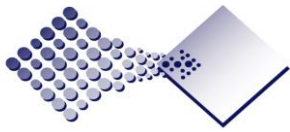


Chemicals (liquids, gas & vapors) and their concentrations measurable by CST fiber optic based UV-Vis-NIR Photometric Analyzers

This is a partial list of compounds (liquids, gases & vapors) and their minimum full-scale concentrations as detected by CST UV-Vis-NIR photometric analyzers. For liquid samples with a specific gravity of 1.0, 1 g/l corresponds to 1000 ppm. The minimum full-scale value for a gas is based on a 1 meter path length and no interference, for a liquid minimum full-scale is based on a 50 cm path. Lower minimums can be had with longer path lengths.

MATERIAL	PHASE	MINIMUM FULL-SCALE	MATERIAL	PHASE	MINIMUM FULL-SCALE
Aceta	Vapor	30,000 ppm	m-Cresol	Liquid	71.3 X 10 ⁻⁶ g/l
Acetaldehyde	Vapor	730 ppm	p-Cresol	Liquid	71.3 X 10 ⁻⁶ g/l
Acetaldehyde	Liquid (H ₂ O)	5450 X 10 ⁻⁶ g/l	Crotonaldehyde	Liquid	245 X 10 ⁻⁶ g/l
Acetic Acid	Liquid (H ₂ O)	25.8 X 10 ⁻³ g/l	Cumene	Vapor	64 ppm
Acetic Anhydride	Liquid	6.12 X 10 ⁻³ g/l	Cyclohexanone	Liquid	7.55 X 10 ⁻³ g/l
Acetone	Vapor	730 ppm	1,3 Cyclopentadiene	Vapor	13.3 ppm
Acetone	Liquid (Alcohol)	5.22 X 10 ⁻³ g/l	p-Cymene	Vapor	19.3 ppm
Acetyl Chloride	Vapor	216 ppm	Decahydronaphthalene	Vapor	1330 ppm
Acrolein	Vapor	640 ppm	Diacetone Alcohol	Vapor	817 ppm
Acrylonitrile	Liquid (Alcohol)	26.5 X 10 ⁻³ g/l	Diacetyl	Liquid (Alcohol)	4.3 X 10 ⁻³ g/l
Ammonia	Vapor	400 ppm	o-Dibutylphthalate	Liquid	73.8 X 10 ⁻⁶ g/l
i-Amyl Alcohol	Vapor	1670 ppm	o-Dichlorobenzene	Vapor	33 ppm
Aniline	Vapor	11 ppm	m-Dichlorobenzene	Vapor	33 ppm
Anisole	Vapor	5.5 ppm	p-Dichlorobenzene	Vapor	30 ppm
Anthracene	Liquid	2.67 X 10 ⁻⁶ g/l	Dichloro Butane	Vapor	3500 ppm
Anthracene	Vapor	0.12 ppm	Diethylketone	Vapor	750 ppm
Anthraquinone	Liquid	11.9 X 10 ⁻⁶ g/l	Di-Isopropylketone	Vapor	1000 ppm
Anthraquinone	Vapor	0.47 ppm	Dimethylacetamide	Vapor	110 ppm
Benzaldehyde	Liquid	16.9 X 10 ⁻⁶ g/l	Dimethylamine	Vapor	2530 ppm
Benzaldehyde	Vapor	1.3 ppm	Dimethylaniline	Vapor	2.33 ppm
Benzene	Vapor	70 ppm	Dimethylformamide	Vapor	312 ppm
Benzene	Liquid	663 X 10 ⁻⁶ g/l	Dimethylformamide	Liquid (H ₂ O)	<1800 X 10 ⁻⁶ g/l
Benzonitrile	Liquid	66.6 X 10 ⁻⁶ g/l	Dimethylterephthalate	Liquid (Glycol)	<1900 X 10 ⁻⁶ g/l
Benzonitrile	Vapor	9.1 ppm	Dioxane	Vapor	10,000 ppm
Benzoyl Chloride	Vapor	20 ppm	Dipentene	Vapor	220 ppm
Benzyl Chloride	Liquid	40 ppm	Diphenyl	Liquid	4.9 X 10 ⁻⁶ g/l
Bisphenol-A	Liquid (NaOH)	3.88 X 10 ⁻⁶ g/l	Diphenyl	Vapor	0.9 ppm
Bromine	Vapor	47 ppm	Diphenyloxide	Vapor	66 ppm
Bromobenzene	Vapor	40 ppm	Divinylacetylene	Vapor	1.7 ppm
1,3 Butadiene	Vapor	111 ppm	Ethane	Vapor	1000 ppm
i-Butyraldehyde	Vapor	622 ppm	Ethylbenzene	Vapor	133 ppm
n-Butyraldehyde	Vapor	1060 ppm	Ethylbenzene	Liquid	636 X 10 ⁻⁶ g/l
Caprolactam	Liquid (H ₂ O)	23 X 10 ⁻⁶ g/l	Ethylbromide	Vapor	2700 ppm
Carbon Disulfide	Vapor	226 ppm	Ethylene	Vapor	1000 ppm
Carbonyl Sulfide	Vapor	445 ppm	Ethylenebromide	Vapor	578 ppm
CarbonTetrachloride	Vapor	4040 ppm	Ethylene chlorohydrin	Liquid (H ₂ O)	50.3 X 10 ⁻³ g/l
Chlorine	Vapor	125 ppm	Ethyl Mercaptan	Liquid	1200 X 10 ⁻⁶ g/l
Chlorine Dioxide	Liquid (H ₂ O)	61.4 X 10 ⁻⁶ g/l	Ethyl Mercaptan	Vapor	59 ppm
Chlorine Dioxide	Vapor	7 ppm	i-Fenchone	Vapor	133 ppm
Chloroamine (mono)	Vapor	212 ppm	Ferric Chloride	Liquid (H ₂ O)	1460 X 10 ⁻⁶ g/l
Chlorobenzene (mono)	Liquid	461 X 10 ⁻⁶ g/l	Ferrous Chloride	Liquid (H ₂ O)	381 X 10 ⁻³ g/l
Chlorobenzene	Vapor	74 ppm	Ferrous Sulfate	Liquid (H ₂ O)	380 X 10 ⁻³ g/l
o-Chlorophenol	Liquid	758 X 10 ⁻⁶ g/l	Fluorine	Vapor	1530 ppm
m-Chlorophenol	Liquid	1066 X 10 ⁻⁶ g/l	Formaldehyde	Vapor	3200 ppm
p-Chlorophenol	Liquid	809 X 10 ⁻⁶ g/l	Formaldehyde	Liquid (H ₂ O)	5.9 g/l
o-Chlorotoluene	Vapor	44 ppm	Formic Acid	Vapor	13,300 ppm
Chromium (as Cr ⁺⁶)	Liquid (H ₂ O)	0.12 X 10 ⁻⁶ g/l	Furan	Vapor	57,800 ppm
Copper (as Cu ⁺²)	Liquid (H ₂ O)	42 X 10 ⁻⁶ g/l	Furan	Liquid	20.4 X 10 ⁻³ g/l
o-Cresol	Liquid	71.3 X 10 ⁻⁶ g/l	Furfural	Vapor	0.5 ppm



