 #	19.6				GC-FID	99.2	575-001
Acetic acid			10	15 #		1.3-200	60	8	DR		810-81D
Acetic acid			10	15 #		0.5-100		8	DR		810-81D
Acetic anhydride			5			0.45-90		8	DR		810-81D
Acetone	Full	1303	1000		20.3 √		15	4	GC-FID	90.2	575-002
Acetone	Full	1303	1000		15.2 ∞		240	8	GC-FID	90.2	575-002
Acetone	Full					5.0-1500		8	DR		810-151D
Acetone			1000			5-1500		8	DR		810-151D
Acetone			1000			1.4-420		8	DR		810-152D
Acetonitrile	Calculated		40		22.4				GC-FID	103	575-002 Ω
Acetonitrile	Calculated		40		22.4				GC-FID	108	575-002 Ω
Acetyl methyl carbinol (acetoin)	Calculated		1000		14.9				GC-FID		575-002
Acrylonitrile	Full		2	10	20.4		15	8	GC-FID	81.0	575-002
Aldehydes (see specific compounds)									GC-FID		500-400
Allyl alcohol	Calculated		2	4	18.4				GC-FID	76.0	575-002
Allyl amine	Partial				22.4		30	8	HPLC-UV	107	500-400
Allyl Chloride	Calculated		1	2 #	17.8				GC-FID	96.1	575-001
Allyl Chloride	Calculated		1	2 #	17.8				GC-FID	101.3	575-002
Ammonia			50	35 #		2.5-1500	60	8	DR		800-01301
Ammonia			50	35 #		2.5-1000		8	DR		810-3D
Ammonia			50	35 #		0.1-10		8	DR		810-3DL
Iso-Amyl Acetate	Calculated		100		11.8				GC-FID		575-002
n-Amyl acetate	Calculated		100		11.8				GC-FID	93.5	575-001 Ω
n-Amyl acetate	Calculated		100		11.8				GC-FID	96.0	575-002
sec-Amyl acetate	Calculated		125		11.9				GC-FID		575-002
n-Amyl alcohol	Calculated				13.9				GC-FID	87.3	575-001
n-Amyl alcohol	Calculated				13.9				GC-FID	100.6	575-002
1-Amyl methyl ether	Calculated				13.2						575-001
Aroclor (Chlorinated and organonitrogen pesticides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Atrazine(Chlorinated and organonitrogen pesticides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Benzene	Full	1312	1	5	16.0		15	8	GC-FID	93.5	575-001
Benzene	OSHA 1005		1	5	17.1		15	4	GC-FID	93.6	575-002
Benzene						2.4-600		8	DR		810-122DL
Benzotrifluoride (trimethylbenzene; OXSOL 2000)	Bilevel		100		13.3		15	8	GC-FID	106	575-001
Benzotrifluoride (trimethylbenzene; OXSOL 2000)	Bilevel		100		13.3		15	8	GC-FID	107	575-002
Benzyl acetate	Calculated				10.8				GC-FID	91.2	575-002
Benzyl chloride	Calculated		1		12.3				GC-FID	98.7	575-001
Benzyl chloride	Calculated		1		12.3				GC-FID	98.9	575-002
Bromomethane	Calculated		200		18.1				GC-FID		575-001
Bromoform	Calculated		0.5		21.2				GC-FID		575-001
1-Bromopropane	Full				14.5		15	8	GC-FID	107	575-002
Butadiene			1	5		1.3-300	60	8	DR		800-01161
1,3-Butadiene			1	5		1.3-200		8	DR		810-174D
2-Butanone (Methyl ethyl ketone MEK)	Bilevel	1306	200		17.1		15	8	GC-FID	100	575-002
2-Butanone (Methyl ethyl ketone MEK)	OSHA 1004		200		16.88		15	4	GC-FID	92.3	575-002
2-Butoxyethanol (Butyl CELLOSOLVE solvent)	Calculated		50	1	12.0				GC-FID	89.7	575-002
n-Butyl acetate	Full		150	200 #	12.3		15	8	GC-FID	90.4	575-001
n-Butyl acetate	Full		150	200 #	13.2		15	8	GC-FID	98.7	575-002
sec-Butyl acetate	Calculated		200		12.9				GC-FID	96.2	575-001
sec-Butyl acetate	Calculated		200		12.9				GC-FID	96.6	575-002
tert-Butyl acetate	Calculated		200		12.9				GC-FID	95.1	575-001
tert-Butyl acetate	Calculated		200		12.9				GC-FID	94.8	575-002
Butyl acrylate	Bilevel				11.7		30	8	GC-FID	95.0	575-002
1-Butanol (n-butyl alcohol)	Calculated		100	50	15.5				GC-FID	94.0	575-001
1-Butanol (n-butyl alcohol)	Calculated		100	50	15.5				GC-FID	100	575-002
2-Butanol (sec-butyl alcohol)	Calculated		150		15.6				GC-FID	93.0	575-001
2-Butanol (sec-butyl alcohol)	Calculated		150		15.6				GC-FID	100	575-002
n-Butyl alcohol (1-butanol)	Calculated		100	50	15.5				GC-FID	94.0	575-001
n-Butyl alcohol (1-butanol)	Calculated		100	50	15.5				GC-FID	100	575-002
sec-Butyl alcohol (2-butanol)	Calculated		150		15.6				GC-FID	93.0	575-001
sec-Butyl alcohol (2-butanol)	Calculated		150		15.6				GC-FID	100	575-002 Ω
tert-Butyl alcohol	Calculated		100	150	15.8				GC-FID	84.0	575-002
n-Butyl amine	Partial			5	18.1		30	8	HPLC-UV	106	500-400
n-Butyl benzene	Calculated				11.23				GC-FID		575-001
Butyl CELLOSOLVE acetate (ethylene glycol monobutyl ether acetate)	Calculated				10.5				GC-FID		575-002
Butyl CELLOSOLVE ether	Calculated				10.5				GC-FID		575-002
Butyl CELLOSOLVE solvent (2-Butoxyethanol)	Calculated		50		12.0				GC-FID	89.7	575-002
tert-Butyl ether (Ethyl tert-butyl ether)	Bilevel	1356			13.1		30	8	GC-FID	101	575-001
n-Butyl glycidyl ether	Calculated		50		11.6				GC-FID	104	575-002
p-tert-Butyl toluene	Bilevel		10		10.4		15	8	GC-FID	100	575-001
Butyrolactone	Calculated				15.8				GC-FID	80.9	575-002
Camphor	Calculated				10.8				GC-FID	94.2	575-001
Camphor	Calculated		2mg/m³		10.8				GC-FID	113	575-002
Carbon dioxide			5000			0.13-30 vol%	60	8	DR		800-01051
Carbon dioxide			5000			65-2000	60	8	DR		800-01381
Carbon dioxide			5000			0.2-12%		8	DR		810-2D
Carbon monoxide			50			6-600	60	8	DR		800-33191
Carbon monoxide			50			1.04-2000		8	DR		810-1D
Carbon monoxide			50			0.4-400		8	DR		810-1DL
Carbon tetrachloride	Bilevel		10	25	14.1		30	8	GC-FID	98.3	575-001
delta-3-Carene	Partial				11.4		30	8	GC-FID	> 90	575-003
CELLOSOLVE solvent (2-Ethyoxyethanol)	Calculated		200		14.4				GC-FID	100.9	575-001
CELLOSOLVE solvent (2-Ethyoxyethanol)	Calculated		200		14.4				GC-FID	111.2	575-002
Chlorinated & organonitrogen herbicides (see specific compounds)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Chlorinated herbicides (see specific compounds)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Chlorine				1 (C)		2.4-240		8	DR		810-132D
Chlorine				1 (C)		0.08-100		8	DR		810-8D
1-Chloro-2-methyl benzene (Monochlorotoluene, OXSOL 10)	Bilevel		50 ◊		13.0		15	8	GC-FID	91.8	575-001
1-Chloro-2-methyl benzene (Monochlorotoluene, OXSOL 10)	Bilevel		50 ◊		13.0		15	8	GC-FID	91.0	575-002
1-Chloro-4-(trifluoromethyl)benzene (parachlorobenzotrifluoride, OXSOL 100)	Bilevel		25 ◊		11.8		15	8	GC-FID	102	575-001
1-Chloro-4-(trifluoromethyl)benzene (parachlorobenzotrifluoride, OXSOL 100)	Bilevel		25 ◊		11.8		15	8	GC-FID	108	575-002
Chlorobenzene	Calculated		75		14.2				GC-FID	93.3	575-001
Chlorobenzene	Calculated		75		14.2				GC-FID	99.0	575-002
Chlorobromomethane	Calculated		200		15.4				GC-FID		575-001
Chloroform	Bilevel			50 (C)	13.0		60	8	GC-FID	97.3	575-001
o-Chlorostyrene	Bilevel	1374			9.8		15	8	GC-FID	75.2	575-002
o-Chlorostyrene	Bilevel	1382			9.8		15	8	GC-FID	94.0	575-003
Cumene (isopropyl benzene)	Bilevel		50		12.8		15	8	GC-FID	99.3	575-001

