

## Numerical Index of Kitagawa Detector Tubes

Tube No.	Detector Tube	Tube No.	Detector Tube	Tube No.	Detector Tube	Tube No.	Detector Tube	Tube No.	Detector Tube
100	Carbon monoxide-length of strain	◇111U	Cyclohexene	122SD	Ethylene oxide-low range	156S	Hydrogen fluoride	190U	Methyl cellosolve
101S	Acetylene	◇111U	Decahydronaphthalene	●122SL	Ethylene oxide	157JS	Methyl bromide	192S	Epichlorohydrin
102SA	Acetone	◇111U	n-Decane	122SM	Ethylene oxide	157SA	Methyl bromide	193S	Methyl styrene
◇102SA	Tetrahydrofuran	◇111U	Diethyl benzene	123S	Dimethyl ether	157SB	Methyl bromide	194S	1,3-Dichloropropane
102SC	Acetone	◇111U	Ethyl methacrylate	124SA	Toluene	158S	Styrene	196S	N,N-Dimethylformamide
102SD	Acetone	◇111U	Isopropyl ether	124SB	Toluene	158SB	Styrene	197U	Cyclohexanone
103SA	Sulphur dioxide	◇111U	n-Honane	124SH	Toluene	159SA	Oxygen	198U	Methyl cyclohexanone
103SB	Sulphur dioxide	◇111U	1,2,4-Trimethyl benzene	125SA	Propane	159SB	Oxygen	199U	Methyl cyclohexanol
103SC	Sulphur dioxide	◇111U	n-Undecane	126B	Carbon dioxide	159SC	Oxygen - Non-heating type	206U	Cyclohexanol
103SD	Sulphur dioxide	◇113SB	Hydrogen cyanide	126SA	Carbon dioxide	160S	Methyl chloroform	208U	Isobutyl alcohol
103SE	Sulphur dioxide	112SB	Hydrogen cyanide	126SB	Carbon dioxide	162U	Tetrahydrofuran	209U	Isopentyl alcohol
103SF	Sulphur dioxide-in flue gas	112SC	Hydrogen cyanide	126SF	Carbon dioxide	163SA	Propylene oxide	210U	Pentyl acetate
103SG	Sulphur dioxide	113SA	n-Hexane	126SG	Carbon dioxide	164SA	Methyl mercaptan	211U	Butyl acrylate
104SA	Ethyl alcohol	113SB	n-Hexane	126SH	Carbon dioxide-extra high range	164SH	Methyl mercaptan	◇211U	Ethyl acrylate
105SA	Ammonia	◇113SB	Isobutylene	126UH	Carbon dioxide-ultra high range	165SA	Ethyl mercaptan	◇211U	Isobutyl acrylate
105SB	Ammonia	◇113SB	Methyl cyclohexane	128SA	Acrylonitrile	165SB	Ethyl mercaptan	211U	Methyl acrylate
105SC	Ammonia	◇113SB	2,2,4-Trimethyl pentane	128SB	Acrylonitrile	166S	Ethylene dibromide	213S	Triethyl amine
105SD	Ammonia	◇113SB	Heptane	128SC	Acrylonitrile	167S	Hydrogen selenide	214S	o-Dichlorobenzene
◇105SD	Butyl amine	◇113SB	Isobutane	128SD	Acrylonitrile	168SA	1,3-Butadiene	215S	p-Dichlorobenzene
105SD	Cyclohexyl amine	◇113SB	Pentane	129	Nickel carbonyl	168SB	1,3-Butadiene	216S	Acetic acid
◇105SD	Dibutyl amine	113SC	n-Hexane	130U	tert-Butyl mercaptan	168SC	1,3-Butadiene	216S	Formic acid
◇105SD	Diisopropyl amine	114	Bromine	130U	Ethyl mercaptan	168SD	1,3-Butadiene	◇216S	Acetic anhydride
◇105SD	N,N-Dimethylaniline	115S	Cyclohexane	130U	Isopropyl mercaptan	168SE	1, 3-Butadiene	◇216S	Acrylic acid
◇105SD	Dipropyl amine	116	Chlorine dioxide	130U	Methyl mercaptan	169S	Chloroprene	◇216S	Butyric acid
◇105SD	n-Methyl aniline	117SA	Nitrogen dioxide	130U	Isopropyl mercaptan	171SA	Formaldehyde	◇216S	Isobutyric acid
◇105SD	Morpholine	117SB	Nitrogen dioxide	130U	n-Propyl mercaptan	171SB	Formaldehyde	◇216S	Isovaleric acid
◇105SD	Pentyl amine	117SD	Nitrogen dioxide	131	Inorganic gas qualitative detector tube	171SC	Formaldehyde	◇216S	Maleic anhydride
◇105SD	Propyl amine	118SB	Benzene - in presence of gasoline and other aromatic hydrocarbons	132SA	Vinyl chloride	172S	Chloropicrin	◇216S	Methacrylic acid
◇105SD	Pyridine	118SC	Benzene	132SB	Vinyl chloride	173SA	Hydrogen chloride	◇216S	Propionic acid
◇105SD	o-Toluidine	118SD	Benzene	132SC	Vinyl chloride	173SB	Hydrogen chloride	◇216S	n-Valeric acid
◇105SD	p-Toluidine	118SE	Benzene-in presence of gasoline and the other aromatic hydrocarbons	133A	Acetaldehyde	174A	Nitro-oxide compound	219S	Hydrazine
●105SE	Ammonia	●119LPG	Methanol in LP Gas	133SB	Acetaldehyde	174B	Nitro-oxide compound-in flue gas	221SA	n-Butane
●105SE	Trimethyl amine	119SA	Methyl alcohol	134SA	Trichloroethylene	175SA	Nitrogen oxides	222S	Diethyl amine
105SH	Ammonia	◇119U	1,4-Dioxane	134SB	Trichloroethylene	175SH	Nitrogen oxides	222S	Trimethyl amine
105SM	Ammonia	119U	Methyl alcohol	134SG	Triochloroethylene	175U	Nitrogen oxides	223SA	2,2-Dichloroethyl ether
106B	Carbon monoxide - in presence of ethylene, colour intensity	●120GR	Hydrogen sulphide	135SA	Tetrachloroethylene	176S	Methyl iodide	224SA	Monoethanol amine
106C	Carbon monoxide - in presence of ethylene and/or nitrogen oxides, colour intensity	●120GT	Hydrogen sulphide	135SB	Tetrachloroethylene	177S	Water vapour	227S	Dimethyl amine
106S	Carbon monoxide	120SB	Hydrogen sulphide	135SG	Tetrachloroethylene	177SA	Water vapour	227S	Ethyl amine
106SA	Carbon monoxide	120SC	Hydrogen sulphide-in presence of sulphur dioxide	●135SM	Tetrachloroethylene	177U	Water vapour	227S	Methyl amine
106SC	Carbon monoxide	120SD	Hydrogen sulphide	136	Acrolein	177UR	Water vapour-ultra low range	229S	N,N-Dimethylacetamide
106SH	Carbon monoxide	120SE	Hydrogen sulphide	137U	Hydrogen	178SB	Chlorobenzene	230SA	1,2-Dichloroethane
106UH	Carbon monoxide-ultra high range	120SF	Hydrogen sulphide	138U	Butyl acetate	179S	Ethyl benzene	232SA	Ethylene glycol
106SS	Carbon monoxide	120SH	Hydrogen sulphide	◇139SB	Butyl acetate	233S	Nitric acid vapour	232SB	Ethylene glycol
107SA	Diethyl ether	120SM	Hydrogen sulphide	◇139SB	1,4-Dioxane	235SA	1,1-Dichloroethane	235SA	1,1-Dichloroethane
107U	Diethyl ether	120UH	Hydrogen sulphide-ultra high range	◇139SB	Isobutyl acetate	181S	Aniline	236SA	1,1,2-Trichloroethane
108B	Ethylene - colour intensity	120UT	Hydrogen sulphide-ultra high range	◇139SB	Isopropyl acetate	182SA	Ozone	237S	Vinyl acetate
108SA	Ethylene-high range	121SA	Phosphine in acetylene	139SB	Methyl ethyl ketone	182SB	Ozone	238S	Furfural alcohol
●108SC	Ethylene	121SB	Phosphine in acetylene	139U	Methyl ethyl ketone	182U	Ozone	239S	Carbonyl sulphide
109SA	Chlorine	121SC	Phosphine	◇139U	Diisobutyl ketone	183U	Cresol	240S	Silane
109SB	Chlorine	121SD	Phosphine	140SA	Arsine	183U	Phenol	242S	Diborane
109U	Chlorine	121SH	Phosphine-high range	141SA	Carbon disulphide	◇184S	Allyl alcohol	243U	Tetraethoxysilane
110S	Gasoline	●121SS	Phosphine	141SB	Carbon disulphide	184S	Methyl methacrylate	244U	Sulphuric acid
111SA	Ethyl acetate	121U	Arsine	142S	Mercury vapor	185S	Propylene	247S	Hydrogen peroxide
◇111SA	Methyl acetate	121U	Phosphine	143SA	Xylene	186	Organic gas checker	280S	Acetylene-Ethylene - separation measurement
111U	Ethyl acetate	122SA	Ethylene oxide	143SB	Xylene	186B	Organic gas qualitative detector tube	281S	Oxygen-Carbon dioxide - separation measurement
◇111U	tert-Butanol	◇122SA	Furan	145SA	1,2-Dichloroethylene	187S	General hydrocarbons	282S	Hydrogen Sulphide-Mercaptans - separation measurement
◇111U	Butyl ether	◇122SA	Isopropyl alcohol	146S	Phosgene	188U	Isopentyl acetate	282S	Hydrogen Sulphide-Mercaptans - separation measurement
◇111U	Butyl methacrylate	◇122SA	Methyl ethyl ketone	147S	Carbon tetrachloride	189U	2-Butanol	●282S	Hydrogen Sulphide-Mercaptans
◇111U	tert-Butyl methyl ether	◇122SA	Methyl isobutyl ketone	150U	Isopropyl alcohol	◇190U	1-Butanol	300	Air flow indicator tube
◇111U	Cumene	122SC	Ethylene oxide	151U	Propyl acetate	◇190U	Diacetone alcohol	800B	Charcoal tube
				152S	Chloroform	◇190U	Ethyl cellosolve	801	Silica-gel tube
				153U	Isobutyl acetate	◇190U	Ethyl cellosolve acetate		
				◇153U	Naphthalene	◇190U	Furfural		
				155U	Methyl isobutyl ketone	◇190U	Isoprene		
						◇190U	Mesityl oxide		

