



Gas Properties - Hydrogen

Gas Name	Chemical Formula	Chemical Family
Hydrogen	H ₂	Flammable Gasses
Synonym(s)	Molecular Hydrogen	

Molecular Weight	Critical Pressure (psia)	Critical Temperature (R)	Ratio of Specific Heats
2.016	188	61	1.410
Physical Characteristics		Solubility	
Colorless, Odorless, Lighter than air		Slightly soluble in water. Higher solubility in oil.	
Applications or Uses			
Hydro-cracking, Hydro-treating and various other industrial uses. General operating ranges: 800 to 1000 PSI for pipelines and approx. 2500 PSI for Hydrocracking.			
Hazards			
Explosive, Flammable. Difficult to detect. Lighter than air therefore accumulates in overhead pockets. Asphyxiant. Should be handled in well ventilated areas. Difficult to detect, flame is invisible in daylight. Leak test by soap bubble.			
Material Requirements			
Non-corrosive. Standard materials are commonly used. Cast iron cylinders are acceptable. At higher pressures >1000 PSI generally use ductile iron or steel. 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. Limit discharge temperature to 275 degrees F or less.			