

## Uniphos Tube Equivalents for Gastec, RAE and Kitagawa

Compound	Uniphos Tube	Uniphos Range (ppm)	Gastec Tube DB = Double Tube System	Gastec Range (ppm)	RAE Tube	RAE Range (ppm)	Kitagawa Tube	Kitagawa Range (ppm)
Acetaldehyde	SAT-4M	10-300	92M	5-100			133SB	5-140
Acetic Acid	SAA-2	2.5-50	81	2-50			216S	1-50
Acetone	SAC-5	50-4000	151L	50-4000			102SD	50-2000
Acetylene	SAL-5	0.01-0.5%	171	0.1-2%			101S	0.005-0.1%
Acid Gases	SAG-2	2-40	80	2-40				
Acrylonitrile	SAN-4L (DB)	5-120	191 (DB)	5-120			128SC (DB)	1-120
Amines	SMA-3	5-100	180	5-100	10-132-10	0.5-10		
Ammonia	SAM-2	2.5-50	3L	2-30	10-100-05	1-30	105SD	1-20
Ammonia	SAM-3	5-100	3La	5-100	10-100-10	5-100	105SE	5-100
Ammonia	SAM-4M	10-300	3M	50-500	10-100-12	10-250		
Ammonia	SAM-4	50-1000	3M	50-500	10-100-15	25-500		
Ammonia	SAM-8M	0.5-10%	3H	1-16%	10-100-40	1-15%	105SA	0.5-10%
Ammonia	SAM-9	1-30%					105SH	0.5-30%
Aniline	SAI-2	2-30	181	2.5-30			181S	2-30
Arsine	SAR-2	1-30					140SA	5-160
Benzene	SBE-2L (DB I <sub>2</sub> O <sub>5</sub> )	0.25-12	121L (DB I <sub>2</sub> O <sub>5</sub> )	0.25-12			118SD	0.2-15
Benzene	SBE-2	2.5-50	121	5-60	10-101-10	5-40	118SC	2-50
Benzene	SBE-3	5-100	121S (DB)	5-120	10-101-20	5-100	118SE (DB)	1-80
Butadiene, 1,3-	SBU-2M (DB)	1-20	174LL	0.5-5			168SD (DB)	0.5-10
Butadiene, 1,3-	SBU-3 (DB)	5-100	174L	5-100			168SC	5-100
Butane	SBT-5M	50-1400	104	25-1400	10-137-30	25-1400	221SA	500-6000
Butanol, 1-	SNB-4L	10-150	114	10-150			190U	5-100
Butanol, 2-	SIB-4L	10-150	115	10-150			189U	10-300
Butyl Acetate	SBA-6	0.005-1%	142	0.05-0.8%			139SB	0.01-1%
Butyl Acrylate	SBC-3L	5-30					211U	2-60
Butyl Mercaptan, t-	SBM-1M	0.5-30 mg/m <sup>3</sup>	75	2.5-30 mg/m <sup>3</sup>			130U	2-18 mg/m <sup>3</sup>
Butyl Mercaptan, t-	SBM-4L	5-100			10-129-20	10-240		
Carbon Dioxide	SCD-5	300-5000	2LL	300-5000	10-104-30	300-5000	126B	300-7000
Carbon Dioxide	SCD-7	0.25-3%	2L	0.25-3%	10-104-45	0.25-3%	126SB	0.05-1%
Carbon Dioxide	SCD-8M	0.5-10%	2H	1-10%				
Carbon Dioxide	SCD-8	1-20%			10-104-50	1-20%	126SH	1-20%
Carbon Dioxide	SCD-10	5-60%	2HH	5-40%	10-104-60	5-40%	126UH	5-50%
Carbon Disulfide	SCS-2 (DB)	2.5-50	13 (DB)	2.5-50			141SB (DB)	2-50
Carbon Disulfide	SCS-3 (DB)	5-100						
Carbon Disulfide	SCS-5M (DB)	50-1600	13M (DB)	50-1600			141SA (DB)	30-500