◇ With conversion chart

● New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
Acetaldehyde	133A	0.004~1.0%	1	yellow	pink	1	10	Acetone (1,400), Acrolein (35), Methyl ethyl ketone (900), Methyl isobutyl ketone (2,900), SO <sub>2</sub> (10)
	133SB	5~140	1	yellow	pink	2	10	Other Aldehydes, Ethanol
Acetic Acid	216S <sup>∞</sup>	1~50	1	pale pink	yellow	3	10	SO <sub>2</sub> (1/20 Acetic acid*), NO <sub>2</sub>
Acetic anhydride	216S <sup>◇</sup>	1~15	1	pale pink	yellow	3	10	(10), HCl (2 Acetic acid*), Cl <sub>2</sub> (5)
Acetone	102SA	0.1~2.0% 1.0~5.0%	1 1/2	orange	dark brown	3	10	Alcohols, Other Ketones, Aromatic hydrocarbons, Esters, Halogenated hydrocarbons (0.5%)
	102SC	0.01~4.0%	1	yellow	pink	1	10	Acetaldehyde (30), Acrolein (20), Methyl ethyl ketone (150), Methyl isobutyl ketone (400)
	102SD <sup>∞</sup>	125~5,000 50~2,000 20~800	1/2 1 2	yellow	dark brown	2	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons
Acetylene	101S	50~1,000	1	pale yellow	brownish blue	3	10	Olefins (10), H <sub>2</sub> S (10), CO (50), NH <sub>3</sub> , Butadiene (25), HCN, Cl <sub>2</sub> , NO <sub>2</sub> , CS <sub>2</sub> , Benzene
<b>(Acetylene dichloride)</b>		see 1,2-Dichloroethylene						
Acetylene - Ethylene separately measureable	280S	C <sub>2</sub> H <sub>2</sub> ; 20~300	1	yellow	dark brown	1	2X5	Tube for C <sub>2</sub> H <sub>2</sub> ; CO (10), H <sub>2</sub> (5,000), Ethylene (2,000),
		C <sub>2</sub> H <sub>4</sub> ; 200~2,000		pale yellow	blue			Tube for C <sub>2</sub> H <sub>4</sub> ; CO (1,350), Acetylene (370), Propylene (20)
Acrolein	136	0.005~1.8%	1	yellow	pink	1	10	Acetone (20), Acetaldehyde (70), Methyl ethyl ketone (60), Methyl isobutyl ketone (500)
<b>(Acryl aldehyde)</b>		see Acrolein						
Acrylic acid	216S	1~50	1	Pale pink	Yellow	3	10	
Acrylonitrile	128SA	0.1~3.5%	1	orange	dark green	3	10	Acetylene (3%), Propane
	128SB	10~500	1	yellow	pale blue	2	10	(0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	128SC	1~120	2	yellow	pink	1	2X5	Methyl ethyl ketone (600), Styrene (250), HCN (2), Butadiene (200)
	128SD	1~20 0.5~10 0.25~5 0.2~4	1 2 4 5	yellow	red	1	2X5	HCN
Allyl alcohol	184S <sup>◇</sup>	20~500	1	yellow	pale blue	2	10	Esters, Ketones, Alcohols, Aromatic hydrocarbons, Halogenated hydrocarbons
<b>(Amidrazone)</b>		see Hydrazine						
<b>(Aminobenzene)</b>		see Aniline						
<b>(2-Aminoethanol)</b>		see Monoethanol amine						
Ammonia	105SA	0.5~10%	1	pink	grey or yellow	3	10	Amines
	105SB	50~900	1	pale purple	pale yellow	3	10	SO <sub>2</sub> (1/4 NH <sub>3</sub> *), Cl <sub>2</sub> (2), Amines
	105SC	10~260 5~130	1	pale purple	pale yellow	3	10	
			2					
	105SD	1~20 0.5~10 0.2~4	1	pale purple	pale yellow	3	10	Amines
			2					
			5					
105SE	10~200 5~100 1~20	1/2	pale purple	pale yellow	3	10		
		1						
105SH	0.5~30%	1	pink	blue brownish green	3	10	H <sub>2</sub> S (3,000)	
105SM	0.1~1.0%	1	pale purple	pale yellow	2	10	Amines	

<sup>∞</sup> SEI certified

\* Interference by coexistence of indicated substance at more than the parenthesized rate

