

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 ₃ COOH	Not Recommended	Suitable	Coalescing filter
Acetone (vapor)	(CH ₃) ₂ CO	Suitable	Suitable	Coalescing filter
Acetylene	HCCH	Suitable	Suitable	
Acrylonitrile	C ₃ H ₃ N	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 ₄ H ₆	Suitable	Not Recommended	3-4 month life in continuous use, longer with spot checking
Butane	C ₄ H 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 ₄ H ₈ O ₂	Suitable	Suitable	
Ethanol (EtOH)	C ₂ H ₅ OH	Suitable	Suitable	Coalescing filter
Ethylene	C ₂ H ₄	Suitable	Suitable	
Fluorine	F ₂	Not Recommended	Not Recommended	Interfering Signal
Formaldehyde (vapors)	CH ₂ O	Suitable	Suitable	Coalescing filter
Helium	He	Suitable	Suitable He < 65%	GPR/PSR ppm sensors: Use -H > 1000 ppm He
Heptanes	C ₇ H ₁₆	Suitable	Suitable	Coalescing filter
Hexanes	C ₆ H 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 Cyanide	HCN	Suitable	Suitable	
Hydrogen Fluoride	HF	Not Recommended	Not Recommended	

Chemical Name	Formula	GPR/PSR Sensors	XLT Sensors	Special Requirements/ Comments
Hydrogen Sulfide	H ₂ S	Suitable	Suitable	> 10 ppm H ₂ S, remove with factory scrubber
Isopropyl Acetate	C ₅ H ₁₀ O ₂	Suitable	Suitable	
Isopropyl Alcohol (IPA)	C ₃ H ₈ O	Suitable	Suitable	Coalescing filter
Methane	CH ₄	Suitable	Suitable	
Methanol MeOH (vapors)	CH ₃ OH	Suitable	Suitable	Coalescing filter
Methanol (vapors)	CH ₄ O	Suitable	Suitable	Coalescing filter
Methyl Iodide (vapors)	CH ₃ I	Suitable	Suitable	Coalescing filter
MTBE (vapors)	C ₅ H 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 NO ₂
Nitrous Oxide	N ₂ O	Suitable	Suitable	Limit of 100ppm N ₂ O
NOx	NO, NO ₂	Suitable	Suitable	Limit of 100ppm NOX
Octofluorocyclobutane	C ₄ F ₈	Suitable	Suitable	
Ozone	O ₃	Not Recommended	Not Recommended	
Pentane (vapors)	C ₅ H ₁₂	Suitable	Suitable	Coalescing filter
Phosgene	CCl ₂ O	Not Recommended	Not Recommended	
Phosphane	PH ₃	Not Recommended	Not Recommended	
Propane	C ₃ H ₈	Suitable	Suitable	
Propylene Aldehyde (vapors)	C ₃ H ₄ O	Suitable	Suitable	Coalescing filter
Propionic Acid (vapors)	C ₃ H ₆ O ₂	Not Recommended	Suitable	Coalescing filter
Propylene	C ₃ H ₆	Suitable	Suitable	
Silane	SiH ₄	Not Recommended	Not Recommended	
Styrene	C ₈ H ₈	Suitable	Suitable	
Sulfuric Acid (vapors)	H ₂ SO ₄	Not Recommended	Suitable	> 10 ppm H ₂ SO ₄ , remove with factory scrubber
Sulfur Dioxide	SO ₂	Suitable	Suitable	> 10 ppm SO ₂ , remove with factory scrubber
Sulfur Hexafluoride	SF ₆	Suitable	Suitable	Limited life 3 to 4 months
Tetrafluoromethane (vapors)	CF ₄	Suitable	Suitable	Coalescing filter
Tetrahydrofurane (vapors)	C ₄ H ₈ O	Suitable	Suitable	Coalescing filter
Toluene (vapors)	C ₇ H ₈	Suitable	Suitable	Coalescing filter
Trimethylaluminum (vapors)	(CH ₃) ₃ Al	Suitable	Suitable	Coalescing filter
Turpentine (vapors)	(C ₅ H ₈) _n	Suitable	Suitable	> 10 ppm C ₅ H ₈ , coalescing filter
Vinyl Acetate (vapors)	C ₄ H ₆ O ₂	Suitable	Suitable	Coalescing filter
Vinyl Chloride (vapors)	C ₂ H ₃ Cl	Suitable	Suitable	Coalescing filter