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Cumene (isopropyl benzene)	Bilevel		50		12.8		15	8	GC-FID	106	575-002
Cumene (isopropyl benzene)			50			3.4-850		8	DR		810-122DL
Cyanazine (Chlorinated & organonitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Cyclohexane	Bilevel		300		15.6		15	8	GC-FID	105	575-001
Cyclohexane	Bilevel		300		15.6		15	8	GC-FID	109	575-002
Cyclohexanol	Calculated		50		13.5				GC-FID	98.0	575-001
Cyclohexanol	Calculated		50		13.5				GC-FID	105	575-002
Cyclohexanone	Partial		50		15.1		15	8	GC-FID	88.6	575-003
Cyclohexene	Calculated		300		15.4				GC-FID	102	575-001
Cyclohexene	Calculated		300		15.4				GC-FID	106	575-002
Cyclopentane	Calculated				16.1				GC-FID		575-001
2,4-D acid (Chlorinated & organitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
2,4-D BE (Chlorinated & organitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
n-Decane	Calculated				10.2				GC-FID	102	575-001
n-Decane	Calculated				10.2				GC-FID	104	575-002
Decyl alcohol (1-decanol)	Calculated				9.6				GC-FID	97.3	575-002
1-Decanol (decyl alcohol)	Calculated				9.6				GC-FID	97.3	575-002
2,4-D EH (Chlorinated & organitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002
Desflurane	Calculated				14.8				GC-FID		575-002
Diacetone alcohol	Calculated		50		12.4				GC-FID	92.9	575-002
1,2-Dibromoethane (ethylene dibromide)	Calculated		20	30	14.7				GC-FID	92.3	575-001
1,2-Dibromoethane (ethylene dibromide)	Calculated		20	30	14.7				GC-FID	99.4	575-002
1,2-Dichloro benzene (o-Dichlorobenzene)	Calculated			50	12.6				GC-FID	79.2	575-001
1,2-Dichloro benzene (o-Dichlorobenzene)	Calculated			50	12.6				GC-FID	77.1	575-002
m-Dichlorobenzene (1,3-dichlorobenzene)	Calculated			50	12.7				GC-FID	91.8	575-001
m-Dichlorobenzene	Calculated			50	12.7				GC-FID	92.7	575-002
o-Dichlorobenzene	Calculated			50	12.6				GC-FID	79.2	575-001
o-Dichlorobenzene	Calculated			50	12.6				GC-FID	77.1	575-002
p-Dichlorobenzene (1,4-dichlorobenzene)	Calculated		75		12.7				GC-FID	91.1	575-001
p-Dichlorobenzene	Calculated		75		12.7				GC-FID	94.7	575-002
1,2-Dichloro ethane (ethylene dichloride)	Bilevel		50	100	14.2		60	8	GC-FID	95.8	575-001
1,2-Dichloroethylene	Full		200		14.8		15	8	GC-FID	97.1	575-001
Dichloro ethyl ether	Calculated		5 ‡	15 (C)	12.7				GC-FID		575-001
1,2-Dichloropropane (Propylene dichloride)	Bilevel		75		14.3		15	8	GC-FID	97.7	575-001
cis-1,2-Dichloropropene	Calculated				15.2				GC-FID	91.4	575-001
cis-1,2-Dichloropropene	Calculated				15.2				GC-FID	94.3	575-002
Dicyclopentadiene	Calculated		5		11.8				GC-FID		575-001
N,N-Diethylamine			25			4-1600		8	DR		810-3D
Diethylene glycol monobutyl ether	Calculated				9.97				GC-FID		575-002
Diethyl ether (Ethyl ether)	Calculated		400		16.3				GC-FID		575-001
Diethyl ketone (3-pentanone)	Calculated				14.8				GC-FID	83.9	575-001
Diisobutyl ketone (DIBK)	Bilevel	1305	50		10.3		15	8	GC-FID	98.3	575-002
Dimethoxymethane (Methylal)	Calculated		1000		17.1				GC-FID		575-001
Dimethyl amine	Partial		10		18.2		30	8	HPLC-UV	111	500-400
Dimethyl amine			10			1.9-750		8	DR		810-3D
N,N-Dimethylaniline	Calculated		5	10	12.0				GC-FID		575-001
trans-1,2-Dimethyl cyclohexane	Calculated				12.4				GC-FID	106.1	575-001
trans-1,2-Dimethyl cyclohexane	Calculated				12.4				GC-FID	110.6	575-002
N,N-Dimethylformamide (DMF)	Calculated		10		16.1				GC-FID		575-002
2,6-Dimethyl heptane-4-one (isovalerone)	Calculated				10.7				GC-FID		575-002