## Uniphos Tube Equivalents for Gastec, RAE and Kitagawa

Compound	Uniphos Tube	Uniphos Range (ppm)	Gastec Tube	Gastec Range (ppm)	RAE Tube	RAE Range (ppm)	Kitagawa Tube	Kitagawa Range (ppm)
Carbon Monoxide	SCO-3	5-100					106S	10-250
Carbon Monoxide in H <sub>2</sub>	SCH-3	5-100	1LK	5-100	10-102-20	5-100		
Carbon Monoxide	SCO-4M	25-600	1La	25-500	10-102-30	20-500	106SS	30-500
Carbon Monoxide	SCO-4	50-1000	1L or 1LM	50-1000			106SA	20-1000
Carbon Monoxide	SCO-5	100-3000						
Carbon Monoxide	SCO-6M	0.01-0.7%	1M	0.1-2%				
Carbon Monoxide	SCO-7	0.1-5%	1H	0.2-5%	10-102-45	0.2-4%	106SH	0.1-2%
Carbon Monoxide	SCO-8	1-20%	1HH	2-50%			106UH	0.1-10%
Carbon Tetrachloride	SCT-3L (DB)	1-60	134 (DB)	2.5-60			147S (DB)	1-60
Carbonyl Sulfide	SCU-3 (DB)	5-100	21 (DB)	10-100			239S	5-60
Chlorine	SCL-1M	0.25-5	8LA	0.5-8	10-106-10	0.5-8	109SB	0.5-10
Chlorine	SCL-2	2.5-50					109SA	1-40
Chlorine	SCL-3	5-100			10-106-20	5-100		
Chlorine	SCL-4M	50-500	8H	50-500				
Chlorine Dioxide	SCI-1M	0.1-5	23M	0.5-5	10-130-10	0.25-15	116	1-20
Chlorobenzene	SCB-4L	10-200	126	10-200			178SB (DB)	5-140
Cyclohexane	SCY-6L	0.025-0.6%					115S	0.01-0.6%
Cyclohexanone	SCE-3	2-100	154	2-30			197U	2-100
Diesel Fuel	SDL-4	0.1-5 mg/L (100-5000 mg/m <sup>3</sup> )			10-143-10	0.5-25 (4-180 mg/m <sup>3</sup> )		
Diethylamine	SDA-2M	1-20	180L	1-10	10-132-10	0.5-10	105SD	1-20
Dimethylformamide, N,N-	SMF-2 (DB)	2-30	183	2-30			196S	2-30
Dimethylhydrazine, 1,1-(UDMH)	SHY-1L	0.1-2	185	0.1-2			219S	0.1-5
Ethanol (Ethyl Alcohol)	SET-7	0.05-5%	112	0.05-2.5%	10-141-30	100-2000	104SA	0.05-5%
Ethyl Acetate	SEA-7	0.1-5%	141	0.1-1.5%			111SA	0.1-5%
Ethyl Ether (Diethyl Ether)	SDE-6	0.04-1%	161	0.04-1%			107SA	0.04-1.4%
Ethyl Mercaptan	SEM-4L	5-120	72	5-120	10-129-20	5-120	165SB	5-80
Ethylbenzene	SEB-4L	5-150	122	10-300	10-114-20	10-300	179S	10-500
Ethylbenzene	SEB-4M	30-400	122	10-300	10-114-20	10-300	179S	10-500
Ethylene Oxide	SEO-7	0.05-3%	163	0.05-3%			122SA	0.01-1.8%
Formaldehyde	SFO-2	5-40	91	2-20 (DB)			171SB (DB)	1-35
Formaldehyde	SFO-3	5-100	92	2-20 (DB)			171SB (DB)	1-35
Formic Acid	SFA-2M	1-15					216S	1-50
Furan	SFU-6	0.01-1%					122SA	0.01-0.9%
Furfural	SFL-2M	1-16					190U	2-60
Gasoline	SGA-6L	0.03-0.6%	101	0.03-0.6%	10-138-30	0.003-0.1%	110SU	0.05-0.6%
Hexane, n-	SHE-5L	10-1200	102L	50-1200	10-110-30	70-1400	113SB	50-1400

