

MINIRAE 3000 & PPBRAE 3000 PRE-PROGRAMMED COMPOUND LIBRARIES

This technical note lists the preprogrammed library gas selections available on the MiniRAE 3000 and ppbRAE 3000. Included are the compound names, the CAS numbers, and correction factors (CFs) by lamp type. For Additional details please refer to the current release of TN-106 found at www.raesystems.com.

SUMMARY OF IONIZATION ENERGIES AND CORRECTION FACTORS

CF = Correction Factor (multiply by reading to get corr. value when calib. to isobutene); NR = No Response

Compound Name	CAS No.	CF		
		9.8 eV	10.6 eV	11.7 eV
Acetaldehyde	75-07-0	NR	6	3.3
Acetic Acid	64-19-7	NR	22	2.6
Acetic Anhydride	108-24-7	NR	6.1	2.0
Acetone	67-64-1	1.2	1.1	1.4
Acetone cyanohydrin	75-86-5			4
Acetylene	74-86-2			2.1
Acrolein	107-02-8	42	3.9	1.4
Acrylic Acid	79-10-7		12	2.0
Acrylonitrile	107-13-1		NR	1.2
Allyl alcohol	107-18-6	4.5	2.4	1.6
Ammonia	7664-41-7	NR	9.7	5.7
Amyl acetate	628-63-7	11	2.3	0.95
Aniline	62-53-3	0.50	0.48	0.47
Anisole	100-66-3	0.89	0.58	0.56
Arsine	7784-42-1		1.9	
Benzene	71-43-2	0.55	0.53	0.6
Benzyl alcohol	100-51-6	1.4	1.1	0.9
Benzyl chloride	100-44-7	0.7	0.6	0.5
Benzyl formate	104-57-4	0.9	0.73	0.66
Bromine	7726-95-3	NR	1.3	0.74
Bromoethyl methyl ether, 2-	6482-24-2		0.84	
Bromoform	75-25-2	NR	2.5	0.5
Bromopropane, 1-	106-94-5	150	1.5	0.6
Butadiene	106-99-0	0.8	0.85	1.1
Butadiene diepoxide, 1,3-	298-18-0	25	3.5	1.2
Butane	106-97-8		67	1.2
Butanol, 1-	71-36-3	70	4.7	1.4
Butanol, t-	75-65-0	6.9	2.9	
Butoxyethanol, 2-	111-76-2	1.8	1.2	0.62

Compound Name	CAS No.	CF		
		9.8 eV	10.6 eV	11.7 eV
Butyl acetate, n-	123-86-4		2.6	
Butyl acrylate, n-	141-32-2		1.6	0.61
Butylamine, n-	109-73-9	1.1	1.1	0.7
Butyl hydroperoxide, t-	75-91-2	2.0	1.6	
Butyl mercaptan	109-79-5	0.55	0.52	
Carbon disulfide	75-15-0	4	1.2	0.44
Carbon tetrachloride	56-23-5	NR	NR	1.7
Chlorine	7782-50-5			1.0
Chlorobenzene	108-90-7	0.44	0.40	0.39
Chloroethane	75-00-3	NR	NR	1.1
Chloroethyl ether, 2-	111-44-4	8.6	3.0	
Chloroform	67-66-3	NR	NR	3.5
Chloro-2-methylpropene, 3-	563-47-3	1.4	1.2	0.63
Chloropicrin	76-06-2	NR	NR	7
Chlorotrifluoroethene	79-38-9	6.7	3.9	1.2
Chlorotrimethylsilane	75-77-4	NR	NR	0.82
Cresol, m-	108-39-4	0.57	0.50	0.57
Crotonaldehyde	123-73-9; 4170-30-3	1.5	1.1	1.0
Cumene	98-82-8	0.58	0.54	0.4
Cyclohexane	110-82-7	3.3	1.4	0.64
Cyclohexanol	108-93-0	1.5	0.94	1.1
Cyclohexanone	108-94-1	1.0	0.9	0.7
Cyclohexene	110-83-8		0.8	
Cyclopentane	287-92-3	NR	15	1.1
Cyclopropylamine	765-30-0	1.1	0.9	0.9
Decane	124-18-5	4.0	1.4	0.35
Dibromochloromethane	124-48-1	NR	5.3	0.66
Dibromo-3-chloropropane, 1,2-	96-12-8	NR	1.7	0.43