2,2-Dimethylhexane	Calculated				11.86				GC-FID		575-001
Dimethyl sulfoxide	Calculated				15.96				GC-FID		575-002
1,4-Dioxane	Calculated		100		16.0				GC-FID	91.4	575-002
Diphenyl oxide (Phenyl ether)	Calculated		1		10.4				GC-FID		575-001
Dipropylene glycol methyl ether	Calculated		100	150 #	10.8				GC-FID	84.3	575-002
Dipropyl ketone (4-heptanone)	Calculated				12.3				GC-FID	85.3	575-001
Dipropyl ketone (4-heptanone)	Calculated				12.3				GC-FID	112.2	575-002
2,4-D ME (Chlorinated & organonitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002
Lauryl alcohol	Calculated				8.7				GC-FID	107.5	575-001
1-Dodecanol	Calculated				8.7				GC-FID	107.5	575-001
1-Dodecanol	Calculated				8.7				GC-FID	103	575-002
Dodecane	Calculated				9.29				GC-FID		575-001
Enflurane (Ethane)	Calculated		1		13.8				GC-FID		575-002
Epichlorohydrin	Calculated		5		16.0				GC-FID	70.8	575-001
Epichlorohydrin	Calculated		5		16.0				GC-FID	88.2	575-002
2,3-Epoxy-1-propanol	Calculated				16.7				GC-FID		575-002
Ethanol						125-25000	60	8	DR		800-01151
Ethanol (ethyl alcohol)	Calculated		1000		20.9				GC-FID	99	575-002
2-Ethoxyethanol (CELLOSOLVE solvent)	Calculated		200		14.4				GC-FID	100.8	575-001
2-Ethoxyethanol (CELLOSOLVE solvent)	Calculated		200		14.4				GC-FID	111.2	575-002
2-Ethoxyethyl acetate (CELLOSOLVE acetate)	Calculated		100		12.0				GC-FID	95.4	575-002
Ethrane (enflurane)	Calculated				13.8				GC-FID		575-002
Ethyl-2-methyl benzene	Calculated				11.65				GC-FID		575-001
Ethyl-4-methyl benzene	Calculated				11.65				GC-FID		575-001
Ethyl acetate	Bilevel		400		13.1		15	8	GC-FID	92.8	575-001
Ethyl acetate	Bilevel		400		14.4		15	8	GC-FID	100	575-002
Ethyl acrylate	Bilevel		25		13.7		15	8	GC-FID	94.2	575-002
Ethyl alcohol (ethanol)	Calculated		1000		20.9				GC-FID	99	575-002
Ethyl alcohol (ethanol)			1000			100-25000			DR		810-112D
Ethyl amyl ketone	Calculated		25		11.4				GC-FID	87.54	575-001
Ethyl amyl ketone	Calculated		25		11.4				GC-FID	110.7	575-002
Ethyl benzene	Bilevel		100		12.9		15	6	GC-FID	100	575-001
Ethyl benzene	Bilevel		100		12.9		15	6	GC-FID	104	575-002
Ethyl benzene	OSHA 1002		100		13.83 ø		15	8	GC-FID	99.1	575-002
Ethyl benzene			100			2.8-700			DR		810-122DL
Ethyl bromide (bromoethane)	Calculated		200		18.1				GC-FID		575-001
Ethyl butyl ketone (3-heptanone)	Calculated		50		12.3				GC-FID	87.9	575-001
Ethyl butyl ketone (3-heptanone)	Calculated		50		12.3				GC-FID	103.4	575-002
Ethyl CELLOSOLVE solvent (2-ethoxyethanol)	Calculated		200		14.4				GC-FID	111.2	575-002
Ethylene						1.56-240		8	DR		810-174D
Ethylene dibromide (1,2-dibromoethane)	Calculated		20	30	14.7				GC-FID	92.3	575-001
Ethylene dichloride (1,2-dichloroethane)	Calculated		20	30	14.7				GC-FID	99.4	575-002
Ethylene dichloride (1,2-dichloroethane)	Bilevel		50	100	14.2		60	8	GC-FID	95.8	575-001
Ethylene dichloride						3.9-600					810-174D
Ethylene glycol	Calculated				17.4				GC-FID		575-001
Ethylene glycol diethyl ether	Calculated				12.3				GC-FID		575-002
Ethylene glycol monobutyl ether acetate	Calculated				10.5				GC-FID		575-002
Ethylene glycol monohexyl ether	Calculated				10.5				GC-FID		575-001
Ethylene glycol monohexyl ether	Calculated				10.5				GC-FID		575-002
Ethylene oxide	Full	1543	1	5 EL	21.2		15	8	GC-ECD	102	575-005
Ethyl formate	Calculated		100		17.7				GC-FID		575-001
2-Ethylhexanol	Calculated				10.9				GC-FID		575-002
Ethyl hexyl acetate	Calculated				9.8				GC-FID		575-002