## Uniphos Tube Equivalents for Gastec, RAE and Kitagawa

Compound	Uniphos Tube	Uniphos Range (ppm)	Gastec Tube	Gastec Range (ppm)	RAE Tube	RAE Range (ppm)	Kitagawa Tube	Kitagawa Range (ppm)
Hexane, n-	SHE-6L	0.025-0.6%	102H	0.03-0.6%			113SA	0.05-0.6%
Hydrazine	SHY-1L	0.1-2	185	0.1-2			219S	0.1-5
Hydrocarbons	SHE-5L	10-1200	105	200-3000	10-110-30	50-1000	187S	50-1400
Hydrocarbons	SHE-6L	0.025-0.6%	103	0.1-1.2%				
Hydrogen Chloride	SHC-1	1-10			10-108-09	1-20		
Hydrogen Chloride	SHC-2M (DB)	2-20	14L	1-20	10-108-10 (DB)	1-20	173SB (DB)	2-20
Hydrogen Chloride	SHC-3 (DB)	5-100	14M	20-500	10-108-22	20-500	173SA	20-600
Hydrogen Chloride	SHC-4	50-1000	14M	20-500	10-108-22	20-500	173SA	20-600
Hydrogen Cyanide	SHN-2	2.5-50	12L	2.5-60	10-126-10	2.5-60	112SB	2-100
Hydrogen Cyanide	SHN-3	5-100	12L	2.5-60	10-126-10	2.5-60	112SB	2-100
Hydrogen Cyanide	SHN-4	50-1000	12M	50-800				
Hydrogen Fluoride	SHF-2	0.5-30	17	0.5-20	10-105-10	0.5-20	156S	0.5-30
Hydrogen Sulfide	SHS-1	0.5-10	4LB	1-6	10-103-06	1-7	120SE	1-20
Hydrogen Sulfide	SHS-2	1-30	4LK	2-20			120SD	1-30
Hydrogen Sulfide	SHS-3L	2.5-60	4LL	2.5-60	10-103-10	2.5-60		
Hydrogen Sulfide	SHS-3	5-100	4L	10-120	10-103-15	10-120	120SB	3-150
Hydrogen Sulfide	SHS-4L	10-250	4M	25-250	10-103-18	25-250	120SB	3-150
Hydrogen Sulfide	SHS-4	50-800	4HM	50-800	10-103-20	50-800	120SF	50-1000
Hydrogen Sulfide	SHS-5M	100-2000	4H	100-2000	10-103-30	100-2000	120SC	50-1600
Hydrogen Sulfide	SHS-7M	0.1-2%	4HH	0.1-2%	10-103-40	0.1-2%	120SM	0.05-0.6%
Hydrogen Sulfide	SHS-7	0.5-4%					120SH	0.1-4%
Hydrogen Sulfide	SHS-8L	0.2-7%						
Hydrogen Sulfide	SHS-8M	0.5-10%	4HP	0.5-10%			120UH	2-20%
Hydrogen Sulfide	SHS-9	2-40%	4HT	2-20%	10-103-50	2-40%	120UT	5-40%
H <sub>2</sub> S + SO <sub>2</sub> (DB)	SHS-3L & SSD-1	2.5-60 & 0.5-10	45S	2.5-60 & 0.5-10				
Isopropyl Alcohol (Isopropanol)	SIP-7M	0.1-2.5%	113	0.04-2.5%	10-141-30	0.013-0.26%	122SA	0.05-2.5%
Isopropyl Ether	SDE-6	130-3400					111U	30-800
Maleic Anhydride	SAA-2	1-20	81	0.8-20			216S	0.2-10
Mercaptans	SMM-2M	1-20	71	2.5-70			130U	0.5-5
Mercaptans	SMM-4L	5-120	70	5-120	10-129-20	5-120	164SA	5-140
Mercury Vapor	SHG-1L	0.1-2 mg/m <sup>3</sup>	40	0.25-6 mg/m <sup>3</sup>			142S	0.1-2 mg/m <sup>3</sup>
Methanol (Methyl Alcohol)	SME-5	100-5000	111LL	40-1000	10-141-30	100-2000	119U	20-1000
Methylamine	SMA-3	5-100	180L	0.5-10	10-132-10	0.5-10	227S	1-20
Methyl Bromide	SMB-2M	1-18	136LA (DB)	1-18	10-131-10	1-18	157SB	2-80
Methyl Bromide	SMB-3	10-100	136L (DB)	10-100				
Methyl Bromide	SMB-4M	20-300	136H (DB)	20-300			157SA	10-500