CF				
Compound Name	CAS No.	9.8 eV	10.6 eV	11.7 eV
Dibromoethane, 1,2-	106-93-4	NR	1.7	0.64
Dichlorobenzene, o-	95-50-1	0.54	0.47	0.38
Dichlorodimethylsilane	75-78-5	NR	NR	1.1
Dichloroethane, 1,2-	107-06-2		NR	0.6
Dichloroethene, 1,1-	75-35-4		0.82	0.8
Dichloro-1-fluoroethane, 1,1-	1717-00-6	NR	NR	2.0
Dichloropentafluoropropane	442-56-0, 507-55-1	NR	NR	25
Dichloro-1-propene, 1,3-	542-75-6	1.3	0.96	
Dichloro-1-propene, 2,3-	78-88-6	1.9	1.3	0.67
Dichloro-1,1,1-trifluoroethane, 2,2-	306-83-2	NR	NR	10.1
Dichloro-2,4,6-trifluoropyridine, 3,5-	1737-93-5	1.1	0.9	0.8
Dichlorvos	62-73-7		0.9	
Dicyclopentadiene	77-73-6	0.57	0.48	0.43
Diesel Fuel #2, whole	68334-30-5	1.3	0.7	0.35
Diethylamine	109-89-7		0.97	
Diglyme	111-96-6	0.64	0.54	0.44
Diisopropylamine	108-18-9	0.84	0.74	0.5
Diketene	674-82-8	2.6	2.0	1.4
Dimethylacetamide, N,N-	127-19-5	0.87	0.8	0.8
Dimethyl carbonate	616-38-6			1.7
Dimethyl disulfide	624-92-0	0.2	0.20	0.21
Dimethylethylamine	598-56-1	1.1	1.0	0.9
Dimethylformamide, N,N-	68-12-2	0.7	0.7	0.8
Dimethylhydrazine, 1,1-	57-14-7		0.78	0.83
Dimethyl methylphosphonate	756-79-6	NR	4.3	0.74
Dimethyl sulfate	77-78-1	~23	~20	2.3
Dimethyl sulfoxide	67-68-5		1.4	
Dioxolane, 1,3-	646-06-0	4.0	2.3	1.6
DS-108F Wipe Solvent	97-64-3/ 64742-48-9/ 1569-01-3	3.3	1.6	0.7
Epichlorohydrin	106-89-8		8.5	1.4
Ethane	74-84-0		NR	15
Ethanol	64-17-5		10	3.1
Ethanolamine	141-43-5	5.6	1.6	
Ethene	74-85-1		9	4.5
Ethyl acetate	141-78-6		4.6	