<sup>◇</sup> With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
<b>(Amyl acetate)</b> see Pentyl acetate								
Aniline	181S	2~30 1~15	1 2	white	yellow	3	10	Toluidine (1/3 Aniline*), NH <sub>3</sub> , Aliphatic amines, or Aromatic amines (the same concentration of Aniline)
Arsine	140SA	5~160	1	white	dark brown	2	10	H <sub>2</sub> S (5), Hydrogen selenide (5), Phosphine (5)
	121U	0.1~2.0 0.05~1.0	1 2	pale yellow	pink	2	10	Hydrogen selenide, Mercaptans, H <sub>2</sub> S, HCN, SO <sub>2</sub>
Benzene - in presence of gasoline and other aromatic hydrocarbons	118SB	5~300	1	white	greenish brown	2	2X5	Toluene (over 150), Hexane (800), Xylene (over 300)
	118SE	1~80 0.2~1	1 5	white	greenish brown	2	2X5	
Benzene	118SC	4~100 2~50 1~25	1 2 4	white	greenish brown	2	10	Toluene, Xylene, CO (50), Hexane (100)
	118SD	1~75 0.2~15 0.1~7.5	1 5 10	white	greenish brown	2	2X5	
Bromine	114	1~20	1	white	orange	2	10	Cl <sub>2</sub> (1), ClO <sub>2</sub> , NO <sub>2</sub>
<b>(Bromomethane)</b> see Methyl bromide								
1,3-Butadiene	168SA	0.03~2.6%	1	brownish orange	dark brown	3	10	Other organic gases or vapors except halogenated hydrocarbons (50), Propane (0.2%), Acetylene (3%)
	168SB	30~600	1	pale yellow	white	3	10	CO, Butane, Pentane, Ethylene, Propylene, Butylene, H <sub>2</sub> S, Benzene, NH <sub>3</sub> , HCN
	168SC	5~100 2.5~50	1 2	pale yellow	pale blue	1	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons
	168SE	0.5~10.0 0.1~2.0	1 4	pink	white	3	2X5	
n-Butane	221SA	0.05~0.6%	1	orange	brown	3	10	Toluene, Hexane, Trichloroethylene
1-Butanol	190U <sup>◇</sup>	5~100	3	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
2-Butanol	189U	10~300 4~120	2 4	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones
tert-Butanol	111U <sup>◇</sup>	20~500	1	yellow	brown	2	10	Halogenated hydrocarbons
<b>(2-Butanone)</b> see Methyl ethyl ketone								
Butyl acetate	139SB <sup>◇</sup>	0.01~1.0%	2	orange	brownish green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	138U	10~400	1	pale yellow	pale blue	1	10	Other organic gases or vapors
Butyl acrylate	211U	2~60	2	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
<b>(n-Butyl alcohol)</b> see 1-Butanol								
<b>(sec-Butyl alcohol)</b> see 2-Butanol								
Butyl amine	105SD <sup>◇</sup>	1~20	1	pale purple	pale yellow	3	10	
Butyl cellosolve	190U <sup>◇</sup>	10~1,000	3	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
Butyl ether	111U <sup>◇</sup>	10~1,200	1	yellow	brown	2	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons
tert-Butyl mercaptan	130U	0.5~5 1~10	1 1/2	pale yellow	pink	2	10	Arsine, Hydrogen selenide, H <sub>2</sub> S, HCN
Butyl methacrylate	111U <sup>◇</sup>	20~1,000	1	yellow	brown	2	10	

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◇ With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
tert-Butyl methyl ether	111U <sup>◇</sup>	20~500	1	yellow	brown	2	10	
Butyric acid	216S <sup>◇</sup>	3~60	1	pale pink	yellow	3	10	
Carbon dioxide	126B	0.03~0.7% 100~1,500	1 3	purplish blue	pale pink	2	10	HCN (100), Cl <sub>2</sub> (200), SO <sub>2</sub> , H <sub>2</sub> S (150), NO <sub>2</sub>
	126SA	0.1~2.6% 0.2~5.2%	1 1/2	purplish blue	pale pink	2	10	HCN (200), Cl <sub>2</sub> (100), SO <sub>2</sub> (500), H <sub>2</sub> S (100)
	126SB	0.05~1.0%	1	purplish blue	pale pink	2	10	HCN (100), Cl <sub>2</sub> (200), SO <sub>2</sub> , H <sub>2</sub> S (150), NO <sub>2</sub>
	126SF	100~2000 200~4000	1 1/2	pink	yellow	2	10	
	126SG	0.02~0.7% 0.04~1.4%	1 1/2	pink	yellow	2	10	HCN
	126SH	1~20%	1	pink	yellow	2	10	SO <sub>2</sub> (3,000), H <sub>2</sub> S (3,000), NO <sub>2</sub> (50)
	126UH	5~50%	1/2	white	purple	2	10	
Carbon disulfide	141SA	30~500	1	pink	yellow	2	2X5	H <sub>2</sub> S (400), SO <sub>2</sub> , Cl <sub>2</sub>
	141SB <sup>∞</sup>	2~50 0.8~20	2 4	pink	yellow	3	2X5	H <sub>2</sub> S (120), SO <sub>2</sub> , Cl <sub>2</sub>
Carbon monoxide	100	25~1,000 5~300	1 3	yellow	dark brown	3	10	Ethylene (5,000), H <sub>2</sub> (5,000), Acetylene, SO <sub>2</sub> or NO <sub>2</sub> (1/5 CO*)
	106S <sup>∞</sup>	10~250	3	yellow	dark brown	2	10	Acetylene (5), H <sub>2</sub> S (20), SO <sub>2</sub> (1/5 CO*), NO <sub>2</sub> (1/10 CO*)
	106SA	40~2,000 5~50 20~1,000	1/2 4 1	yellow	dark brown	3	10	Ethylene or H <sub>2</sub> (5,000), Acetylene (1/5 CO*), SO <sub>2</sub> (1/5 CO*), NO <sub>2</sub> (1/5 CO*)
	106SC	1~50	1	orange	reddish purple	1	10	SO <sub>2</sub> , NO <sub>2</sub> or Acetylene (1/50 CO*), Ethylene (1,000)
	106SH	0.1~2.0%	1	white	brown	1	10	Propane (0.15%), Isobutane (0.2%), Hexane (0.1%), Acetylene (0.3%), Ethylene (0.15%)
	106SS	30~500	1	yellow	dark brown	1.5	10	Acetylene (1/20 CO*), SO <sub>2</sub> (1/2 CO*), NH <sub>3</sub> (100 CO*), H <sub>2</sub> S (1/2 CO*)
	106UH	0.1~10% 0.2~20%	1 1/2	white	dark brown	3	10	Propane, Isobutane, Acetylene, Ethylene, Hexane
Carbon monoxide - in presence of ethylene, colour intensity	106B	Measurement for 30~300 seconds 10~1,000	1	pale yellow	green to blue	3	10	H <sub>2</sub> S (1,000), NO <sub>2</sub> (1), H <sub>2</sub> (10%)
Carbon monoxide - in presence of ethylene and/ or nitrogen oxides, colour intensity	106C	Measurement for 30~300 seconds 10~1,000	1	pale yellow	green to blue	2	10	H <sub>2</sub> (10%), H <sub>2</sub> S (1,000)
Carbon tetrachloride	147S	1~60 0.5~1	1 2	white	red	1	2X5	Phosgene, Halogens, Cl <sub>2</sub> , Trichloroethylene Halogenated hydrocarbons
(Carbonyl chloride)	see Phosgene							
Carbonyl sulfide	239S	5~60	1	pink	yellow	3	2X5	SO <sub>2</sub> (1/5 COS*), CS <sub>2</sub> (1/10 COS*), H <sub>2</sub> S (1/2 COS*), C <sub>4</sub> H <sub>6</sub> (0.1%)
Chlorine	109SA	1~40	1	white	yellowish orange	2	10	Br <sub>2</sub> (1), Cl <sub>2</sub> O (1), NO <sub>2</sub> (1/2 Cl <sub>2</sub> *)
	109SB <sup>∞</sup>	0.5~10 0.125~2.5 0.1~2.0	1 4 5	white	pale orange	2	10	Br <sub>2</sub> (1), Cl <sub>2</sub> O (1), NO <sub>2</sub> (1/5 Cl <sub>2</sub> *), NCl <sub>3</sub> (5)
	109U	0.1~2 0.05~1	1 2	white	pale purple	2	10	HCl (20 Cl <sub>2</sub> *), NO <sub>2</sub>
Chlorine dioxide	116	1~20	1	white	reddish orange	2	10	Br <sub>2</sub> , Cl <sub>2</sub> or NO <sub>2</sub> (1)
(1-Chloro-2,3-epoxypropane)	see Epichlorohydrine							
Chlorobenzene	178SB	5~140 1~5	1 5	white	pale brown	2	2X5	Toluene, Xylene, CO (50), n-Hexane (100), Benzene, Ethyl benzene

