

Aeroqual PID Sensor Response

The Aeroqual PID sensor response to a variety of gases is given in the table below. The Response Factor (RF) provides a sensitivity measure relative to isobutylene (RF=1). The PID sensor is more sensitive to compounds with lower RF values. Compounds not listed may also be detected by PID - please contact Aeroqual for information.

VOC (PID) Sensor Specifications

Calibrated Range (ppm)	Maximum Exposure (ppm)	Lowest Detection Limit	Accuracy of Calibration	Resolution (ppm)	Response Time (T ₉₀)	Sampling Method	Operational Range	
							Temp.	RH non condensing
0 - 20	100	0.01 ppm	<± 10%	0.01	<30s	Fan	-10 to 50°C	5 to 95%

Response Factors (RF)

- The default sensor concentration reading is in units of ppm of Isobutylene.
- The user can convert this into ppm of another gas by multiplying the reading by the response factor (RF) listed below.
- For example, the PID sensor head is calibrated against Isobutylene and is being used to measure the concentration of heptane. The reading in ppm of Isobutylene is 10ppm. Therefore the concentration of heptane is 10 ppm x 2.5 = 25 ppm.
- The VOC sensor can also be used to qualitatively indicate the total VOC level. The units of measurement are ppm Isobutylene equivalent.

Compound	Response Factor (RF) (a smaller RF means the PID is more sensitive to the compound)
1,2,3-trimethylbenzene	0.49
1,2,4-trimethylbenzene	0.43
1,2-dibromoethane	11.7
1,2-dichlorobenzene	0.50
1,3,5-trimethylbenzene	0.34
1,4-dioxane	1.4
1-butanol	3.4
1-methoxy-2-propanol	1.4
1-propanol	5.7
2-butoxyethanol	1.3
2-methoxyethanol	2.5
2-pentanone	0.78
2-picoline	0.57
3-picoline	0.90
4-hydroxy-4-methyl-2-pentanone	0.55
acetaldehyde	10.8
acetic acid	11.0
acetone	1.2
acetophenone	0.59
acrolein	3.9
allyl alcohol	2.5
ammonia	9.4
amylacetate	3.5
arsine	2.6
benzene	0.53
bromoform	2.3
bromomethane	1.8
butadiene	0.69

butyl acetate	2.4
carbon disulfide	1.2
chlorobenzene	0.4
cumene (isopropylbenzene)	0.54
cyclohexane	1.5
cyclohexanone	0.82
decane	1.6
diethylamine	1.0
dimethoxymethane	11.3
dimethyl disulfide	0.3
diesel fuel #1	0.9
diesel fuel #2	0.75
epichlorhydrin	7.6
ethanol	10.0
ethyl acetate	4.2
ethyl acetoacetate	0.9
ethyl acrylate	2.3
diethyl ether	1.2
ethyl mercaptan	0.6
ethylbenzene	0.51
ethylene	10.1
gasoline	1.1
heptane	2.5
hydrazine	2.6
hydrogen sulfide	3.2
isoamyl acetate	1.8
isobutanol	4.7
isobutyl acetate	2.6
isobutylene	1.0
isooctane	1.3
isopentane	8.0
isophorone	0.74
isoprene (2-methyl-1,3-butadiene)	0.6
isopropanol	5.6
isopropyl acetate	2.6
isopropyl ether	0.8
isopropylamine	0.90
Jet A Fuel	0.4
JP-5 Fuel	0.48
JP-8 Fuel	0.48
mesityl oxide	0.47
methyl acetate	7
methyl acetoacetate	1.1
methyl acrylate	3.4
methyl benzoate	0.93
methyl ethyl ketone	0.9
methyl isobutyl ketone	1.1
ketone	1.1
methyl mercaptan	0.6
methyl methacrylate	1.5
methyl tert-butyl ether	0.86
ether	0.86
methylamine	1.2
methylbenzil alcohol	0.8
m-xylene	0.53
naphtalene	0.37
n,n-dimethylacetamide	0.73
n,n-dimethylformamide	0.80
n-hexane	4.5
nitric oxide	7.2
n-nonane	1.6
n-pentane	9.7
n-propyl acetate	3.1
octane	2.2
o-xylene	0.54
phenol	1.0
phosphine	2.8

pinene, alpha	0.4
pinene, beta	0.4
propylene	1.3
propylene oxide	6.5
p-xylene	0.50
pyridine	0.79
quinoline	0.72
styrene	0.40
tert-butyl alcohol	3.4
tert-butyl mercaptan	0.55
tert-butylamine	0.71
tetrachloroethylene	0.56
tetrahydrofuran	1.6
thiophene	0.47
toluene	0.53
trans-1,2-Dichloroethene	0.45
trichloroethylene	0.50
trimethylamine	0.83
turpentine crude sulfite	1.0
turpentine pure gum	0.45
vinyl acetate	1.3
vinyl bromide	0.4
vinyl chloride	1.8
vinylcyclohexane (VCH)	0.54
vinylidene chloride (1,1-DCE)	0.8

Note:

The isobutylene conversion factor from ppm to mg/m³:
1 ppm = 2.29 mg/m³

Please contact Aeroqual for further information.

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