Custom Sensors & Technology

Oxygen and Fiber-Optic Photometric Transmitters for Industrial Labs and Process Industries

MATERIAL	PHASE	MINIMUM FULL-SCALE	MATERIAL	PHASE	MINIMUM FULL-SCALE
Furfural	Liquid	6.24 X 10 ⁻⁶ g/l	Phenol	Liquid	72 X 10 ⁻⁶ g/l
Furfural	Liquid (H ₂ O)	9.2 X 10 ⁻⁶ g/l	Phenol	Liquid (H ₂ O)	67 X 10 ⁻⁶ g/l
Hydrogen Iodide	Liquid (H ₂ O)	15 X 10 ⁻⁶ g/l	Phenol	Liquid (NaOH)	56 X 10 ⁻⁶ g/l
Hydrogen Iodide	Vapor	240 ppm	Phosgene	Vapor	480 ppm
Hydrogen Peroxide	Liquid (H ₂ O)	163.2 X 10 ⁻⁶ g/l	o-Phthalic Acid	Liquid (H ₂ O)	X 10 ⁻⁶ g/l
Hydrogen Sulfide	Vapor	43 ppm	Phthalic anhydride	Vapor	10 ppm
Hypochlorous Acid	Liquid (H ₂ O)	241 X 10 ⁻⁶ g/l	Pinene	Vapor	5050 ppm
Iodine	Liquid (Alcohol)	876 X 10 ⁻⁶ g/l	Piperdine	Vapor	110 ppm
Iodoform	Liquid (Alcohol)	177 X 10 ⁻⁶ g/l	Propane	Vapor	1000 ppm
Ketene	Liquid	3360 X 10 ⁻⁶ g/l	Propionic Acid	Vapor	270 ppm
Lithium Bromide	Liquid (H ₂ O)	16.5 X 10 ⁻³ g/l	Pyridine	Vapor	3.0 ppm
Lithium Iodide	Liquid (H ₂ O)	9.1 X 10 ⁻³ g/l	Pyridine	Liquid	47 X 10 ⁻⁶ g/l
Maleic Anhydride	Liquid	X 10 ⁻⁶ g/l	Pyrocatechol	Liquid	74 X 10 ⁻⁶ g/l
Manganous Sulfate	Liquid (H ₂ O)	1736 X 10 ⁻³ g/l	Resorcinol	Liquid	74 X 10 ⁻⁶ g/l
Mercury	Vapor	0.0018 ppm	Sodium Chlorate	Liquid (H ₂ O)	12 X 10 ⁻³ g/l
Mesityl Oxide	Vapor	74 ppm	Sodium Hydrosulfite	Liquid (H ₂ O)	283 X 10 ⁻⁶ g/l
Methane	Vapor	1000 ppm	Sodium Hypochlorite	Liquid (H ₂ O)	690 X 10 ⁻⁶ g/l
Methyl Butyl Ketone	Vapor	580 ppm	Sodium Nitrate	Liquid (H ₂ O)	23.3 X 10 ⁻³ g/l
Methyl Ethyl Ketone	Vapor	450 ppm	Sodium Nitrite	Liquid (H ₂ O)	3.2 X 10 ⁻³ g/l
Methyl Formate	Vapor	9000 ppm	Sodium Sulfide	Liquid (H ₂ O)	37 X 10 ⁻⁶ g/l
2-Methyl Furan	Vapor	1350 ppm	Sodium Sulfite	Liquid (H ₂ O)	445 X 10 ⁻⁶ g/l
Methyl Iodide	Vapor	39 ppm	Styrene	Liquid	229 X 10 ⁻⁶ g/l
Methyl Isobutyl Ketone	Vapor	450 ppm	Styrene	Vapor	2.7 ppm
2-Methyl-1, 3-Butadiene	Vapor	200 ppm	Sulfur	Liquid (Alcohol)	14 X 10 ⁻⁶ g/l