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<sup>◇</sup> With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
<b>(2-Chlorobutadiene)</b>				see Chloroprene				
<b>(Chloroethylene)</b>				see Vinyl chloride				
<b>Chloroform</b>	152S	70~500 32~250 23~167	2 3 4	white	yellowish orange	2	2X5	Halogens, Halogenated hydrocarbons, n-Hexane (200)
<b>Chloropicrin</b>	172S	0.1~16.0 0.05~8.0	1 2	white	pink	1	2X5	Carbon tetrachloride, Phosgene
<b>Chloroprene</b>	169S	1.0~20 0.5~10	1 2	greenish yellow	pink	3	2X5	Cl <sub>2</sub> , HCl (2,000), Vinyl chloride, Acetylene, Ethylene
<b>Cresol</b>	183U	0.5~25.0	2	pale yellow	pale brown	2	10	NH <sub>3</sub> (200), Aliphatic amines (50), Aromatic hydrocarbons (50), Phenols (2.5)
<b>Cumene</b>	111U <sup>◇</sup>	20~140	1	yellow	brown	2	10	
<b>Cyclohexane</b>	115S	0.01~0.6%	1	orange	dark green	3	10	Paraffin hydrocarbons, Acetylene, Ethylene, Benzene (400), Toluene (800), Xylene (2,000)
<b>Cyclohexanol</b>	206U	5~500	2	yellow	pale blue	2	10	Other Alcohols
<b>Cyclohexanone</b>	197U	2~100	3	yellow	pale blue	3	10	Alcohols
<b>Cyclohexene</b>	111U <sup>◇</sup>	20~300	1	yellow	brown	2	10	
<b>Cyclohexyl amine</b>	105SD	1~20	1	pale purple	pale yellow	3	10	
<b>Decahydronaphthalene</b>	111U <sup>◇</sup>	20~200	1	yellow	brown	2	10	
<b>n-Decane</b>	111U <sup>◇</sup>	5~90	1	yellow	brown	2	10	
<b>Diacetone alcohol</b>	190U <sup>◇</sup>	10~250	3	yellow	pale blue	2	10	Alcohols, Halogenated hydrocarbons, Paraffin hydrocarbons, Aromatic hydrocarbons, Esters
<b>Diborane</b>	242S	0.1~5.0 0.05~2.5 0.02~1.0	1 2 5	pale yellow	reddish purple	2	10	Arsine, Phosphine, Silane, Disilane
<b>(Dibromoethane)</b>				see Ethylene dibromide				
<b>Dibutyl amine</b>	105SD <sup>◇</sup>	2~20	1	pale purple	pale yellow	3	10	
<b>o-Dichlorobenzene</b>	214S	5~100	1	white	yellow	2	10	Alcohols, Paraffin hydrocarbons, Halogenated hydrocarbons, Esters, Aromatic hydrocarbons
<b>p-Dichlorobenzene</b>	215S	10~150	1	white	purplish brown	1	10	Benzene, Toluene, Hexane
<b>1,1-Dichloroethane</b>	235SA	10~160	1	white	purple	1	3X5	Nitrogen oxides, Halogens, Halogenated hydrocarbons, Hexane (20), Alcohols (400), Toluene (20)
<b>1,2-Dichloroethane</b>	230SA	5~50	1	white	purple	1	3X5	Nitrogen oxides, Halogens, Halogenated hydrocarbons, Hexane (100)
<b>2,2-Dichloroethyl ether</b>	223S	2~30	1	yellowish green	pink	1	2X5	Halogenated hydrocarbons
<b>1,2-Dichloroethylene</b>	145SA	42~840 20~400 9.2~184 4.2~84	1/2 1 2 4	yellow	red	1	10	Cl <sub>2</sub> (15), Vinyl chloride (5), Tetrachloroethylene (3), Trichloroethylene (3)
<b>Dichloromethane</b>	180S	30~1,000 10~200	2 4	white	reddish orange	2	2X5	Halogens, Halogenated hydrocarbons
<b>1,3-Dichloropropane</b>	194S	10~500	1	white	purple	1	2X5	Halogenated hydrocarbons
<b>Diethyl amine</b>	222S	1~20	1	pale purple	pale yellow	3	10	NH <sub>3</sub> , Other Amines
<b>Diethylbenzene</b>	111U <sup>◇</sup>	10~180	1	yellow	brown	2	10	
<b>Diethyl ether</b>	107SA	0.04~1.4%	1	orange	dark green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	107U	20~400	1	pale yellow	pale blue	2	10	Alcohols, Ketones, Esters, Aromatic hydrocarbons

<sup>∞</sup> SEI certified

\* Interference by coexistence of indicated substance at more than the parenthesized rate

<sup>◇</sup> With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
<b>(Dimethyl benzene)</b> see Xylene								
Diisobutyl ketone	139U <sup>◇</sup>	20~1,000	1	yellow	pale blue	2	10	
Diisopropyl amine	105SD <sup>◇</sup>	1~16	1	pale purple	pale yellow	3	10	
N,N-Dimethylacetamide	229S	5~70	2	pale purple	pale yellow	1	10	CO <sub>2</sub> , NH <sub>3</sub> , Amines, Hydrazine
N,N-Dimethylformamide	196S	2~30 1~15	1 2	pale purple	pale yellow	2	10	SO <sub>2</sub> (200), CO <sub>2</sub> (0.1%), NH <sub>3</sub> , Amines, Hydrazine
Dimethyl amine	227S	1~20	1	pale purple	pale yellow	3	10	NH <sub>3</sub> , Other Amines
Dimethyl ether	123S	0.01~1.2%	1	orange	dark brown	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons
1,4-Dioxane	139SB <sup>◇</sup>	0.05~2.5%	2	orange	brownish green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	119U <sup>◇</sup>	20~500	1	yellow	pale blue	2	10	Alcohols, Toluene (500)
Dipropyl amine	105SD <sup>◇</sup>	1~14	1	pale purple	pale yellow	3	10	
Epichlorohydrine	192S	5~50	3	greenish yellow	pink	1	2X5	Halogenated hydrocarbons
<b>(1,2-Epoxypropane)</b> see Propylene oxide								
<b>(Ethanethiol)</b> see Ethyl mercaptan								
<b>(Ethanol)</b> see Ethyl alcohol								
<b>(2-Ethoxyethanol)</b> see Ethyl cellosolve								
Ethyl acetate	111SA	0.1~5.0%	1	orange	brownish green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	111U	10~1,000	1	yellow	brown	2	10	Other Esters, Ketones, Alcohols, Aromatic hydrocarbons, Hydrocarbons
Ethyl acrylate	211U <sup>◇</sup>	5~60	2	yellow	pale blue	2	10	Alcohols, Paraffin hydrocarbons, Esters, Halogenated hydrocarbons, Aromatic hydrocarbons
Ethyl alcohol	104SA	0.05~5.0%	1	yellowish orange	pale green	3	10	Paraffin hydrocarbons, Alcohols, Esters, Ketones, Aromatic hydrocarbons, Halogenated hydrocarbons
Ethyl amine	227S	1~20	1	pale purple	pale yellow	3	10	
Ethyl benzene	179S	10~500	1	white	brown	1.5	10	Toluene (25), Xylene (50), Benzene (10), Methanol (1%), Hexane (0.1%)
Ethyl cellosolve	190U	5~500	3	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
Ethyl cellosolve acetate	190U <sup>◇</sup>	5~150	3	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
<b>(Ethyl ether)</b> see Diethyl ether								
Ethylene	108SA	20~1,200	1	yellow	blue	2	10	CO, H <sub>2</sub> S, Acetylene, Propylene
	108SC <sup>•</sup>	1 - 200 ppm	4	Yellow	Blue	2	2x5	Acetylene, Carbon monoxide, Propylene, Hydrogen sulphide
Ethylene - color intensity	108B	0.5~100 0.1~20	1 5	pale yellow	blue	3	10	CO, NO <sub>2</sub> (1), Cl <sub>2</sub> , Butane, Pentane, Acetylene, H <sub>2</sub> S (1,000), HCN, CS <sub>2</sub> , NH <sub>3</sub> , H <sub>2</sub> (10%)
Ethylene dibromide	166S	1~50	1	white	yellow	1	2X5	Halogens or Halogenated hydrocarbons, Hexane (200)
<b>(Ethylene dichloride)</b> see 1,2-Dichloroethane								
Ethylene glycol	232SA	20~250 mg/m <sup>3</sup>	2	pink	yellow	1.5	2X5	Ethylene oxide, SO <sub>2</sub> , Aldehydes, H <sub>2</sub> S
	232SB	3~40 mg/m <sup>3</sup>	3	pale pink	yellow	2	2X5	Aldehydes, SO <sub>2</sub> , H <sub>2</sub> S

