

HASTELLOY[®] G-30[®] alloy

Corrosion Resistance of Welds

To assess the resistance of welds to corrosion, Haynes International has chosen to test all-weld-metal samples, taken from the quadrants of cruciform assemblies, created using multiple gas metal arc (MIG) weld passes. Notably, the resistance of all-weld-metal samples of G-30 alloy to key, inorganic acids is close to that of the wrought, base metal in several cases.

Chemical	Concentration	Temperature		Corrosion Rate			
	wt.%	°F	°C	Weld Metal		Wrought Base Metal	
				mpy	mm/y	mpy	mm/y
H ₂ SO ₄	30	150	66	<0.4	<0.01	<0.4	<0.01
H ₂ SO ₄	50	150	66	0.4	0.01	0.4	0.01
H ₂ SO ₄	70	150	66	5.5	0.14	4.3	0.11
H ₂ SO ₄	90	150	66	102.4	2.60	102.8	2.61
HCl	5	100	38	<0.4	<0.01	13.0	0.33
HCl	10	100	38	27.6	0.70	17.3	0.44
HCl	15	100	38	25.2	0.64	26.0	0.66
HCl	20	100	38	20.5	0.52	11.8	0.30
HNO ₃	70	Boiling		5.5	0.14	5.5	0.14