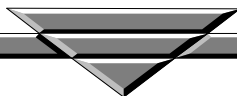


# TechTIPs

The latest from PerkinElmer Photovac

Volume 2, Number 2



## 2020 Photoionization Detector Response Factors (10.6 eV)

Compound	Response Factor	Compound	Response Factor
Acetaldehyde	10.5	Ethanol	8.8
Acetone	1.2	Ethyl Acetate	3.8
Acetophenone	2.0	Ethyl Acrylate	2.3
Acrolein (2-Propenal)	4.0	Ethylbenzene	0.5*
Acrylic Acid	10.9	Ethyl Cellosolve (2-Ethoxyethanol)	1.3*
Acrylonitrile	ND	Ethylene Glycol	0.1
Allyl Chloride (3-Chloro-1-Propene)	3.9	Ethyl Ether (Diethyl Ether)	1.2*
Benzene	0.5	Ethyl Mercaptan (Ethanethiol)	0.6
Bromoform (Tribromomethane)	2.0*	Ethylene	10.1
1,3-Butadiene	0.7	n-Heptane	2.4*
n-Butane	0.2	n-Hexane	4.7
n-Butanol	3.4	2-Heptanone	2.1
n-Butyl Acetate	2.3	Hydrogen Sulfide	3.3
Butyl Acrylate	1.8	Isoamyl Acetate	1.8*
Butyl Cellosolve	3.1	Isobutyl Acetate	2.6
n-Butyl Acrylate	1.8	Isobutyl Alcohol	0.3
n-Butyl Mercaptan (Butanethiol)	0.6	Isobutyraldehyde	1.1
Carbon Disulfide	1.3	Isopentane	8.2
Chlorobenzene	0.4	Isoprene (2-Methyl-1,3-Butadiene)	0.6
Crotonaldehyde (2-Butenal)	1.2*	Isopropanol	4.4
Cumene (Isopropyl Benzene)	0.6*	Isopropyl Acetate	2.6
Cyclohexane	1.3	Isopropyl Ether	0.8*
Cyclohexanol	3.4	Mercaptopropionic Acid	0.1
Cyclohexanone	0.9*	Methacrylic Acid	000
Diacetone alcohol	1.8	Methyl n-Amyl Ketone (2-heptanone)	2.1
1,2-Dichlorobenzene (ortho-)	0.5*	Methyl Bromide (Bromomethane)	1.6
Ethyl Acrylate	0.9	Methyl tert-Butyl Ether (MTBE)	0.8
cis-1,2-Dichloroethylene	0.8	Methyl Chloroform (1,1,1 -TCA)	000
trans-1,2-Dichloroethylene	0.4	Methylene Chloride	000
N,N-Dimethylformamide (DMF)	0.8*	Methyl Ethyl Ketone (2-Butanone)	0.8
1,4-Dioxane	1.3	Methyl Isobutyl Ketone (MIBK)	1.0*

Epichlorohydrin	<b>6.5*</b>	Methyl Mercaptan	<b>0.5</b>
<b>Compound</b>	<b>Response Factor</b>	<b>Compound</b>	<b>Response Factor</b>
Methyl Methacrylate	<b>1.4*</b>	Therminol	<b>000</b>
Monomethylamine	<b>1.3</b>	Toluene	<b>0.5</b>
n-Nonane	<b>1.4*</b>	1,1,1 – Trichloroethane	<b>000</b>
iso-Octane (2,2,4-Trimethylpentane)	<b>1.2*</b>	Trichloroethylene (TCE)	<b>0.5</b>
n-Pentane	<b>10.4</b>	1,1,1 – Trichloroethane	<b>000</b>
Phenol	<b>1.1</b>	Triethanolamine	<b>ND</b>
Poylpropylene	<b>0.8</b>	Trimethylamine	<b>0.9</b>
Propane	<b>000</b>	1,2,4-Trimethyl Benzene	<b>2.3</b>
n-Propanol	<b>5.1</b>	1,3,5- Trimethyl Benzene	<b>1.7</b>
Propionaldehyde (Propanal)	<b>14.8</b>	Vinyl Acetate	<b>1.2*</b>
n-Propyl Acetate	<b>3.1</b>	Vinyl Bromide	<b>0.4</b>
Propylene	<b>1.2</b>	Vinyl Chloride (Chloroethylene)	<b>1.7</b>
Propylene Oxide	<b>5.8</b>	Vinylidene Chloride (1,1-DCE)	<b>0.8</b>
Styrene	<b>0.4*</b>	ortho-Xylene	<b>0.5*</b>
Syltherm XLT	<b>9.8</b>	meta-Xylene	<b>0.5*</b>
Tetrachloroethylene (Perchloroethylene)	<b>0.5</b>	para-Xylene	<b>0.5*</b>
Tetrahydrofuran	<b>1.5</b>		

The *Photovac 2020* compound Response Factors were determined over the range 0 - 500 PPM, based on a 100 PPM Isobutylene calibration. Isobutylene RF = 1.0. The following formula was used for calculation of Response Factors:

$$\text{Response Factor} = \frac{\text{Actual Concentration}}{\text{2020 Response}}$$

A Response Factor less than 1.0 indicates a compound response better than that of Isobutylene. A Response Factor greater than 1.0 indicates a lower response than that of Isobutylene.

The following Response Factors are pre-programmed into the memory of the *Photovac 2020*. There is space in the *2020* for up to 15 user-entered Response Factors. **Unless otherwise noted, when using Response Factors, results are expected to be accurate to +/- 10 PPM or +/- 25%, whichever is greater.**

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