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◇ With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
(Ethylene glycol ethyl ether acetate)	see Ethyl cellosolve acetate							
(Ethylene glycol monobuthyl ether/2-Butoxyethanol)	see Butyl cellosolve							
(Ethylene glycol monoethyl ether)	see Ethyl cellosolve							
(Ethylene glycol monomethyl ether)	see Methyl cellosolve							
Ethylene oxide	122SA	0.01~1.8% 1.0~4.0%	1 1/2	orange	dark brown	3	10	Alcohols, Ketones, Aromatic hydrocarbons, Esters, Halogenated hydrocarbons (0.5%) Ether (10 Ethylene oxide*), Acetone or Isopropyl alcohol (200)
	122SM	5~100	3	pink	yellow	3	10	
	122SC	1~15	3	pale pink	yellow	2	2X5	
	122SD	0.7~14.0 0.1~2.0	1 4	yellow	pale pink	1 1	2X5 2X5	
	122SL	130~2,600 50~1,000	1/2 1	yellow	pale blue	3	10	
(Ethylidene chloride)	see 1,1-Dichloroethane							
Ethyl mercaptan	165SA	4~160 2~80 1~40	1 2 4	white	yellow	2	10	Methyl sulfide (1), NO <sub>2</sub> (1), Cl <sub>2</sub> (0.2)
	130U	0.5~5 1~10	1 1/2	pale yellow	pink	2	10	Arsine, Hydrogen selenide, H <sub>2</sub> S, HCN
Ethyl mercaptan (in LPG)	165SB	2.5~40 5~80	1 1/2	yellow	pink	2	10	
	130U	0.5~5 1~10	1 1/2	pale yellow	pink	2	10	
Ethyl methacrylate	111U <sup>◇</sup>	20~500	1	yellow	brown	2	10	
Formaldehyde	713 <sup>•</sup>	0.01 - 0.50 ppm	3.5L	Yellowish Orange	Pink	1	10	Ammonia, Amines and Nitrogen dioxide more than 1.0ppm
	171SA	20~1,500	1	yellow	pink	2	2X5	Other Aldehydes
	171SB	1~35	3	white	brownish orange	3	2X5	Other Aldehydes (1), Styrene, Ether (1,000), Ethyl acetate (1,000), Trichloroethylene (500)
	171SC	0.1~4.0 0.05~2.0	5 10	yellow	pink	1	10	Acetaldehyde, NH <sub>3</sub> , (10), NO <sub>2</sub> (3) 3
Formic acid	216S	1~50	1	pale pink	yellow	3	10	SO <sub>2</sub> (1/20 HCOOH), NO <sub>2</sub> (10), HCl (2 HCOOH), Cl <sub>2</sub> (5), Acetic acid
(2-Furaldehyde)	see Furfural							
Furan	122SA <sup>◇</sup>	0.01~0.9% 0.2~2.0%	1 1/2	orange	dark brown	3	10	Aromatic hydrocarbons, Esters, Ketones, Alcohols, Halogenated hydrocarbons
Furfural	190U <sup>◇</sup>	2~60	3	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
(Furfuran)	see Furan							
Furfuryl alcohol	238S	2~25	5	white	black	1	10	
Gasoline	110S	0.05~0.6%	1	orange	dark green	3	10	Paraffin hydrocarbons, Acetylene, Ethylene, Cyclohexane, Benzene (400), Toluene (800), Xylene (2,000)
General hydrocarbons iso-C <sub>8</sub> H <sub>10</sub> , n-C <sub>5</sub> H <sub>12</sub> , n-C <sub>8</sub> H <sub>18</sub> , n-C <sub>6</sub> H <sub>14</sub> , mineral turpentine	187S	50~1,400	1	orange	yellowish green	2	10	Aromatic hydrocarbons
Heptane	113SB <sup>◇</sup>	100~2,000	1	orange	yellowish green	2	10	Paraffin hydrocarbons, Aromatic hydrocarbons, Alcohols (6%), Ketones (6%), Esters (6%)

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• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
n-Hexane	113SA	0.05~0.6% 0.11~1.32%	1 1/2	orange	dark green	3	10	Paraffin hydrocarbons, Acetylene, Ethylene, Cyclohexane, Benzene (400), Toluene (800), Xylene (2,000)
	113SB	50~1,400	1	orange	yellowish green	2	10	Paraffin hydrocarbon, Aromatic hydrocarbons
	113SC	20~800 5~200	1 3	yellow	pale blue	2	10	Toluene
Hydrazine	219S	0.2~10 0.1~5 0.05~2.5	2 4 8	yellow	blue	2	10	NH <sub>3</sub> , Amines
Hydrogen	137U	0.05~0.8%	1/2	yellow	green	3	5	Ethanol (0.4%), CO (500)
Hydrogen chloride	173SA	20~600 40~1,200	1 1/2	purple	pink	2	2X5	SO <sub>2</sub> , Cl <sub>2</sub>
	173SB <sup>∞</sup>	4~40 2~20 0.4~4	1/2 1 5	yellowish green	pink	3	2X5	Cl <sub>2</sub>
Hydrogen cyanide	112SA	0.01~3%	1	yellow	brownish red	3	10	Acetone, CS <sub>2</sub> , SO <sub>2</sub> (200), H <sub>2</sub> S (100), Dicyanide SO <sub>2</sub> (1), H <sub>2</sub> S (3), NH <sub>3</sub> (5)
	112SB <sup>∞</sup>	2~100 0.5~25	1 4	yellow	red	2	10	
Hydrogen fluoride	156S	0.5~30 0.25~15 0.17~12	3 6 9	greenish yellow	pink	3	10	Cl <sub>2</sub> , HCl
Hydrogen peroxide	247S	0.5~10.0	5	white	yellow	3	10	
Hydrogen selenide	167S	5~600 1~120	1 5	pale yellow	dark brown	1	10	Arsine (10), H <sub>2</sub> S, Iron carbonyl (10), SO <sub>2</sub> , Hg, Acetylene (3%), CO (0.1%), Nickel carbonyl (10)
Hydrogen sulphide	120SB	6~300 3~150 1~50 0.75~37.5	1/2 1 3 4	white	dark brown	3	10	SO <sub>2</sub> (12), Mercaptans (550), NO <sub>2</sub> (2)
	120SC	0.005~0.16%	1	pale yellow	dark blue	3	10	CO (10), Ethylene, Propylene, Butylene, Acetylene or Methyl mercaptan (5), HCN, NH <sub>3</sub>
	120SD <sup>∞</sup>	1~30 2~60	1 1/2	white	pale brown	3	10	SO <sub>2</sub> (10), Mercaptans (300), NO <sub>2</sub> (2)
	120SE	2~40 1~20 0.5~10	1/2 1 2	yellow	pink	2	10	PH <sub>3</sub> , Mercaptans, NH <sub>3</sub> , NO <sub>2</sub>
	120SF	50~1,000 100~2,000 25~500	1 1/2 2	white	black	3	10	SO <sub>2</sub> , (5,000), Mercaptans
	120SH	0.1~4.0%	1	pale blue	black	3	10	SO <sub>2</sub> (0.5%)
	120SM	0.05~0.6% 0.1~1.2%	1 1/2	white	dark brown	2	10	SO <sub>2</sub> (0.3%)
	120U	0.2~3.0 0.4~6.0	1 1/2	pale yellow	pink	2	10	Arsine, Hydrogen selenide, Mercaptans, Phosphine, HCN, SO <sub>2</sub>
Hydrogen sulphide -ultra high range	120UH	2~20%	1/2	pale blue	black	3	10	SO <sub>2</sub>
	120UT	5~40% 2.5~5%	1/2 1	pale blue	black	3	5	SO <sub>2</sub> (8%)
Hydrogen sulphide - Mercaptans separately measureable	282S	H <sub>2</sub> S 1~30	1	white	pale brown	2	2X5	H <sub>2</sub> S: SO <sub>2</sub> (1/3 X H <sub>2</sub> S)
		RSH 0.5~5	1	pale yellow	pink			NO <sub>2</sub> (1/5 X H <sub>2</sub> S) RSH: NO <sub>2</sub> (2), NH <sub>3</sub> , H <sub>2</sub> S (30)
<b>(4-Hydroxy-4-methyl-2-pentanone)</b>				see Diacetone alcohol				
<b>(Iodomethane)</b>				see Methyl iodide				
<b>(Isoamyl alcohol)</b>				see Isopentyl alcohol				
Isobutane	113SB <sup>◇</sup>	50~1,200	1	orange	yellowish green	2	10	Alcohols, Ketones or Esters (6%), Aromatic hydrocarbons, Paraffin hydrocarbons