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Ethyl methacrylate	Full				13.1		15	8	GC-FID	84.7	575-001
Ethyl methacrylate	Full				13.1			8	GC-FID	104	575-002
Ethyl propionate	Calculated				14.0				GC-FID		575-001
Ethyl tert-butyl ether (tert-butyl ethyl ether)	Bilevel	1356			13.1		30	8	GC-FID	101	575-001
2-Fluorotoluene	Calculated				13.39				GC-FID		575-001
Formaldehyde	Full	1608	0.016	0.1	28.6		15	24	HPLC-UV	100*	500-100
Formaldehyde	Partial		0.016	0.1	20.4		7 (days)	7 (days)	HPLC-UV		500-100
Formaldehyde	NIOSH 3500 ~		0.016	0.1			5 (days	7 (days)	VAS		526-100
Formaldehyde	NIOSH 3500 ~		0.016	0.1			15	8	VAS		526-200
Formaldehyde	NIOSH 3500 ~		0.016	0.1				8	VAS		526-201
Formaldehyde			0.75	2		0.1-20		8	DR		810-91D
Formic acid			5			0.55-110		8	DR		810-81D
Freon 113	Calculated				14.1				GC-FID		575-001
Furfural			5			0.2-40		8	DR		810-91D
Glycidol (2,3-epoxy-1-propanol)	Calculated		50		16.7				GC-FID		575-002
Halothane	Calculated				15.3				GC-FID		575-002
Heptane	Bilevel		500		13.9		15	8	GC-FID	105	575-001
Heptane	Bilevel		500		13.9		15	8	GC-FID	108	575-002
2-Heptanone	Calculated				12.06				GC-FID		575-002
3-Heptanone (ethyl butyl ketone)	Calculated				12.3				GC-FID	87.9	575-001
3-Heptanone (ethyl butyl ketone)	Calculated				12.3				GC-FID	103.4	575-002
4-Heptanone (dipropyl ketone)	Calculated				12.3				GC-FID	85.3	575-001
4-Heptanone (dipropyl ketone)	Calculated				12.3				GC-FID	112.2	575-002
1-Heptene	Calculated				13.1				GC-FID		575-001
Herbicides (chlorinated & organonitrogen)(see specific compounds)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 Σ
Hexachloroethane	Calculated		1		11.5				GC-FID		575-001
Hexadecane	Calculated				7.67				GC-FID		575-001
n-Hexane	Bilevel		500		14.3		15	8	GC-FID	100	575-001
n-Hexane	Bilevel		500		14.3		15	8	GC-FID	112	575-002
Hexanol ((hexyl alcohol)	Calculated				12.6				GC-FID		575-002
2-Hexanone (methyl butyl ketone, MBK)	Calculated		100		13.4				GC-FID		575-002
Hexone (methyl isobutyl ketone, MIBK)	Bilevel	1304	100		13.5		15	8	GC-FID	94.6	575-002
Hexone (methyl isobutyl ketone, MIBK)	OSHA 1004				13.62		15	4	GC-FID	92.9	575-002
sec-Hexyl acetate	Calculated		50		11.1				GC-FID		575-002
Hexyl alcohol (hexanol)	Calculated				12.6				GC-FID		575-002
Hexylene glycol	Calculated			25	11.5				GC-FID		575-002
Hydrazine			1			16-650		8	DR		810-3D
Hydrochloric acid			5			1.3-200	60	8	DR		800-33111
Hydrocyanic acid			10			2.5-200	60	8	DR		800-33221
Hydrogen chloride			5			1.8-180		8	DR		810-132D
Hydrogen chloride			5			1-100		8	DR		810-14D
Hydrogen cyanide			10			1-200		8	DR		810-12D
Hydrogen fluoride			3			1-100		8	DR		810-17D
Hydrogen peroxide			1			0.5-40		8	DR		810-32D
Hydrogen sulphide				20		1.3-300	60	8	DR		800-33091
Hydrogen sulphide				20		0.2-200		8	DR		810-4D
Isoamyl acetate	Calculated				91.9				GC-FID		575-001
Isoamyl acetate	Calculated		100		11.9				GC-FID	108	575-002
Isoamyl alcohol	Calculated		100	125 #	13.9				GC-FID		575-002
Isobutyl acetate	Calculated		150		12.8				GC-FID		575-002
Isobutyl acrylate	Calculated				12.1				GC-FID		575-002
Isobutyl alcohol	Calculated		50		15.6				GC-FID		575-002
Isoflurane	Calculated				13.7				GC-FID		575-002
Isooctyl alcohol	Calculated		100		11.1				GC-FID		575-002
