CORROSION-RESISTANT
ALLOY AT A GLANCE

HAYNES International

HASTELLOY® G-35® alloy

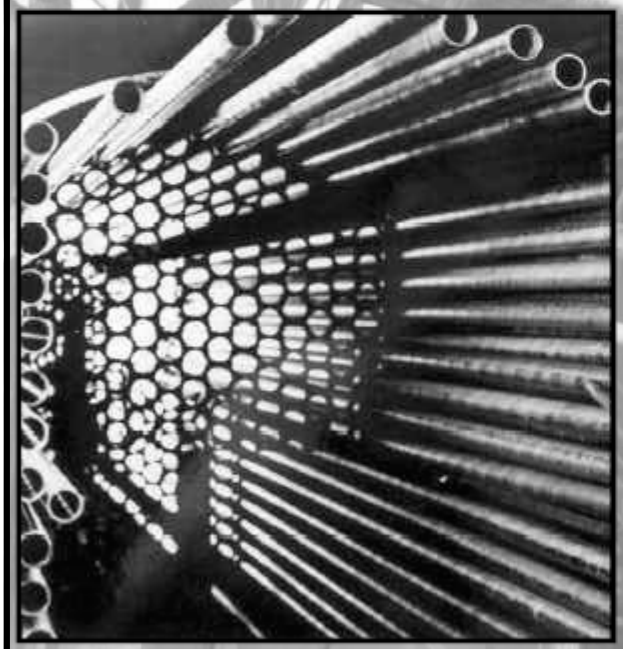
CHEMISTRY: Weight %

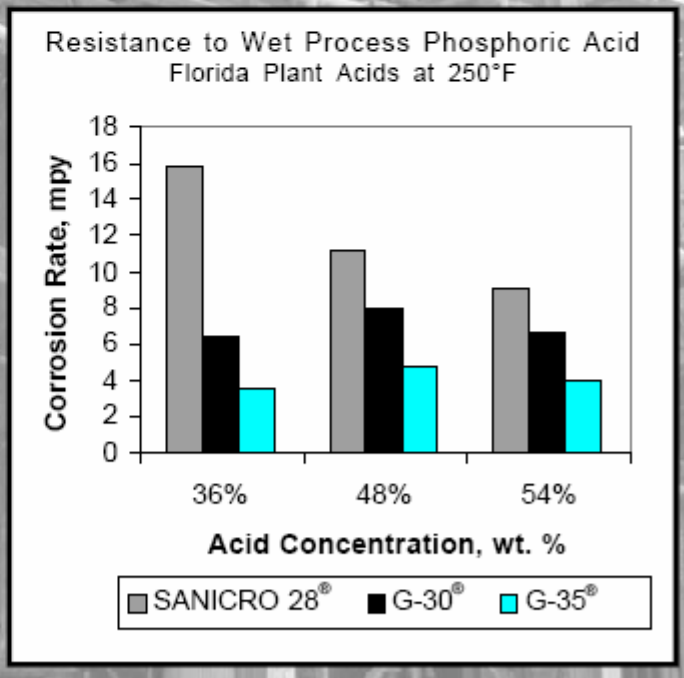
Ni[a]	Cr	Mo	Fe	Si	Cu	C
58	33.2	8.1	2*	0.6*	0.3*	0.05*

[a]As balance * Maximum

ALLOY DESCRIPTION:

Advances in materials research have led to the recent development of HASTELLOY® G-35® alloy, a high chromium nickel-based alloy. This alloy was designed to extend the useful service life of fabricated components in wet process phosphoric acid (WPA) production. G-35 alloy is considered an upgrade to G-30® alloy. The high level of chromium will provide excellent resistance to corrosion in highly oxidizing media and acidic chloride environments. In addition to resistance to general corrosion, G-35 alloy has outstanding resistance to pitting, crevice corrosion, and stress corrosion cracking.





HASTELLOY® G-35® alloy

COMPARATIVE CORROSION RESISTANCE:

Media	Average Corrosion Rate Per Year, mils* G-35®	G-30®	SANICRO 28
65% Nitric Acid, Boiling	2.8	3.6	2.3
10% Hydrofluoric Acid, 125°F (52°C)	7.5	22.7	66.2
10% Sulfuric Acid, 200°F (93°C)	0.2	0.2	41.2
50% Sulfuric Acid, 150°F (66°C)	0.1	0.2	11.4
5% Hydrochloric Acid, 100°F (38°C)	<0.1	13.0	29.9
10% Hydrochloric Acid, 75°F (24°C)	<0.1	7.4	14.4

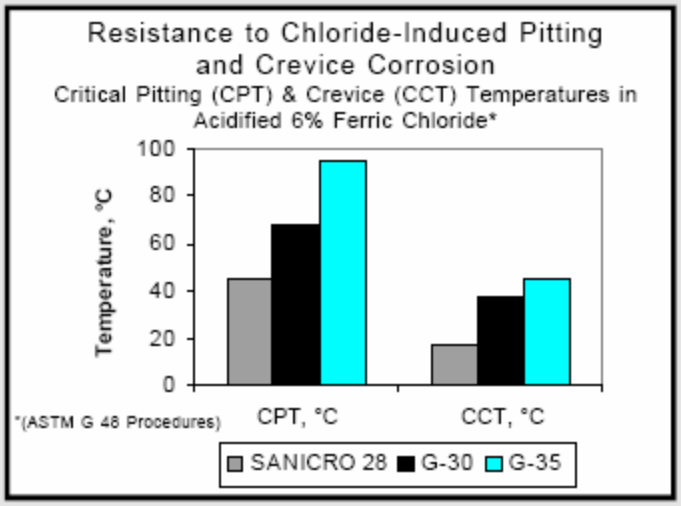
*To convert mils per year (mpy) to mm per year, divide by 40.

STRESS CORROSION CRACKING TESTS:

45% Magnesium Chloride, Boiling
ASTM G-36

Alloy	Time to Cracking*
SANICRO 28	36 hours
G-30 alloy	168 hours
G-35 alloy	No Cracking after 1008 hours

*U-Bend Specimens (ASTM G-30 Stress Method)



TYPICAL ROOM TEMPERATURE TENSILE PROPERTIES:

Thickness (in.)	Ultimate Tensile Strength ksi	MPa	0.2% Yield Strength ksi	MPa	Elongation in 2 in. (51mm) %
0.125	108	744	50.5	348	59
0.250	102	703	49.9	344	66
0.500	100	689	46.1	318	72
1.000	103	710	46.3	319	66
2.500	100	689	49.0	338	68

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