Detectable Gases with Electrochemical Sensors

The following chart indicates the substances presently detectable with the electrochemical sensors.

Table 1 shows all gases directly with a specific sensor.
Table 2 shows other substances which are also detectable by using sensors listed in *Table* 1.

Note: Some compounds (e. g. BF_3, BCl_3, BBr_3) can be detected indirectly by using their property to react with the moisture present in the ambient air, thus forming compounds for which a specific sensor is available (e. g. HF, HCl, HBr). Other gases can be detected by using cross-sensitivities of some of the sensors. The enclosed data are offered solely for consideration, investigation and verification.

Please check the individual technical data sheets of the gas sensors for more detailed information or contact us directly.

Table 1 Detection of toxic gases

Gas	Formula	Sensor (ppm)
Ammonia	NH_3	NH_3
Arsine	AsH_3	AsH_3
Carbon Monoxide	CO	CO
Chlorine	Cl_2	Cl_2
Chlorine Dioxide	ClO_2	ClO_2
Diborane	B_2H_6	AsH_3
Fluorine	F_2	F_2
Germane	GeH4	GeH4
Hydrazine	N_2H_4	N_2H_4
Hydrogen Bromide	HBr	HCl
Hydrogen Chloride	HCl	HCl
Hydrogen Fluoride	HF	HF
Hydrogen Sulfide	H_2S	H_2S
Nitric Oxide	NO	NO
Nitrogen Dioxide	NO_2	NO_2
Ozone	O_3	O_3
Phosgene	$COCl_2$	$COCl_2$
Phosphine	PH_3	PH_3/ AsH_3
Silane	SiH_4	SiH_4

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Table 2 Toxic Gases detectable with sensors from *Table 1*

Gas	Formula	Sensor (ppm)
Acetaldehyde	CH_3CHO	CO
Arsenic Trichloride	$AsCl_3$	HCl
Arsenic Trifluoride	AsF_3	HF
Arsenic Pentafluoride	AsF_5	HF
Boron Trichloride	BCl_3	HCl
Boron Tribromine	BBr_3	HCl
Boron Trifluoride	BF_3	HF
Butanethiol	C_4H_9SH	TBM
Carbonyl Fluoride	COF_2	HF
Chlorine Dioxide[2]	ClO_2	ClO_2, O_3
Chlorine Trifluoride	ClF_3	ClO_2, HF
Dichlorosilane	SiH_4Cl_2	HCl
Disulfur Decafluoride	S_2F_{10}	HF
Disulfur Dichloride	S_2Cl_2	HCl
Formic Acid	HCOOH	CO
Germanium Chloride	$GeCl_4$	HCl
Iodine[2]	I_2	Cl_2, O_3
Isopropanol[2]	$(CH_3)_2$ CHOH	CO w/o Filter
Methanol[2]	CH_3OH	CO w/o Filter
Phosphorous Trichloride	PCl_3	HCl
Phosphorous Pentachloride	PCl_5	HCl
Phosphoryl Chloride	$POCl_3$	HCl
Silicon Tetrachloride	$SiCl_4$	HCl
Stibin[2]	SbH_3	AsH_3 3E
Thiophene	C_4H_4S	THT
Tin Tetrabromide	$SnBr_4$	HBr
Tin Tetrachloride	$SnCl_4$	HCl
Tin Tetrafluoride	SnF_4	HF
Titanium Tetrachloride	$TiCl_4$	HCl
Trichlorosilane	$SiHCl_3$	HCl
Trichlortriazine	$C_3Cl_3N_3$	HCl
Trifluorotriazine	$C_3F_3N_3$	HF

1) TRK-Values (Technical Concentration Limits)
2) MAK or TLV-TWA monitoring

Table 3 Detection of explosive gases

Gas	Formula	LEL	Sensor
Ethanol	C2H5OH	3.28	H_2
Hydrogen	C2H4	2.75	H_2

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