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• New tubes



Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
<b>(Isobutanol)</b> see Isobutyl alcohol								
Isobutyl acetate	139SB <sup>◇</sup>	0.01~1.4%	2	orange	brownish green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	153U	10~400	1	pale yellow	pale blue	1	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons
Isobutyl acrylate	211U <sup>◇</sup>	5~60	2	yellow	pale blue	2	10	Alcohols, Paraffin hydrocarbons, Esters, Halogenated hydrocarbons, Aromatic hydrocarbons
Isobutyl alcohol	208U	5~100	3	yellow	pale blue	2	10	Alcohols, Toluene
Isobutylene	113SB <sup>◇</sup>	0.03~2.0%	1	orange	yellowish green	2	10	
Isobutyric acid	216S <sup>◇</sup>	3~50	1	pale pink	yellow	3	10	
<b>(Isopentyl acetate)</b> see Isoamyl acetate								
Isopentyl acetate	188U	10~400	1	pale yellow	pale blue	1	10	Alcohols, Esters, Ketones,
Isopentyl alcohol	209U	5~100	3	yellow	pale blue	2	10	Alcohols, Toluene
Isoprene	190U <sup>◇</sup>	1~16	3	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons (over C <sub>3</sub> ), Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
Isopropyl acetate	139SB <sup>◇</sup>	0.01~1.2%	2	orange	brownish green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	111U	10~1,000	1	yellow	brown	2	10	Other Esters, Ketones, Alcohols, Aromatic hydrocarbons, Paraffin hydrocarbons
<b>(Isopropyl acetone)</b> see Methyl isobutyl ketone								
Isopropyl alcohol	122SA <sup>◇</sup>	0.05~2.5%	1	orange	dark brown	3	10	Other Alcohols, Ketones, Esters, Aromatic hydrocarbons, Halogenated hydrocarbons (0.5%)
	150U	50~1,200	1	yellow	pale blue	2	10	Other Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
Isopropyl ether	111U <sup>◇</sup>	30~800	1	yellow	brown	2	10	
Isopropyl mercaptan	130U	1~10 0.5~5	1/2 1	pale yellow	pink	2	10	Arsine, Hydrogen selenide, H <sub>2</sub> S, HCN
Isovaleric acid	216S <sup>◇</sup>	3~50	1	pale pink	yellow	3	10	
Maleic anhydride	216S <sup>◇</sup>	0.2~10	4	pale pink	yellow	3	10	
<b>(Menthanol)</b> see Methyl alcohol								
Mercury vapour	142S	0.5~10mg/m <sup>3</sup> 0.1~2.0mg/m <sup>3</sup>	1 5	grey	pale orange	3	10	HCl (0.5), NO <sub>2</sub> (0.1), Cl <sub>2</sub> (0.1), H <sub>2</sub> S (0.5)
Mesityl oxide	190U <sup>◇</sup>	5~100	2	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons, Aromatic hydrocarbons, Ketones, Halogenated hydrocarbons
Methacrylic acid	216S <sup>◇</sup>	1~50	1	pale pink	yellow	3	10	
<b>(Methanethiol)</b> see Methyl mercaptan								
Methanol in LP Gas	119LPG <sup>•</sup>	100-1000 ppmv	–	Yellow	Blue or Yellowish Green	3	10	Hydrogen sulphide 0.4, Sulphur dioxide 0.5, Toluene 10
<b>(2-Methoxyethanol)</b> see Methyl cellosolve								
Methyl acetate	111SA <sup>◇</sup>	0.01~3.0%	1	orange	dark green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons

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◇ With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
Methyl acrylate	211U	2~60	2	yellow	pale blue	2	10	Alcohols, Esters, Paraffin hydrocarbons (over C <sub>3</sub> ), Aromatic hydrocarbons, Halogenated hydrocarbons
Methyl alcohol	119SA	0.05~6.0%	1	yellowish orange	pale green	3	10	Paraffin hydrocarbons (over C <sub>3</sub> ), Alcohols, Esters, Aromatic hydrocarbons, Halogenated hydrocarbons
	119U	20~1,000	1	yellow	pale blue	2	10	Alcohols, Esters, Aromatic hydrocarbons, Paraffin hydrocarbons, Halogenated hydrocarbons
Methyl amine	227S	1~20	1	pale purple	pale yellow	3	10	NH <sub>3</sub> , Other amines
<b>(Methyl benzene)</b>		see Toluene						
N-Methyl aniline	105SD <sup>◇</sup>	0.5~6	2	pale purple	pale yellow	3	10	
Methyl bromide	157SA	10~500	1	white	reddish orange	3	2X5	Ethylene dibromide, Trichloroethylene, Tetrachloroethylene or Chloroform (50), Cl <sub>2</sub> , Br <sub>2</sub> or NO <sub>2</sub> (1), Dichloromethane (500)
	157SB <sup>∞</sup>	2~80 1~25 0.4~10	1 2 4	white	yellow	3	2X5	Halogens, Halogenated hydrocarbons, Hexane (200)
	157SC	1~10 0.5~1	1 2	white	purple	1	2X5	Halogens, Halogenated
	157JS	3~70 g/m <sup>3</sup>	1/2	yellow	brown	2	2X10	
Methyl cellosolve	190U	5~500	3	yellow	pale blue	2	10	Paraffin hydrocarbons (over C <sub>3</sub> ), Alcohols, Ketones, Aromatic hydrocarbons, Halogenated hydrocarbons, Esters
Methyl chloroform	160S	30~400 15~200	1 2	white	reddish orange	3	2X5	Halogens, Halogenated hydrocarbons
Methyl cyclohexane	113SB <sup>◇</sup>	100~1,600	1	orange	yellowish green	2	10	
Methyl cyclohexanone	198U	2~100	3	yellow	pale blue	2	10	Alcohols
Methyl cyclohexanol	199U	5~200	3	yellow	pale blue	2	10	Alcohols
Methyl ethyl ketone	122SA <sup>◇</sup>	0.05~2.5% 1.0~5.0%	1 1/2	orange	dark brown	3	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons, Halogenated hydrocarbons (0.5%)
	139SB	0.01~1.4%	2	orange	brownish green	3	10	Other organic gases or vapors except halogenated hydrocarbons (50), Acetylene (3%), Propane (0.2%)
	139U	20~1,500	1	yellow	pale blue	2	10	Other Esters, Ketones, Alcohols, Aromatic hydrocarbons, Halogenated hydrocarbons, Paraffin hydrocarbons
Methyl iodide	176S	4~40 2~20	2 4	yellow	dark brown	1 1/2	2X5	H <sub>2</sub> S (7), n-Hexane (500), Acetone (700), Benzene (2), Toluene (2), Xylene (2), Halogenated hydrocarbons
Methyl isobutyl ketone	122SA <sup>◇</sup>	0.01~0.6%	3	orange	dark brown	3	10	Alcohols, Other Ketones, Aromatic hydrocarbons, Esters, Halogenated hydrocarbons
Methyl mercaptan	164SA	5~140	1	white	reddish yellow	2	10	Cl <sub>2</sub> (0.2), Methyl sulfide (1), Ethyl mercaptan, Acetylene, CO, H <sub>2</sub> S
	164SH	50~1,000	1	pale yellow	orange	3	10	H <sub>2</sub> S (650), NO <sub>2</sub> (1,000), Cl <sub>2</sub> (1/3 CH <sub>3</sub> SH*)
	130U	0.5~5 1~10	1 1/2	pale yellow	pink	2	10	Arsine, Hydrogen selenide, H <sub>2</sub> S, HCN
Methyl methacrylate	184S	10~160	1	yellow	pale blue	2	10	Esters, Ketones, Alcohols, Aromatic hydrocarbons
<b>(4-Methyl-3-penten-2-one)</b>		see Mesityl oxide						
Methyl propyl ketone	139U	20~1,500	1	yellow	pale blue	2	10	
Methyl styrene	193S	10~500	1	white	yellow	3	10	Styrene
<b>(Methylene chloride)</b>		see Dichloromethane						