### Uniphos Tube Equivalents for Gastec, RAE and Kitagawa

Compound	Uniphos Tube	Uniphos Range (ppm)	Gastec Tube	Gastec Range (ppm)	RAE Tube	RAE Range (ppm)	Kitagawa Tube	Kitagawa Range (ppm)
Methylene Chloride	SMC-4M (DB)	50-500	138 (DB)	50-500			180S (DB)	30-1000
Methyl Ethyl Ketone (MEK)	SMK-6L	0.02-0.6%	152	0.02-0.6%	10-113-20	0.02-0.6%	139SB	0.01-1.4%
Methyl Mercaptan	SMM-2M	1-20	71	2.5-70			130U	0.5-5
Methyl Mercaptan	SMM-4	5-120	70	5-120	10-129-20	5-120	164SA	5-140
Methyl Isobutyl Ketone (MIBK)	SMI-6L	0.02-0.6%	153	0.05-0.6%	10-113-20	0.04-1.2%	122SA	0.01-0.6%
Multi-gas Inorganic	SMG-1	qualitative	Polytec II (25)	qualitative			131	qualitative
Nitric Acid	SNA-2M	1-20	15L	1-20			233S	2-20
Nitrogen Dioxide	SND-2	0.5-30	9L	0.5-30	10-117-10	0.5-30	117SB	0.5-30
Nitrogen Dioxide	SND-4	10-1000					117SA	20-1000
Nitrogen Oxides	SNO-2M	0.5-15	11L	0.2-5	10-109-20	1-50	175U	0.5-15
Nitrogen Oxides	SNO-5M	100-2500	11HA	50-2500			175SH	100-2500
Oxygen	SOX-9M	3-24%	31B	6-24%			159SA/SB	2-24%
Ozone	SOZ-3	5-100	18M	20-200			182SB	5-50
Ozone	SOZ-4M	25-500	18M	20-200			182SA	50-500
Phenol	SPE-2M	1-25	60	1-25	10-139-05	1-25	183U	0.5-25
Phosgene	SPG-1	0.1-10	16	0.1-5			146S	0.5-20
Phosphine	SPH-1L	0.05-2.5	7LA	0.1-1.5				
Phosphine	SPH-1M	0.3-5	7L	0.3-5				
Phosphine	SPH-1	0.1-10					121SD	0.5-10
Phosphine	SPH-3	5-100	7	5-50	10-116-10	5-50	121SB	5-90
Phosphine	SPH-4	50-1000	7J	25-500	10-116-30	50-1000	121SC	20-700
Phosphine	SPH-5	150-3000					121SH	100-1600
Stoddard Solvent	SSS-5M	50-8000 mg/m <sup>3</sup>	128	50-8000 mg/m <sup>3</sup>				
Sulfur Dioxide	SSD-1	0.5-10	5LC	0.25-10			103SE	0.5-10
Sulfur Dioxide	SSD-2M	1-25	5La	2-30	10-107-15	2-30	103SD	1-60
Sulfur Dioxide	SSD-3	5-100	5L	5-100	10-107-20	5-100	103SD	1-60
Sulfur Dioxide	SSD-4M	20-300	5M	100-1800	10-107-25	100-1800	103SC	20-300
Sulfur Dioxide	SSD-5	0.02-0.3%			10-107-30	0.02-0.4%	103SB	0.02-0.3%
Sulfur Dioxide	SSD-6M	500-8000			10-107-30	200-4000		
Sulfur Dioxide	SSD-7M	0.1-3%					103SA	0.1-3%
Sulfur Dioxide	SSD-7	0.25-5%	5H	0.5-4%	10-107-40	0.2-5%		
Sulfuric Acid	SSA-1L	0.5-5 mg/m <sup>3</sup>	35	0.5-5 mg/m <sup>3</sup>			244U	0.5-5 mg/m <sup>3</sup>
Tetrachloroethylene (PCE)	STE-3	5-100	133M	5-100	10-119-20	3-57	135SA	5-150
Tetrahydrofuran	STH-4	50-800	159	50-800			162U	20-400
Toluene	STO-2	2-50	122L	2-50			124SB	2-100
Toluene	STO-4M	10-300	122	20-300	10-114-20	10-300	124SA	10-500
Trichloroethylene	SCE-2M (DB)	1-16	132L	2-25			134SB	1-16