Isopentane	Calculated				15.8				GC-FID		575-001
Isophorone	Calculated		25		11.3				GC-FID		575-002
Isoprene						2.6-400		8	DR		810-174D
Isopropanol (Isopropyl alcohol)	Calculated		400	500 #	17.8				GC-FID	75.0	575-002
Isopropyl acetate	Calculated		250		14.1				GC-FID	88.5	575-001
Isopropyl acetate	Calculated		250		14.1				GC-FID	101	575-002
Isopropyl alcohol (2-Propanol)	Calculated		400	500 #	17.8				GC-FID		575-002
Isopropyl amine	Partial		5		13.0		30	8	HPLC-UV		500-400
Isopropyl benzene (cumene)	Bilevel		50		12.8		15	8	GC-FID	99.3	575-001
Isopropyl benzene (cumene)	Bilevel		50		12.8		15	8	GC-FID	106	575-002
Isopropyl ether	Calculated		500		13.2				GC-FID		575-001
Isopropyl glycidyl ether (IGE)	Calculated		50	50 #	12.8				GC-FID		575-001
Isovalerone (2,6-dimethyl heptane-4-one)	Calculated				10.7				GC-FID		575-002
Limonene	Calculated				11.4				GC-FID		575-003
Mercury	OSHA ID 140		0.1 mg/m³		20			8	AAS		520-02A, -03
Mesitylene (1,3,5-trimethylbenzene)	Calculated				12.1				GC-FID	93.6	575-001
Mesitylene (1,3,5-trimethylbenzene)	Calculated				12.1				GC-FID	96.0	575-002
Mesityl oxide	Calculated		25	15	13.7				GC-FID		575-001
2-Methoxy-1-propanol	Calculated				14.4				GC-FID		575-002
2-Methoxy-1-propyl acetate	Calculated				12.0				GC-FID		575-002
1-Methoxy-2-propanol	Calculated				14.6				GC-FID	100	575-002
1-Methoxy-2-propyl acetate	Calculated				12.2				GC-FID		575-002
2-Methoxyethanol (methyl CELLOSOLVE solvent)	Calculated		25		16.1				GC-FID		575-001
2-Methoxyethanol (methyl CELLOSOLVE solvent)	Calculated		25		16.1				GC-FID		575-002
5-Methyl-3-heptanone	Calculated				11.4				GC-FID	87.5	575-001
5-Methyl-3-heptanone	Calculated				11.4				GC-FID	110	575-002
Methyl acetate	Calculated		200	250 ‡	17.8				GC-FID		575-002
Methyl acrylate	Full		10 ‡		15.7		15	8	GC-FID	94.3	575-002
Methylal (Dimethoxymethane)	Calculated		1000		17.1				GC-FID		575-001
Methyl amine	Partial		10		18.4		30	8	HPLC-UV	101	500-400
Methyl amine			10			0.19-19		8	DR		810-3DL
Methyl amyl ketone	Calculated				12.8				GC-FID		575-002
2-Methyl butane	Calculated				15.8				GC-FID		575-001
Methyl butyl ketone (MBK, 2-hexanone)	Calculated		100		13.4				GC-FID		575-002
Methyl CELLOSOLVE acetate (ethylene glycol monomethyl ether acetate)	Calculated		25		13.1				GC-FID	92.4	575-002
Methyl CELLOSOLVE solvent (2-methoxyethanol)	Calculated		25		16.1				GC-FID	94.7	575-001
Methyl CELLOSOLVE solvent (2-methoxyethanol)	Calculated		25		16.1				GC-FID	91.1	575-002
Methyl chloroform (1,1,1-trichloroethane)	Bilevel		350	350 #	14.1		15	8	GC-FID	99.9	575-001
Methyl cyclohexane	Bilevel		500		14.2		15	8	GC-FID	106	575-001
1-Methylcyclohexanol	Full		100		12.5		15	8	GC-FID	108	575-001
1-Methylcyclohexanol	Full		100		12.5		15	8	GC-FID	94.7	575-002
Methylcyclopentane	Calculated				14.37				GC-FID		575-001
Methylene chloride	Full	1323	25	125	16.0		15	4	GC-FID	96.0	575-001
Methylene chloride	Full	1323	25	125	14.7		241	6π	GC-FID	96.0	575-001
Tert-amylMethyl ether (Methyl tert-amyl ether)	Bilevel	1355			13.1		30	8	GC-FID	99.0	575-001
Methyl ethyl ketone (MEK)	OSHA 1004		200		16.88		15	4	GC-FID	92.3	575-002
Methyl ethyl ketone (MEK, 2-butanone)	Bilevel	1306	200		17.1		15	8	GC-FID	100	575-002
Methyl ethyl ketone			200			6.5-1950		8	DR		810-151D