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<sup>◇</sup> With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
<b>(Monoethylene glycol)</b>				see Ethylene glycol				
<b>Monoethanol amine</b>	224SA	1~50 0.5~25	1 2	pink	pale purple	2	10	Other amines, NH <sub>3</sub> , Hydrazine
<b>Morpholine</b>	105SD <sup>◇</sup>	2~22	1	pale purple	pale yellow	3	10	
<b>Naphthalene</b>	153U <sup>◇</sup>	10~100	1	pale yellow	pale blue	1	10	Alcohols, Esters, Ketones Aromatic hydrocarbons
<b>Nickel carbonyl</b>	129	20~700	1	pale yellow	dark purple	1/2	10	Arsine, Iron carbonyl, Mercury vapor, H <sub>2</sub> S or SO <sub>2</sub> (10), CO (1,000)
<b>(Nickel tetracarbonyl)</b>				see Nickel carbonyl				
<b>Nitric acid vapor</b>	233S	2~20 1~10	1 2	pale yellow	purple	1	10	HF (8) or NO <sub>2</sub> (50), HCl
<b>(Nitrotrichloromethane)</b>				see Chloropicrin				
<b>Nitrogen dioxide</b>	117SA	20~1,000	1	white	yellowish orange	3	10	Cl <sub>2</sub> , Br <sub>2</sub> , I <sub>2</sub> or Ozone (5), NO (10)
	117SB <sup>∞</sup>	0.5~30.0	2	white	yellowish orange	1	10	Cl <sub>2</sub> , Br <sub>2</sub> or I <sub>2</sub> (2), NO (15)
	117SD	0.1~1.0	3	white	pale purple	1.5	10	O <sub>3</sub> (2), SO <sub>2</sub> (7), Cl <sub>2</sub> (3)
<b>Nitrogen oxide and dioxide - separately measurable</b>	174A	NO; 10~300	1	white	yellowish orange	2	5	Cl <sub>2</sub> (1)
	174B	NO <sub>2</sub> ; 1~40	1	white	pale yellowish orange	2	2X5	Cl <sub>2</sub> (1)
<b>Nitrogen oxides</b>	175SA	20~250	1	white	yellow	1	10	SO <sub>2</sub> (100), HCl (1,000)
	175SH	100~2,500	1	white	yellow	2	10	HCl (500)
	175U <sup>∞</sup>	0.5~15 1~30	1 1/2	white	pale purple	3	10	H <sub>2</sub> S (5), HCl (500)
<b>n-Nonane</b>	111U <sup>◇</sup>	10~160 5~80	1/2 1	yellow	brown	2	10	
<b>Organic gas checker</b>	186		1	orange	black or dark green	3	10	H <sub>2</sub> S (10)
<b>Oxygen</b>	159SA	2~24%	1/2	white	brown	2	5	CO <sub>2</sub> (5%), H <sub>2</sub> S (2%), NO <sub>2</sub>
	159SB	2~24%	1/2	white	brown	2	5	(2%), SO <sub>2</sub> (2%)
<b>Oxygen - Non-heating Type</b>	159SC	1.5~3% 3~24%	1 1/2	black	white	2	2X5	
<b>Oxygen - Carbon dioxide - separately measurable</b>	281S	O <sub>2</sub> ; 2~10% CO <sub>2</sub> ; 1~20%	1	white pink	brown yellow	1.5	2X5	
<b>Ozone</b>	182SA	50~500 100~1,000	1 1/2	dark blue	yellow	2	10	Cl <sub>2</sub> , NO <sub>2</sub>
	182SB	10~100 50~50 2.5~25	1/2 1 2	blue	pale yellow	2	10	NO <sub>2</sub> (10)
	182U <sup>∞</sup>	0.15~3.0 0.05~1.0 0.025~0.5	1 3 6	blue	white	2	10	NO <sub>2</sub> (0.5), Cl <sub>2</sub> (10), Oxidant
<b>Pentane</b>	113SB <sup>◇</sup>	50~1,000	1	orange	yellowish green	2	10	Paraffin hydrocarbons, Aromatic hydrocarbons (over C <sub>3</sub> ), Alcohols (6%), Ketones (6%), Esters (6%)
<b>Pentyl acetate</b>	210U	10~200	3	pale yellow	pale blue (over 20ppm) dark brown (under 20ppm)	2	10	Alcohols, Esters, Ketones, Paraffin hydrocarbons, Aromatic hydrocarbons
<b>Pentyl amine</b>	105SD <sup>◇</sup>	2~22	1	pale purple	pale yellow	3	10	
<b>(Petrol)</b>				see Gasoline				
<b>(Perchloroethylene)</b>				see Tetrachloroethylene				

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\* Interference by coexistence of indicated substance at more than the parenthesized rate

<sup>◇</sup> With conversion chart

• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
Phenol	183U	0.5~25.0	2	pale yellow	pale light brown (pale brown)	2	10	NH <sub>3</sub> (200), Aliphatic amines (50), Phenols (2.5), Aromatic amines (50)
Phosgene	146S	0.5~20 0.1~4.0	1 5	white	red	1	10	Cl <sub>2</sub> (5), HCl (10), NO <sub>2</sub> (100), SO <sub>2</sub> (0.2%)
Phosphine in acetylene	121SA**	20~800	1	pale blue	reddish purple	3	10	Arsine or H <sub>2</sub> S (10)
	121SB**	5~90	1	pale blue	yellowish brown	3	10	Arsine or H <sub>2</sub> S (10)
Phosphine	121SC	20~700 40~1,400	1 1/2	white	yellow	3	10	Arsine (30), Hydrogen selenide (50), H <sub>2</sub> S (40)
	121SD	1~20.0 0.5~10.0 0.25~5.0	1/2	pale orange	brownish purple	1	10	NH <sub>3</sub> (60), Arsine, Hydrogen selenide, Nickel carbonyl
			1					
	121U <sup>∞</sup>	0.1~2.0 0.05~1.0	1 2	pale yellow	pink	2	10	Hydrogen selenide, Mercaptans, H <sub>2</sub> S, HCN, SO <sub>2</sub> , Arsine
121SS	400~6,000 200~3,000	1/2 1	white	orange	3	10		
Propane	125SA	0.02~0.5%	1	orange	brown	2	10	Toluene, Hexane, Trichloroethylene
<b>(2-Propanol)</b>		see Isopropyl alcohol						
Propionic acid	216S <sup>◇</sup>	3~50	1	pale pink	yellow	3	10	
Propyl acetate	139SB <sup>◇</sup>	0.01~1.4%	2	orange	brownish green	3	10	Other organic gases or vapors except halogenated hydrocarbons, Acetylene (3%), Propane (0.2%)
	151U	20~1,000	1	pale yellow	dark brown	2	10	Alcohols, Esters, Ketones, Paraffin hydrocarbons, Aromatic hydrocarbons
Propyl amine	105SD <sup>◇</sup>	1~20	1	pale purple	pale yellow	3	10	
Propylene	185S	50~1,000	1	yellow	dark blue	2	10	CO (200), Acetylene (50), Ethylene, H <sub>2</sub> S (50)
Propylene oxide	163SA	0.05~3.0% 1.0~5.0%	1 1/2	orange	dark brown	3	10	Aromatic hydrocarbons, Esters, Ketones, Alcohols, Halogenated hydrocarbons
n-Propyl mercaptan	130U	0.5~5 1~10	1 1/2	pale yellow	pink	2	10	Arsine, Hydrogen selenide, H <sub>2</sub> S, HCN
Pyridine	105SD <sup>◇</sup>	0.5~10	1	pale purple	pale yellow	3	10	
Silane	240S	1~50 0.5~25	1	yellow	red	1	10	PH <sub>3</sub> (20), Arsine (50), Disilane (2), Diborane (20)
			2					
Styrene	158S	5~300 2.5~150	1 2	white	yellow	3	10	Methanol (0.35%), Ethanol (0.18%), Ethyl acetate (700), Butyl acetate (700), Butadiene (5), Formaldehyde (15), Acetaldehyde (350), Acrylonitrile (400)
	158SB	2~100 1~50	2 4	white	yellow	3	2X5	
Sulphur dioxide	103SA	0.1~3.0%	1	yellow	blue	3	10	H <sub>2</sub> S (400)
	103SB	0.02~0.3%	1	white	orange	3	10	H <sub>2</sub> S (100)
	103SC	20~300	1	purple	yellow	2	10	Cl <sub>2</sub> (1/5 SO <sub>2</sub> *), NO <sub>2</sub> (100),
	103SD	1~60	1	pink	yellow	3	10	NO <sub>2</sub> (1 SO <sub>2</sub> *), Cl <sub>2</sub> (2 SO <sub>2</sub> *)
	103SE <sup>∞</sup>	0.5~10 0.25~5	1 2	pink	yellow	1	10	NO <sub>2</sub> , HCl
Sulphur dioxide-in flue gas	103SF	0.02~0.3%	1	white	orange	3	2X5	H <sub>2</sub> S (100)
Sulphur dioxide-in carbon-dioxide	103SG	0.5~25 0.1~3	1 4	blue purple	white	3	10	
Sulphuric acid	244U	0.5~5 mg/m <sup>3</sup>	5	yellow	pink	2	10	HCl, HF, NO <sub>2</sub> , Nitric acid, C <sub>12</sub>

