

HASTELLOY[®] C-4 alloy

Selected Corrosion Data

Hydrochloric Acid

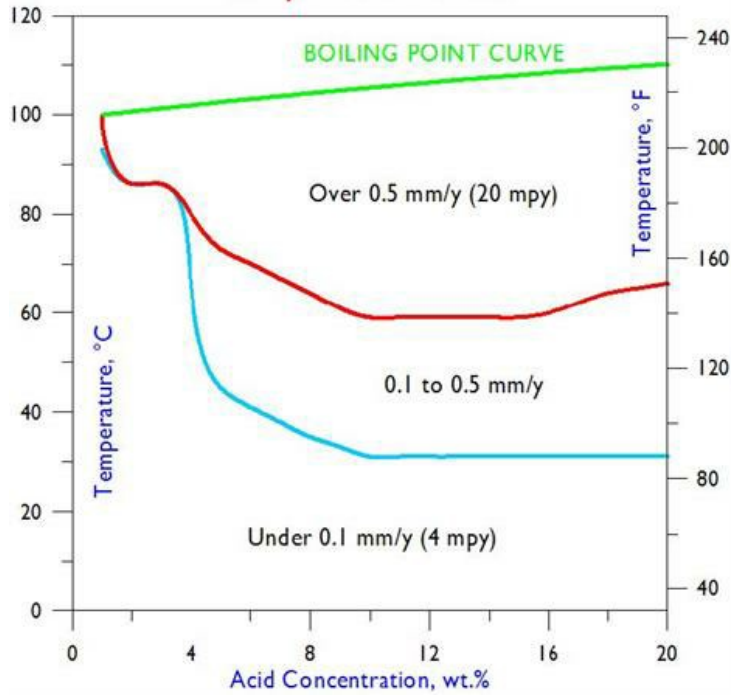
Conc. Wt.%	50°F	75°F	100°F	125°F	150°F	175°F	200°F	225°F	Boiling
	10°C	24°C	38°C	52°C	66°C	79°C	93°C	107°C	
1	-	-	<0.01	-	<0.01	<0.01	0.10	-	0.48
1.5	-	-	-	-	-	-	-	-	-
2	-	-	-	-	0.01	0.03	-	-	1.99
2.5	-	-	-	-	-	-	-	-	-
3	-	-	-	-	0.02	0.04	-	-	-
3.5	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
4.5	-	-	-	-	-	-	-	-	-
5	-	-	<0.01	0.27	0.42	0.98	-	-	4.37
7.5	-	-	-	-	-	-	-	-	-
10	-	0.06	0.19	0.30	0.57	1.11	-	-	6.91
15	-	0.06	0.18	0.39	0.57	1.33	2.33	-	6.35
20	-	0.05	0.14	0.27	0.55	1.12	2.19	-	5.72

All corrosion rates are in millimeters per year (mm/y); to convert to mils (thousandths of an inch) per year, divide by 0.0254.

Data are from Corrosion Laboratory Jobs 2-74 and 73-96.

All tests were performed in reagent grade acids under laboratory conditions; field tests are encouraged prior to industrial use.