## Uniphos Tube Equivalents for Gastec, RAE and Kitagawa

Compound	Uniphos Tube	Uniphos Range (ppm)	Gastec Tube	Gastec Range (ppm)	RAE Tube	RAE Range (ppm)	Kitagawa Tube	Kitagawa Range (ppm)
Trichloroethylene	SCE-4L (DB)	20-250	132HA	50-500	10-119-20 (DB)	5-100	134SA	5-150
Trichloroethylene	SCE-6 (DB)	0.05-1%	132HH	0.05-1%			134SG	0.05-2%
Triethylamine	SMA-3	2-43					213S	1-10
Trimethylamine	SMA-3	1.7-34					105SE	2.5-50
UDMH (see Dimethylhydrazine)								
Vinyl Chloride	SVC-2M	1-20	131LB	1-20	10-128-10	1-20	132SC	0.2-6
Vinyl Chloride	SVC-6	0.05-1%	130L (DB)	1-14			132SA	0.05-1%
Water Vapor	SWA-4L	2-10 lbs/MMCF	6LLP	2-10 lbs/MMCF	10-120-20	2-10 lbs/MMCF	177UR	2-12 lbs/MMCF
Water Vapor	SWA-4	6-40 lbs/MMCF	6LP	3-40 lbs/MMCF	10-120-20	6-40 lbs/MMCF	177UL	3-80 lbs/MMCF
Water Vapor	SWA-5	0.1-2 mg/L	6L	0.05-1 mg/L	10-120-30	0.05-1 mg/L	177U	0.05-2 mg/L
Water Vapor	SWA-7M	1-18 mg/L	6	1-18 mg/L	10-120-40	1-18 mg/L		
Water Vapor	SWA-7	1-30 mg/L					177SA	1.7-34 mg/L
Xylene	SXY-4	25-1000	123	10-250	10-112-20	10-200	143SA	5-1000
<b>Smoke Generation Tubes</b>	FD-02-SMOKE	NA	500 Smoke	NA	Smoke	NA	300 Air Flow	NA
<b>Long-term Dosimeter Tubes</b>								
Ammonia	LAM-2	25-500 ppm-hr					501	5-200
Carbon Dioxide	LCD-2	0.5-12%-hr	2D	0.2-12%-hr				
<b>Dissolved Ion Tubes</b>								
Sulfide Ion	DSU-2M	0.5-20	211LL	0.5-20			200SB	0.5-10
Sulfide Ion	DSU-3	1-100	211	1-100				
Sulfide Ion	DSU-4M	2-300	211M	2-300			200SA	2-1000
Chloride Ion	DCL-4L	5-200	221LL	10-200			201SB	3-200
Chloride Ion	DCL-5M	10-2000	221L	25-2000			201SA	10-2000