Passive Sampling Guide

Chemical Hazard	Validation ** Level	Research Report	OSHA PELs Δ TWA (ppm)	OSHA PELs Δ CLG/STEL (ppm)	Sampling Rate √ (ml/min)	Measuring Range • (ppm)	Sampling Time Min (min)	Sampling Time Max (hr)	Analytical Method•	DE % §	SKC Part Number
Methyl ethyl ketone			200			2-600		8	DR		810-152D
Methyl ethyl ketone			200			0.125-25		8	DR		810-91D
3-Methyl hexane	Calculated				12.8				GC-FID		575-001
Methyl iodide	Calculated		5		18.7				GC-FID		575-001
Methyl isoamyl ketone	Calculated		100		12.3				GC-FID		575-002
Methyl isobutyl carbinol (Methyl amyl alcohol)	Calculated		25	40 #	12.8				GC-FID		575-002
Methyl isobutyl ketone MIBK (hexone)	Bilevel	1304	100		13.5		15	8	GC-FID	94.6	575-002
Methyl isopropyl ketone	Calculated				14.8				GC-FID		575-002
Methyl isobutyl ketone (MIBK)	OSHA 1004				13.62		15	4	GC-FID	92.9	575-002
Methyl isobutyl ketone			100			11.5-3450		8	DR		810-151D
Methyl isobutyl ketone			100			4-1200		8	DR		810-152D
Methyl methacrylate (MMA)	Bilevel	1308	100		13.1		15	8	GC-FID	100.5	575-002
Methyl n-amyl ketone (2-heptanone)	Calculated		100		12.2				GC-FID		575-002
2-Methyl pentane	Calculated				14.1				GC-FID		575-001
Methyl propyl ketone (2-pentanone)	Calculated		200	250 #	15.7				GC-FID	92.6	575-001
alpha-Methyl styrene	Bilevel	1359		100(C)	12.6		15	8	GC-FID	95.7	575-002
alpha-Methyl styrene	Bilevel	1373		100(C)	12.6		15	8	GC-FID	94.0	575-003
Methyl-t-butyl ether (MTBE)	Full	1352			13.6		15	8	GC-FID	97.4	575-001
Methyl-tert-amyl ether (tert-amyl methyl ether)	Bilevel	1355			13.1		30	8	GC-FID	99.0	575-001
Metachlor (Chlorinated and organitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Monochlorotoluene (1-chloro-2-methyl benzene, OXSOL 10)	Bilevel		50 ◊		13.0		15	8	GC-FID	91.8	575-001
Monochlorotoluene (1-chloro-2-methyl benzene, OXSOL 10)	Bilevel		50 ◊		13.0		15	8	GC-FID	91.0	575-002
Naphthalene	Calculated		10		12.2				GC-FID		575-003
Nitric acid			2			0.8-80		8	DR		810-14D
Nitric acid			2			0.32-32		8	DR		810-17D
Nitrogen dioxide				5		1.3-200	60	8	DR		800-01111
Nitrogen dioxide				5		0.1-30		8	DR		810-9D
Nitrogen dioxide				5		0.01-3.0		8	DR		810-9DL
Nonane	Bilevel				10.6		15	8	GC-FID	103	575-001
Nonyl alcohol	Calculated				10.2				GC-FID		575-002
Octadecane	Calculated				7.10				GC-FID		575-001
Octane	Bilevel		500		12.7		15	8	GC-FID	106	575-001
Octane	Bilevel		500		12.7		15	8	GC-FID	110	575-002
Organitrogen herbicides (see specific compounds)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Osophorone	Calculated				11.3				GC-FID		575-002
Ozone			0.1			0.045-0.105		10 mins	DR		526-300
Parachlorobenzotrifluoride (1-Chloro-4-(trifluo romethyl) benzene; OXSOL 100)	Bilevel		25 ◊		11.8		15	8	GC-FID	102	575-001
Parachlorobenzotrifluoride (1-Chloro-4-(trifluo romethyl) benzene; OXSOL 100)	Bilevel		25 ◊		11.8		15	8	GC-FID	108	575-002
Pentane	Full	1311	1000		14.9		15	8	GC-FID	105.2	575-001
2-Pentanone (methyl propyl ketone)	Calculated		200		15.7				GC-FID	92.6	575-002
3-Pentanone (diethyl ketone)	Calculated				14.8				GC-FID	83.9	575-001
3-Pentanone (diethyl ketone)	Calculated				14.8				GC-FID	100.3	575-002
1-Pentene	Calculated				16.3				GC-FID		575-001
2-Pentyl acetate (sec-amyl acetate)	Calculated		125		11.9				GC-FID		575-002
Perchloroethylene (tetrachloroethylene)	Full		100	200(C)	13.1		15	8	GC-FID	101	575-001
Perchloroethylene (tetrachloroethylene)	OSHA 1001		100	200(C)	13.06 ø		15	4	GC-FID	95.4	575-002
Perchloroethylene			100	200(C)		25-1500	60	8	DR		800-01401