Methyl Mercaptan	Liquid	13.6 X 10 ⁻⁶ g/l	Sulfur	Vapor	3.7 ppm
4-Methyl-1, 3-Pentadiene	Vapor	1030 ppm	Sulfur Dioxide	Vapor	37 ppm
Methyl Vinyl Pyridine	Vapor	4.8 ppm	Sulfur Monochloride	Liquid	60.7 X 10 ⁻⁶ g/l
Monochloroacetic Acid	Liquid (H ₂ O)	64.2 X 10 ⁻³ g/l	Sulfur Oxychloride	Liquid	17.5 X 10 ⁻⁶ g/l
Monoethanolamine	Vapor	212 ppm	Tetrachloroethane	Vapor	1610 ppm
Monovinyl Acetylene	Vapor	38 ppm	Tetrachloroethylene	Vapor	90 ppm
Naphthalene	Liquid	83.2 X 10 ⁻⁶ g/l	Titanium Tetrachloride	Vapor	<17 ppm
Naphthalene	Vapor	2.5 ppm	Toluene	Vapor	62 ppm
a-Naphthylamine	Liquid	27.5 X 10 ⁻⁶ g/l	Toluene	Liquid	524 X 10 ⁻⁶ g/l
b-Naphthylamine	Liquid	27.9 X 10 ⁻⁶ g/l	m-Toluidine	Vapor	5.4 ppm
b-Naphthol	Liquid	10.8 X 10 ⁻⁶ g/l	n-Tributylamine	Vapor	4040 ppm
Nickel Carbonyl	Vapor	1.4 ppm	Trichlorobenzene	Liquid	544 X 10 ⁻⁶ g/l
Nickel Sulfate	Liquid (H ₂ O)	235 X 10 ⁻³ g/l	Trimethylamine	Vapor	622 ppm
Nitric Acid	Liquid (H ₂ O)	14.5 X 10 ⁻³ g/l	Trinitrotoluene	Liquid (H ₂ O)	1 ppm
Nitroaniline	Liquid (H ₂ O)	30.4 X 10 ⁻⁶ g/l	Uranium Hexafluoride	Vapor	6.6 ppm
Nitrobenzene	Vapor	1 ppm	Uranyl Nitrate	Liquid (HNO ₃)	80 X 10 ⁻³ g/l
Nitrobenzene	Liquid	14.1 X 10 ⁻⁶ g/l	Urea	Liquid (H ₂ O)	1.33 g/l
Nitrogen Dioxide (NO ₂)	Vapor	50 ppm	Vanadium	Liquid	190 X 10 ⁻⁶ g/l
Nitrogen Tetraoxide	Vapor	18 ppm	Water	Liquid (Alcohol)	500 X 10 ⁻⁶ g/l
o-Nitrotoluene	Vapor	11.5 ppm	Water	Liquid (HCs)	100 X 10 ⁻⁶ g/l
m-Nitrotoluene	Vapor	3 ppm	o-Xylene	Vapor	48 ppm
p-Nitrotoluene	Vapor	7.5 ppm	o-Xylene	Liquid	689 X 10 ⁻⁶ g/l
Oxalic Acid	Liquid	2.7 ppm X 10 ⁻³ ppm	m-Xylene	Vapor	56 ppm
Ozone	Vapor	2.2 ppm	m-Xylene	Liquid	689 X 10 ⁻⁶ g/l
Perchloroethane	Vapor	43 ppm	p-Xylene	Vapor	45 ppm
Phenol	Vapor	35 ppm	p-Xylene	Liquid	265 X 10 ⁻⁶ g/l

Please consult Custom Sensors & Technology for compounds not listed above. Many liquids and gases do not absorb in the UV-Vis-NIR regions of the spectrum. Please consult CST for absorbtivities for your specific application.