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• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
Tetrachloroethylene	135SA	5~150 10~300	1 1/2	white	red	2	10	Vinyl chloride, HCl, 1,2-Dichloroethylene, Trichloroethylene, Cl <sub>2</sub>
	135SB	1~10 0.2~2.0	1 4	pale orange	bluish purple	1	10	Trichloroethylene, 1,2-Dichloroethylene
	135SG	0.2~2.0% 0.1~0.2%	1 2	white	dark brown	2	2X5	Trichloroethylene, 1,1,1-Trichloroethane, 1,2-Dichloroethylene, Vinyl chloride, CO, Aromatic hydrocarbons
	135SM*	50 - 500 125-1,250 ppm	1	Yellow	Red	1	10	1,2 Dichloroethylene
<b>(Tetrachloromethane)</b> see Carbon tetrachloride								
Tetraethoxysilane	243U	12.5~200 5~80	1 2	yellow	pale blue	3	10	Silane, Phosphine (5), Isopropyl alcohol (7), Trichloroethylene, Tetrachloroethylene, Ethanol (10)
Tetrahydrofuran	102SA <sup>◇</sup>	0.02~3.0% 2.0~5.0%	1 1/2	orange	dark brown	3	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons
	162U	20~400	1	pale yellow	pale blue	2	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons, Halogenated hydrocarbons
Toluene	124SA <sup>∞</sup>	10~500	1	white	brown	3	10	Benzene (10), Xylene (50), Methanol (1%), Hexane (0.1%), Ethyl benzene (10)
	124SB	2~100	1	white	brown	3	10	Aromatic hydrocarbons, Hexane (high concentration)
	124SH	100~3,000	1	white	dark brown	2	10	Benzene, Xylene, Ethyl benzene, Hexane, Methanol
o-Toluidine	105SD <sup>◇</sup>	2~22	1	pale purple	pale yellow	3	10	
p-Toluidine	105SD <sup>◇</sup>	2~20	1	pale purple	pale yellow	3	10	
<b>(1,1,1-Trichloroethane)</b> see Methyl chloroform								
1,1,2-Trichloroethane	236SA	10~100	1	white	purple	1	3X5	Nitrogen oxides, Halogens, Halogenated hydrocarbons, Hexane (100)
Trichloroethylene	134SA <sup>∞</sup>	5~150 10~300	1 1/2	white	red	2	10	Vinyl chloride, HCl, 1,2-Dichloroethylene, Tetrachloroethylene, Cl <sub>2</sub>
	134SB <sup>∞</sup>	2.3~36.8 1~16 0.2~3.2	1/2 1 4	pale orange	bluish purple	1	10	Tetrachloroethylene, 1,2-Dichloroethylene or HCl (2), Vinyl chloride (20)
	134SG	0.05~2.0%	1	white	yellow	2	10	Tetrachloroethylene, 1,1,1-Trichloroethane, 1,2-Dichloroethylene, Vinyl chloride, CO, Aromatic hydrocarbons
<b>(Trichloromethane)</b> see Chloroform								
Triethyl amine	213S	1~10 2~20	1 1/2	pale purple	pale yellow	3	10	NH <sub>3</sub> , Other amines
Trimethyl amine	222S	1~20	1	pale purple	pale yellow	3	10	NH <sub>3</sub> , Other amines
	105SE	5~100 2.5~50 0.5~10	1/2 1 5	pale purple	pale yellow	3	10	
1,2,4-Trimethyl benzene	111U <sup>◇</sup>	20~250	1	yellow	brown	2	10	Alcohols, Esters, Ketones, Aromatic hydrocarbons
2,2, 4-Trimethyl pentane	113SB <sup>◇</sup>	100~1,400 200~4,000	1 1/2	orange	yellowish green	2	10	
n-Undecane	111U <sup>◇</sup>	10~140	1	yellow	brown	2	10	
n-Valeric acid	216S <sup>◇</sup>	3~70	1	pale pink	yellow	3	10	
Vinyl acetate	237S	10~120 5~60	1 2	yellow	pale blue	2	10	Ethylene (150), Alcohols, Ethers, Esters
<b>(Vinyl benzene)</b> see Styrene								

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• New tubes

Substance to be measured	Tube No. 8014-	Measuring Range (ppm)	No. of Pump Strokes	Color Change		Shelf Life (year)	Q'ty of tubes/ box	Interferences (ppm)
				Original	Stain			
Vinyl chloride	132SA	0.05~1.0%	1	brownish orange	brownish green	3	10	Acetylene (3%), Propane (0.2%), Other organic gases or vapors except halogenated hydrocarbons (50)
	132SB	5~500	1	white	reddish orange	1.5	2X5	Cl <sub>2</sub> , HCl, Other halogens, Halogenated hydrocarbons
	132SC <sup>∞</sup>	0.4~12.0 0.2~6.0 0.1~3.0	1 2 4	greenish yellow	pink	3	2X5	HCl (2,000), Acetylene (1%), Ethylene (300), Cl <sub>2</sub> (10 Vinyl chloride*)
<b>(Vinyl cyanide)</b>				see Acrylonitrile				
Water vapour	177SA	1.7~33.8 mg/l	1	yellowish green	purple	3	10	Methanol (0.3%), Ethanol (0.3%), Ethyl acetate (0.3%), Acetone (0.5%), NH <sub>3</sub> (0.2%), NO <sub>2</sub> (0.2%)
	177U	0.05~2.0 mg/l	1	greenish yellow	blue (over 0.6 mg/l) yellowish green (less than 0.6 mg/l)	3	10	Alcohols
	177UL	3~80 LB/MMCF	1	Yellow	Blue (over 40LB/MMCF) Yellowish green (below 40LB/MMCF)	3	10	Alcohols
<b>Water vapour - ultra low range</b>	177UR	2~12 LB/MMCF	2	yellow	yellowish green	3	10	Alcohols
Xylene	143SA <sup>∞</sup>	5~1,000	2	white	brown	1.5	10	Benzene or Toluene (5), Methanol (1%), Hexane (0.1%)
	143SB	5~200	2	White	brown	2	10	Benzene or Toluene (5),

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