Phenyl ether (Diphenyl oxide)	Calculated		1		10.4				GC-FID		575-001
Phenyl glycidyl ether	Calculated		10		11.1				GC-FID		575-001
alpha-Pinene †	Partial				11.4		30	8	GC-FID	> 95	575-003
beta-Pinene †	Partial				11.4		30	8	GC-FID	> 80	575-003
2-Propanol (Isopropyl alcohol)	Calculated		400	500	17.8				GC-FID	75.0	575-002
n-Propanol (Propyl alcohol)	Calculated		200		17.6				GC-FID	87.3	575-001
n-Propanol (Propyl alcohol)	Calculated		200		17.6				GC-FID	97.8	575-002
Propionic acid	Calculated				16.8				GC-FID		575-003
n-Propyl acetate	Calculated		200		14.6				GC-FID	87.5	575-001
n-Propyl acetate	Calculated		200		14.6				GC-FID	101.1	575-002
Propyl bromide	Full				14.5		15	8	GC-FID	100	575-001
Propyl bromide	Full				14.5		15	8	GC-FID	107	575-002
1-Bromopropane	Full				14.5		15	8	GC-FID	100	575-001
Propylene dichloride (1,2-dichloro propane)	Bilevel		75		14.3		15	8	GC-FID	97.7	575-001
Propylene glycol monomethyl ether	Full				14.6		15	8	GC-FID	102	575-002
Propylene glycol monomethyl ether acetate	Calculated				12.2				GC-FID		575-001
Propylene oxide	Calculated		100		19.9				GC-FID	98.0	575-001
Propylene oxide	Calculated		100		19.9				GC-FID	99.7	575-002
Pyridine	Calculated		5		16.3				GC-FID	88.18	575-002
Sevoflurane	Calculated				13.1				GC-FID		575-002
Simazine (Chlorinated & organonitrogen herbicides)	NIOSH 9201				Varies		Varies	Varies	GC-ECD		578-002 ∑
Styrene	Full	1315	100	200(C)	13.7		15	8	GC-FID	86.3	575-002
Styrene	Full	1313	100	200(C)	13.7		15	8	GC-FID	100	575-003
Sulphur dioxide			5			0.7-150		8	DR		800-01091
Sulphur dioxide			5			0.2-100		8	DR		810-5D
Sulphur dioxide			5			10-600		8	DR		810-5DH
Terpineol	Calculated				10.5				GC-FID		575-003
1,1,2,2-Tetrachloroethane	Bilevel		5		11.8		480*∞	8	GC-FID	64.4 *	575-001
Tetrachloroethylene (perchloroethylene)	Full		100	200(C)	13.1		15	8	GC-FID	101	575-001
Tetrachloroethylene	OSHA 1001		100	200(C)	13.06 ø		15	4	GC-FID	95.4	575-002
Tetrachloroethylene						3-150			DR		810-133D
Tetradecane	Calculated				8.30				GC-FID		575-001
Tetrahydrofuran	Calculated		200		17.4				GC-FID	88.8	575-001
Tetrahydrofuran	Calculated		200		17.4				GC-FID	99.0	575-002
1,2,3,4-Tetramethyl benzene	Calculated				11.1				GC-FID		575-001
1,2,3,5-Tetramethyl benzene	Calculated				11.2				GC-FID		575-001
1,2,4,5-Tetramethyl benzene	Calculated				11.2				GC-FID		575-001
Toluene	Bilevel		200	300(C)	14.5		15	8	GC-FID	97.9	575-001
Toluene	OSHA 111		200	300(C)	14.9 ø		10	4	GC-FID	97.0	575-002
Toluene			200	300(C)		13-300	60	8	DR		800-01401
Toluene			200	300(C)		2-500		8	DR		810-122DL
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Calculated		1000	1250 #	14.1				GC-FID		575-001
1,1,1-Trichloroethane (methyl chloroform)	Bilevel		350	300 #	14.1		15	8	GC-FID	99.9	575-001
1,1,2-Trichloroethane	Bilevel		10		12.5		15	8	GC-FID	96.7	575-001
Trichloroethylene	Full		100	200(C)	14.9		15	8	GC-FID	102	575-001
Trichloroethylene	OSHA 1001		100	200(C)	14.26 ø		15	4	GC-FID	97.5	575-002
Trichloroethylene			100	200		25-1000	60	8	DR		800-01441
Trichloroethylene			100	200		3-300		8	DR		810-132D
Trichloromethylbenzene (benzotrifluoride, OXSOL 2000)	Bilevel		100 ◊		13.4		15	8	GC-FID	106	575-001
Trichloromethylbenzene (benzotrifluoride, OXSOL 2000)	Bilevel		100 ◊		13.4		15	8	GC-FID	107	575-002
1,2,3-Trichloropropane	Bilevel		50		11.9		15	8	GC-FID	98.1	575-001
Tridecane	Calculated				8.68				GC-FID		575-001
Triethylamine			25			5.3-2100		8	DR		810-3D
Trimethylamine						0.23-23			DR		810-3DL