Iso-Corrosion Diagram for C-4 Alloy in Hydrochloric Acid



Sulfuric Acid

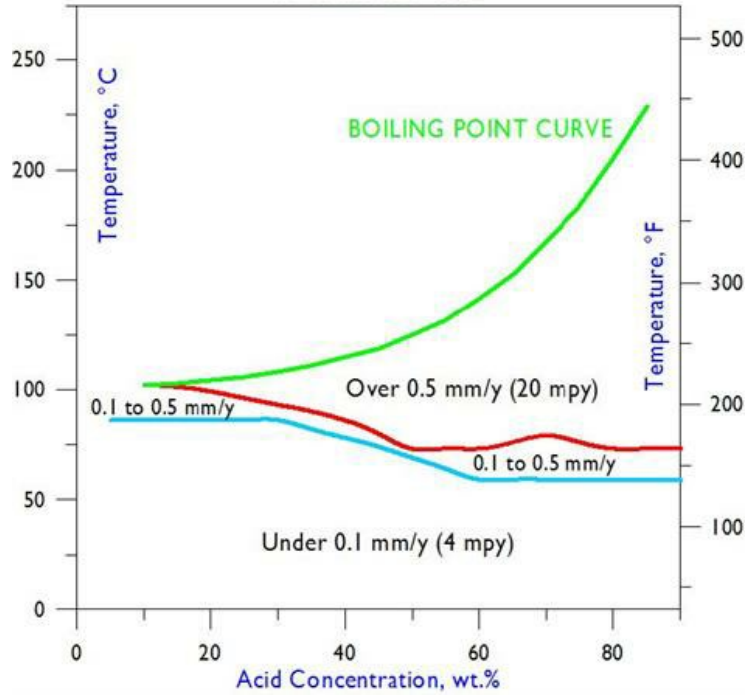
Conc. Wt.%	75°F	100°F	125°F	150°F	175°F	200°F	225°F	250°F	275°F	300°F	350°F	Boiling
	24°C	38°C	52°C	66°C	79°C	93°C	107°C	121°C	135°C	149°C	177°C	
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	0.01	0.02	-	-	-	-	-	-	0.41
10	-	<0.01	-	0.01	0.03	0.19	-	-	-	-	-	0.43
20	-	-	-	0.01	0.05	0.38	-	-	-	-	-	0.89
30	-	<0.01	-	0.02	0.07	0.54	-	-	-	-	-	1.85
40	-	-	<0.01	0.03	0.38	0.87	-	-	-	-	-	3.63
50	-	0.02	0.01	0.03	0.63	0.99	-	-	-	-	-	9.96
60	-	-	0.03	0.15	0.67	1.24	-	-	-	-	-	-
70	-	0.04	0.06	0.14	0.46	0.94	-	-	-	-	-	-
80	-	-	0.04	0.13	1.10	2.47	-	-	-	-	-	-
90	-	0.04	0.05	0.19	0.71	2.63	-	-	-	-	-	-
96	-	-	-	-	-	-	-	-	-	-	-	-

All corrosion rates are in millimeters per year (mm/y); to convert to mils (thousandths of an inch) per year, divide by 0.0254.

Data are from Corrosion Laboratory Jobs 19-73, 24-94, and 68-96.

All tests were performed in reagent grade acids under laboratory conditions; field tests are encouraged prior to industrial use.

Iso-Corrosion Diagram for C-4 Alloy in Sulfuric Acid



Reagent Grade Solutions, mm/y

Chemical	Conc.	100°F	125°F	150°F	175°F	200°F	Boiling
		38°C	52°C	66°C	79°C	93°C	
Hydrobromic Acid	2.5	-	-	<0.01	-	<0.01	0.08
	5	-	-	<0.01	0.01	0.76	-
	7.5	-	-	0.03	0.18	0.76	-
	10	-	<0.01	0.37	0.53	-	-
	15	<0.01	0.24	0.37	0.56	-	-
	20	0.15	0.24	0.35	0.51	-	-
	30	0.10	0.16	0.23	0.41	0.67	-
	40	-	0.11	0.17	0.28	0.44	-
Hydrochloric Acid	1	<0.01	-	<0.01	<0.01	0.10	0.48
	2	-	-	0.01	0.03	-	1.99
	3	-	-	0.02	0.04	-	-
	5	<0.01	0.27	0.42	0.98	-	-
	10	0.19	0.30	0.57	1.11	-	-
	15	0.18	0.39	0.57	1.33	-	-
	20	0.14	0.27	0.55	1.12	-	-
Hydrofluoric Acid*	5	-	-	-	0.59	-	-
Sulfuric Acid	10	<0.01	-	0.01	0.03	0.19	0.43
	20	-	-	0.01	0.05	0.38	0.89
	30	<0.01	-	0.02	0.07	0.54	1.85
	40	-	<0.01	0.03	0.38	0.87	-
	50	0.02	0.01	0.03	0.63	0.99	-
	60	-	0.03	0.15	0.67	1.24	-
	70	0.04	0.06	0.14	0.46	0.94	-
	80	-	0.04	0.13	1.10	2.47	-
	90	0.04	0.05	0.19	0.71	2.63	-