CF				
Compound Name	CAS No.	9.8 eV	10.6 eV	11.7 eV
Ethyl acrylate	140-88-5		2.4	1.0
Ethylbenzene	100-41-4	0.52	0.52	0.51
Ethylenediamine	107-15-3	0.9	0.8	1.00
Ethylene glycol	107-21-1		16	6
Ethylene glycol dimethyl ether	110-71-4	1.1	0.86	0.7
Ethylene oxide	75-21-8		13	3.5
Ethyl ether	60-29-7		1.1	
Ethyl 3-ethoxypropionate	763-69-9	1.2	0.75	
Ethyl hexyl acrylate, 2-	103-11-7		1.1	0.48
Ethylidenenorbornene	16219-75-3	0.43	0.39	0.34
Ethyl (S)-(-)-lactate	687-47-8, 97-64-3	13	3.2	1.6
Ethyl mercaptan	75-08-1	0.60	0.56	
Ethyl sulfide	352-93-2		0.51	
Formaldehyde	50-00-0	NR	NR	9
Formamide	75-12-7		6.9	4
Formic acid	64-18-6	NR	NR	9
Furfural	98-01-1		0.92	0.8
Furfuryl alcohol	98-00-0		0.80	
Gasoline	8006-61-9	1.3	1.0	0.47
Glutaraldehyde	111-30-8	1.1	0.8	0.47
Heptane, n-	142-82-5	45	2.8	0.60
Hexamethyldisilazane, 1,1,1,3,3,3-	999-97-3		0.24	0.19
Hexane, n-	110-54-3	350	4.3	0.54
Hexanol, 1-	111-27-3	9	2.5	0.55
Histoclear	5989-27-5	0.5	0.4	0.3
Hydrazine	302-01-2	>8	3	2.1
Hydrogen iodide	10034-85-2		~0.6	
Hydrogen sulfide	7783-06-4	NR	3.3	1.5
Iodine	7553-56-2	0.1	0.1	0.1
Iodomethane	74-88-4	0.21	0.22	0.26
Isoamyl acetate	123-92-2	10.1	2.1	1.0
Isobutane	75-28-5			1.2
Isobutanol	78-83-1	19	3.8	1.5
Isobutene	115-11-7	1.00	1.00	1.00
Isobutyl acrylate	106-63-8		1.5	0.60
Isopar E Solvent	64741-66-8	1.7	0.8	

Compound Name	CAS No.	CF		
		9.8 eV	10.6 eV	11.7 eV
Isopar G Solvent	64742-48-9		0.79	
Isopar K Solvent	64742-48-9	0.85	0.53	0.27
Isopar L Solvent	64742-48-9	0.86	0.52	0.28
Isopar M Solvent	64742-47-8		0.66	0.4
Isoprene	78-79-5	0.69	0.63	0.60
Isopropanol	67-63-0	500	6.0	2.7
Jet fuel JP-4			1.0	0.42
Jet fuel JP-5			0.6	0.46
Jet fuel JP-8		0.9	0.6	0.32
Jet fuel TS			0.6	0.3
Limonene, D-	5989-27-5		0.33	
Mesitylene	108-67-8	0.36	0.35	0.32
Methanol	67-56-1	NR	NR	2.5
Methoxyethanol, 2-	109-86-4	4.8	2.4	1.4
Methoxyethoxyethanol, 2-	111-77-3	2.3	1.2	0.9
Methyl acetate	79-20-9	NR	6.6	1.4
Methyl acrylate	96-33-3		3.7	1.2
Methyl bromide	74-83-9	110	1.7	1.3
Methyl t-butyl ether	1634-04-4		0.91	
Methyl chloride	74-87-3	NR	NR	0.74
Methylcyclohexane	107-87-2	1.6	0.97	0.53
Methylene chloride	75-09-2	NR	NR	0.89
Methyl ether	115-10-6	4.8	3.1	2.5
Methyl ethyl ketone	78-93-3	0.86	0.86	1.1
Methylhydrazine	60-34-4	1.4	1.2	1.3
Methyl isobutyl ketone	108-10-1	0.9	0.8	0.6
Methyl isocyanate	624-83-9	NR	4.6	1.5
Methyl isothiocyanate	551-61-6	0.5	0.45	0.4
Methyl mercaptan	74-93-1	0.65	0.54	0.66
Methyl methacrylate	80-62-6	2.7	1.5	1.2
Methyl propyl ketone	107-87-9		0.93	0.79
Methyl-2-pyrrolidinone, N-	872-50-4	1.0	0.8	0.9
Methyl salicylate	119-36-8	1.3	0.9	0.9
Methyl sulfide	75-18-3	0.49	0.44	0.46
Mineral spirits	8020-83-5	1	0.71	0.39
Naphthalene	91-20-3	0.45	0.42	0.40