Passive Sampling Guide

Chemical Hazard	Validation ** Level	Research Report	OSHA PELs Δ TWA (ppm)	OSHA PELs Δ CLG/STEL (ppm)	Sampling Rate √ (ml/min)	Measuring Range • (ppm)	Sampling Time Min (min)	Sampling Time Max (hr)	Analytical Method•	DE % §	SKC Part Number
1,2,3-Trimethyl benzene	Calculated		25 ¶		12.0				GC-FID		575-001
1,2,4-Trimethyl benzene	Calculated		25 ¶		12.1				GC-FID	88.4	575-001
1,2,4-Trimethyl benzene	Calculated		25 ¶		12.1				GC-FID	88.9	575-002
1,3,5-Trimethyl benzene (mesitylene)	Calculated		25 ¶		12.1				GC-FID	93.6	575-001
1,3,5-Trimethyl benzene (mesitylene)	Calculated		25 ¶		12.1				GC-FID	96.0	575-002
2,2,4-Trimethylpentane	Calculated				11.89				GC-FID		575-001
Undecane	Calculated				9.62				GC-FID		575-001
Vinyl-2-pyrrolidone	Calculated				12.87				GC-FID		575-002
Vinyl acetate	Full			4 (C) #	16.3		30	8	GC-FID	92.0	575-002
Vinyl bromide	Calculated		LFC ‡		18.2				GC-FID		575-001
Vinyl chloride			1			1.56-240		8	DR		810-174D
Vinylidene chloride	Bilevel		LFC ‡		12.3		60	8	GC-FID	95.2	575-001
Vinylidene chloride			LFC ‡			6-600		8	DR		810-132D
Vinyl toluene	Calculated		100	50	12.3				GC-FID		575-002
Xylene			100			3.4-850		8	DR		810-122DL
m-Xylene	Bilevel		100		12.5		15	8	GC-FID	96.6	575-001
m-Xylene	Bilevel		100		12.5		15	8	GC-FID	101	575-002
m-Xylene	OSHA 1002		100		13.82 ø		15	8	GC-FID	96.1	575-002
o-Xylene	Bilevel		100		11.9		15	8	GC-FID	91.0	575-001
o-Xylene	OSHA 1002		100		14.24 ø		15	8	GC-FID	89.4	575-002
p-Xylene	Bilevel		100		12.8		15	8	GC-FID	95.6	575-001
p-Xylene	Bilevel		100		12.8		15	8	GC-FID	103	575-002
p-Xylene	OSHA 1002		100		13.94 ø		15	8	GC-FID	95.3	575-002

Key to abbreviations

see page 104 for analytical methods or page 52 for sampling equipment

* Lower than the NIOSH-accepted guidelines.

\# NIOSH Short-Term Exposure Limit (STEL).

∞ Depends on detector sensitivity.

‡ NIOSH Recommended Exposure Limit (REL)

◊ Occidental Chemical corporate exposure limits.

= Valid for PEL samples greater than 4 hours duration. If more than 1000 ppm of other contaminants are present reduce max. sample time to 4 hours.

¶ OSHA construction industry standards.

Σ Use tape 578-003 for attaching patch to skin; 578-004 for attaching patch to clothing.

Δ Agency standards for OSHA listings represent the OSHA PELs reported in 29 CFR 1910.1000 part 1910, section 1000.

~ Validation based on NIOSH 3500.

Ω Data with other compounds indicate that Anasorb 747 (575-002) might be better for this compound. Activated charcoal (575-001) would also be acceptable.

† Validated by Swedish National Institute of Working Life to meet limit values in Sweden (150 mg/m^3 each compound).

§ The values given for the desorption efficiency were obtained in SKC Inc laboratories. Call SKC for details on the desorption solvent used. Values obtained by other workers may differ from these by at least the precision of the analysis.

√ Valid for STEL samples up to 4 hours duration.

• Measuring ranges for color diffusion tubes are listed as the widest measuring range. These ranges may vary with shorter sample times. Usually, lower measuring ranges may be obtained with shorter sample times. See the instructions included with the diffusion tube package for detailed information or contact SKC Technical Support.

£ Abbreviations are found on page 104

** In accordance with ASTM D6346-98 & ANSI 104-1998 standards, uses of samplers outside the range of conditions used in these validation tests does not assure accurate results and is not recommended. It is the user's responsibility to determine whether the conditions of the sampling site fall within the range tested. For bi-level validations, it can be assumed that the applicable range is that used for testing the lower member of the homologous series.

ø Sampling rate generated by OSHA SL Tech Center. SKC in-house validation produced a similar sampling rate. SKC recommends using the OSHA rate for compliance sampling.

π If more than 1000 ppm contaminants are present, reduce maximum sampling time to 4 hours

EL Excursion Limit

LFC Lowest feasible limit