Refractory Metal Resistance to Corrosive Materials
Guide

1: Fully Resistent
2: Some Attack
3: Unsatisfactory
4: No Data Available

Subject to pitting at air line or when allowed to dry
* Attack may occur when sulfuric acid is also present

	Tantalum	Columbium	Zirconium	Titanium	Hastelloy C-276 (nickel-chromium-molybdenum)	Hastelloy B-2 (nickel-molybdenum)	Monel No. 400 (nickel-copper)	Carpenter 20 (high-nickel stainless steel)	316 stainless steel
Acetic Acid, 50%, Boiling	1	1	1	1	1	1	1, 2	1	1
Aluminum Chloride, 5%	1	1	4	1	1	1	1, 2	1	3
Aluminum Chloride, 50%	1	1	1	4	1	4	1, 2	1	1#
Ammonium Sulfate, Saturated, Boiling	1	4	4	4	2	1	1, 2	1	1#
Bromine, Dry	1	4	4	4	2	1	1, 2	1	1#
Bromine, Water	1	1	4	4	1	3	3	1, 2	3
Caustic Soda	3	3	4	4	1	1	1	1	1
Chlorine Gas, Dry, 25°C	1	1	2	3	1	1	1	1	3
Chlorine Gas, Moist, 25°C	1	1	3	1	1	3	4	3	3
Chlorine Gas, Moist, 100°C	1	1	3	1	3	3	3	3	3
Chlorosulfonic Acid, 10%	1	4	4	4	1	1	1, 2	3	3
Chromium-Plating Bath	1	4	4	4	4	4	3	1, 2	1, 2
Ferric Chloride, 5% Agitated	1	1	3	1	1	3	4	3	3
Flue Gas	1	4	4	4	1	2	4	1, 2	1, 2
Flourine	3	3	4	4	4	4	1	2, 3	3
Hydrochloric Acid, 38°C (all concentrations)	1	2	1	3	1	1	4	3	3
Hydrogen Peroxide, 25°C	1	2	1	1	1	2	1, 2	1	1*
Lead, Molten	1	4	4	4	1	1	3	4	3
Mine Water, Acid	1	4	4	4	1	1	3	1	1#
Nitric Acid, 5%, 25°C	1	1	1	1	1	3	3	1	1
Nitric Acid, Conc., Boiling	1	1	1	1	3	3	4	1	2
Potassium Cyanide	1	4	4	4	1	1	1, 2	1	1
Sodium Chloride, Sat., Boiling	1	4	4	1	1	1	1	1	1#
Sodiu Hypochlorite, 5%, 25°C	4	3	2	2	1	3	3	2	1#
Sulfur dioxide, Moist 25°C	1	1	4	1	1	3	3	1	1
Sulfuric Acid, 5%, 25°C	1	1	1	2	1	1	1, 2	1	2
Sulfuric Acid, 50%, Boiling	1	3	1	3	3	1	3	2, 3	3

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