



## Gas Properties - Air

Gas Name	Chemical Formula	Chemical Family
Air	Air	Non-Flammable Gases
Synonym(s)	Breathing Air, Compressed Air and Medical Air	

Molecular Weight	Critical Pressure (psia)	Critical Temperature (R)	Ratio of Specific Heats
28.975	547	239	1.406
Physical Characteristics		Solubility	
Colorless, Odorless		Slightly soluble, but main components are higher soluble.	
Applications or Uses			
Many uses - Combustion, Life Support and Source of Power. Underbalanced Drilling, De-watering.			
Hazards			
Supports Combustion. Exposure at higher pressure can cause physical problems.			
Material Requirements			
Slightly oxidizing characteristics. Can be contaminated by corrosive components (CO <sub>2</sub> , NH <sub>3</sub> , H <sub>2</sub> S etc.). Many applications require non-lube construction. Materials will be designed for continuous duty at 400 F (204 C), however, applications are to be limited to 350 F (177 C) discharge shutdown temperature.			
Lubrication			
Standard guidelines for lube or non-lube service. Special lubricants for greater than 500 psi. Typically use mineral oils when less than 500 psi and a diester when greater than 500 psi. Special precautions should be taken to prevent oil accumulation in piping and heat exchangers, minimize drops or low points. Prevent excessive lubrication. When synthetic oils are to be used, they must also be used during the mechanical run test.			
Comments (see also <a href="#">Air Service</a> topic)			
Proper temperatures must be maintained to prevent carbon build-up (leads to explosive situations) and proper materials for applicable operating pressure must be used. Materials will be designed for 400 F (204 C) continuous duty, however discharge temperatures will be limited to 350 F (177 C) max. Standard performance runs are used, however humidity must be accounted for and when applicable, the inlet filter pressure drops must be accounted for. Sizing must be based on an entire range of operating conditions. Always request all operating conditions.			