Electrochemical O2 Sensors: Background Gas Compatibility

Analysers and sensors based on the galvanic principle are suitable for the measurement of oxygen ranging from 100 PPB to 100% in a variety of background gases in a wide range of applications. It is important to establish the compatibility of the galvanic oxygen sensor in the background gas of each application. This table is designed to assist you in selecting the correct sensor. If the background gas of your application is not listed contact the factory at info@aii1.com for assistance.

Chemical Name	Formula	GPR/PSR Sensors	XLT Sensors	Special Requirements/ Comments
Acetic Acid (vapor)	H_3COOH	Not Recommended	Suitable	Coalescing filter
Acetone (vapor)	$(CH_3)_2CO$	Suitable	Suitable	Coalescing filter
Acetylene	HCCH	Suitable	Suitable	
Acrylonitrile	C_3H_3N	Suitable	Suitable	Coalescing filter
Air	N/A	Suitable	Suitable	
Ammonia	NH_3	Suitable	Not Recommended	For ppm sensors use – H suffix on sensor > 1000 ppm NH_3
Argon	Ar	Suitable	Suitable	
Arsine	AsH_3	Not Recommended	Not Recommended	
Butadiene	C_4H_6	Suitable	Not Recommended	3-4 month life in continuous use, longer with spot checking
Butane	C_4H_{10}	Suitable	Suitable	
Carbon Dioxide	CO_2	Suitable	Suitable	GRP sensors < 5,000 ppm CO_2
Carbon Disulfide	CS_2	Suitable	Suitable	GPR sensors < 1,000 ppm CS_2
Carbon Monoxide	CO	Suitable	Suitable	
Chlorinated Hydrocarbons	C+H+Cl	Suitable	Suitable	
Chlorine	Cl_2	Not Recommended	Not Recommended	Interfering Signal
Chloro-fluorocarbons	H+F+Cl+C	Suitable	Suitable	
Ethyl Acetate	$C_4H_8O_2$	Suitable	Suitable	
Ethanol (EtOH)	C_2H_5OH	Suitable	Suitable	Coalescing filter
Ethylene	C_2H_4	Suitable	Suitable	
Fluorine	F_2	Not Recommended	Not Recommended	Interfering Signal
Formaldehyde (vapors)	CH_2O	Suitable	Suitable	Coalescing filter
Helium	He	Suitable	Suitable He < 65%	GPR/PSR ppm sensors: Use -H > 1000 ppm He
Heptanes	C_7H_{16}	Suitable	Suitable	Coalescing filter
Hexanes	C_6H_{14}	Suitable	Suitable	Coalescing filter / 3-4 month life
Hydrocarbons	H+C	Suitable	Suitable	
Hydrochloric Acid (vapors)	HCl	Not Recommended	Suitable	Coalescing filter
Hydrogen	H_2	Suitable	Suitable if H_2 < 65%	GPR/PSR ppm sensors: Use -H > 1000 ppm H_2
Hydrogen Cynide	HCN	Suitable	Suitable	
Hydrogen Fluoride	HF	Not Recommended	Not Recommended	

Chemical Name	Formula	GPR/PSR Sensors	XLT Sensors	Special Requirements/ Comments
Hydrogen Sulfide	H_2S	Suitable	Suitable	> 10 ppm H_2S, remove with factory scrubber
Isopropyl Acetate	$C_5H_{10}O_2$	Suitable	Suitable	
Isopropyl Alcohol (IPA)	C_3H_8O	Suitable	Suitable	Coalescing filter
Methane	CH_4	Suitable	Suitable	
Methanol MeOH (vapors)	CH_3OH	Suitable	Suitable	Coalescing filter
Methanol (vapors)	CH_4O	Suitable	Suitable	Coalescing filter
Methyl Iodide (vapors)	CH_3I	Suitable	Suitable	Coalescing filter
MTBE (vapors)	$C_5H_{12}O$	Suitable	Suitable	Coalescing filter
Nitric Oxide	NO	Suitable	Suitable	Limit of 100ppm NO
Nitrogen	N_2	Suitable	Suitable	
Nitrogen Dioxide	NO_2	Suitable	Suitable	Percentage O_2 measurements only with <100 ppm $N0_2$
Nitrous Oxide	N_2O	Suitable	Suitable	Limit of 100ppm N_2O
NOx	NO, NO_2	Suitable	Suitable	Limit of 100ppm NOX
Octoflurocyclobutane	C_4F_8	Suitable	Suitable	
Ozone	O_3	Not Recommended	Not Recommended	
Pentane (vapors)	C_5H_{12}	Suitable	Suitable	Coalescing filter
Phosgene	CCl_2O	Not Recommended	Not Recommended	
Phosphane	PH_3	Not Recommended	Not Recommended	
Propane	C_3H_8	Suitable	Suitable	
Propelene Aldehyde (vapors)	C_3H_4O	Suitable	Suitable	Coalescing filter
Propionic Acid (vapors)	$C_3H_6O_2$	Not Recommended	Suitable	Coalescing filter
Propylene	C_3H_6	Suitable	Suitable	
Silane	SiH_4	Not Recommended	Not Recommended	
Styrene	C_8H_8	Suitable	Suitable	
Sufuric Acid (vapors)	H_2SO_4	Not Recommended	Suitable	> 10 ppm H_2SO_4, remove with factory scrubber
Sulfur Dioxide	SO_2	Suitable	Suitable	> 10 ppm SO_2, remove with factory scrubber
Sulfur Hexafluride	SF_6	Suitable	Suitable	Limited life 3 to 4 months
Tetrafuoromethane (vapors)	CF_4	Suitable	Suitable	Coalescing filter
Tetrahydrofurane (vapors)	C_4H_8O	Suitable	Suitable	Coalescing filter
Toluene (vapors)	C_7H_8	Suitable	Suitable	Coalescing filter
Trimethylaluminum (vapors)	$(CH_3)_6Al_2$	Suitable	Suitable	Coalescing filter
Turpentine (vapors)	$(C_5H_8)_n$	Suitable	Suitable	> 10 ppm C_5H_8, coalescing filter
Vinyl Acetate (vapors)	$C_4H_6O_2$	Suitable	Suitable	Coalescing filter
Vinyl Chloride (vapors)	C_2H3Cl	Suitable	Suitable	Coalescing filter