Compound Name	CAS No.	CF		
		9.8 eV	10.6 eV	11.7 eV
Nickel carbonyl in CO	13463-39-3		0.17	
Nitric oxide	10102-43-9	~6	5.2	2.8
Nitrobenzene	98-95-3	2.6	1.9	1.6
Nitrogen dioxide	10102-44-0	23	16	6
Norpar 12	64771-72-8	3.2	1.1	0.28
Norpar 13	64771-72-8	2.7	1.0	0.3
Octane, n-	111-65-9	13.2	1.8	
Octene, 1-	111-66-0	0.9	0.75	0.4
Pentane	109-66-0	80	8.4	0.7
Peracetic acid	79-21-0	NR	NR	2.3
Perchloroethene	127-18-4	0.69	0.57	0.31
PGME	107-98-2	2.4	1.5	1.1
PGMEA	108-65-6	1.65	1.0	0.82
Phenol	108-95-2	1.0	1.0	0.9
Phosgene	75-44-5	NR	NR	8.5
Phosphine	7803-51-2	28	3.9	1.1
Pinene, α -	2437-95-8	0.3	1	0.47
Pinene, β -	18172-67-3	0.38	0.37	0.37
Piperylene, isomer mix	504-60-9	0.76	0.69	0.64
Propane	74-98-6	NR		1.8
Propene	115-07-1	1.5	1.4	1.6
Propylamine, n-	107-10-8	1.1	1.1	0.9
Propyl mercaptan, 2-	75-33-2	0.64	0.66	
Propylene carbonate	108-32-7			1
Propylene glycol	57-55-6	18	5.5	1.6
Propylene oxide	16088-62-3, 15448-47-2, 75-56-9	~240	6.6	2.9
Propyleneimine	75-55-8	1.5	1.25	1.0
Pyridine	110-86-1	0.78	0.68	0.7
Pyrrolidine (coats lamp) *	123-75-1	2.1	1.3	1.6
Styrene	100-42-5	0.45	0.40	0.4
Tetrachloroethane, 1,1,2,2-	79-34-5	NR	NR	0.60
Tetrachlorosilane	100026-04-7	NR	NR	15

CF				
Compound Name	CAS No.	9.8 eV	10.6 eV	11.7 eV
Tetraethyl orthosilicate	78-10-4		0.71	0.22
Tetrahydrofuran	109-99-9	1.9	1.7	1.0
Tetramethyl orthosilicate	681-84-5	10	1.9	
Therminol VP-1			0.4	
Toluene	108-88-3	0.54	0.50	0.50
Tolylene-2,4-diisocyanate	584-84-9	1.4	1.4	2.0
Trichlorobenzene, 1,2,4-	120-82-1	0.7	0.46	
Trichloroethane, 1,1,1-	71-55-6	NR	NR	0.98
Trichloroethane, 1,1,2-	79-00-5	NR	NR	0.9
Trichloroethene	79-01-6	0.62	0.54	0.43
Trichloromethylsilane	75-79-6	NR	NR	0.9
Triethylamine	121-44-8	0.95	0.9	0.65
Triethyl borate	150-46-9		2.2	1.1
Triethyl phosphate	78-40-0	~50	3.1	0.60

CF				
Compound Name	CAS No.	9.8 eV	10.6 eV	11.7 eV
Trimethyl borate	121-43-7		5.1	1.2
Trimethyl phosphate	512-56-1		8.0	1.3
Trimethyl phosphite	121-45-9		1.1	0.7
Turpentine	8006-64-2	0.4	0.3	0.29
Vinyl acetate	108-05-4	1.5	1.2	1.0
Vinyl chloride	75-01-4		2.0	0.64
Vinyl-1-cyclohexene, 4-	100-40-3	0.6	0.56	
Vinyl-2-pyrrolidinone, 1-	88-12-0	1.0	0.8	0.9
Xylene, m-	108-38-3	0.50	0.44	0.40
Xylene, o-	95-47-6	0.56	0.46	0.43
Xylene, p-	106-42-3	0.48	0.39	0.38
Custom VOC		1	1	1

* = See TN-106