



## Gas Properties - Helium

Gas Name	Chemical Formula	Chemical Family
Helium	He	Inert Gas
Synonym(s)	Helium USP	

Molecular Weight	Critical Pressure (psia)	Critical Temperature (R)	Ratio of Specific Heats
4.003	33.2	9.47	1.666
Physical Characteristics		Solubility	
Colorless, Odorless, Tasteless		Slightly soluble in water. Readily absorbed by oil.	
Applications or Uses			
Leak Testing, Zeppelins, Mixed with oxygen for diver breathing tanks. Typically higher pressure applications, greater than 1000 psi.			
Hazards			
Asphyxiant. Handle in well ventilated area. Lighter than air, collects in overhead pockets. Difficult to detect leakage.			
Material Requirements			
Non-corrosive. Standard materials. Piston rings, riders and packing ring materials need to be reviewed.			
Lubrication			
Standard guidelines for lube or non-lube service.			
Comments			
Requires Helium leak test. Follow guidelines for Low Molecular Weight as detailed in Ariel Applications Manual. Due to the extremely high Ratio of Specific Heats, closely monitor discharge temperatures. Even though Helium has twice the molecular weight of Hydrogen, it tends to be more difficult to seal. Elastomer seals are prone to leakage. Special seals may be required and a double seal arrangement is quite common, if not required.			