

HAYNES[®] 242[®] alloy

Resistance to Hydrogen Embrittlement

Notched room-temperature tensile tests performed in hydrogen and air reveal that 242[®] alloy is roughly equivalent to alloy 625 in resisting hydrogen embrittlement, and appears to be superior to many important materials. Tests were performed in MIL-P27201B grade hydrogen, with a crosshead speed of 0.005 in./min. (0.13 mm/min.).

Alloy	Hydrogen Pressure		-	Ratio of Notched Tensile Strength, Hydrogen/Air
	psi	MPa	Kt	
Waspaloy	7,000	48	6.3	.78
625	5,000	34	8.0	.76
242[®]	5,000	34	8.0	.74
718	10,000	69	8.0	.46
R-41	10,000	69	8.0	.27
X-750	7,000	48	6.3	.26