

# ULTIMET<sup>®</sup> alloy

## Selected Corrosion Data

### Hydrochloric Acid

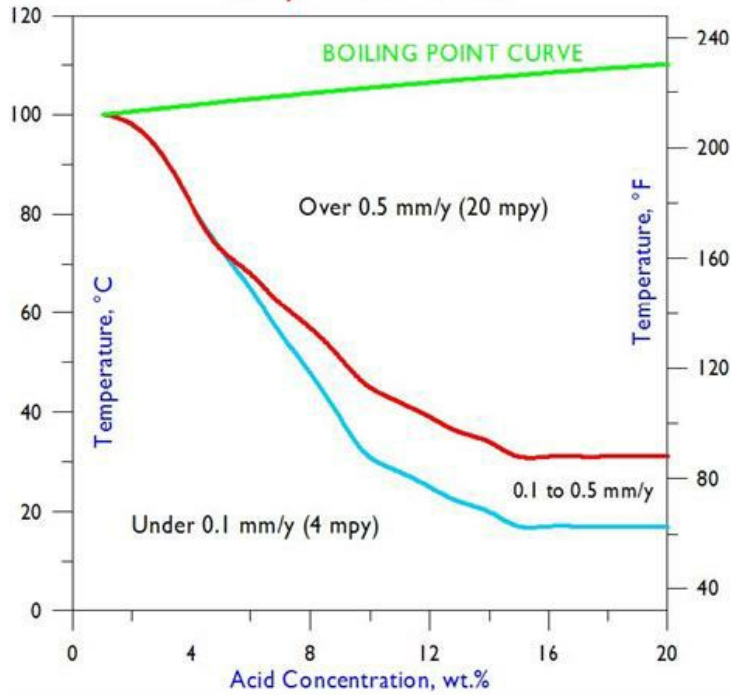
Conc. Wt.%	50°F	75°F	100°F	125°F	150°F	175°F	200°F	225°F	Boiling
	10°C	24°C	38°C	52°C	66°C	79°C	93°C	107°C	
1	-	-	-	-	-	-	-	-	<0.05
1.5	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
2.5	-	-	-	-	<0.01	<0.01	<0.01	-	43.85
3	-	-	-	-	-	-	-	-	-
3.5	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
4.5	-	-	-	-	-	-	-	-	-
5	-	-	-	-	0.01	5.75	-	-	-
7.5	-	-	-	-	-	-	-	-	-
10	-	<0.01	0.16	0.80	1.74	-	-	-	-
15	-	0.15	0.73	1.83	4.75	-	-	-	-
20	-	0.17	0.56	1.04	2.58	-	-	-	-

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 Job 181-90.

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

### Iso-Corrosion Diagram for ULTIMET Alloy in Hydrochloric Acid



### Nitric Acid

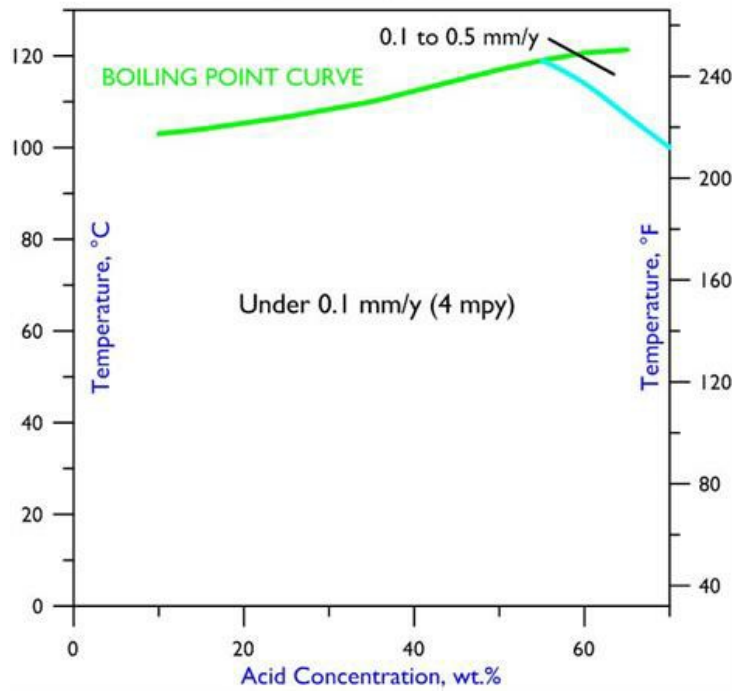
Conc. Wt.%	50°F	75°F	100°F	125°F	150°F	175°F	200°F	225°F	Boiling
	10°C	24°C	38°C	52°C	66°C	79°C	93°C	107°C	
10	-	-	-	-	-	-	-	-	<0.01
20	-	-	-	-	-	-	-	-	<0.01
30	-	-	-	-	-	-	-	-	0.01
40	-	-	-	-	-	-	-	-	0.03
50	-	-	-	-	-	-	-	-	0.07
60	-	-	-	-	-	-	0.03	-	0.12
65	-	-	-	-	-	-	0.04	-	0.15
70	-	-	-	-	-	-	0.06	-	0.18

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 Job 182-90.

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

### Iso-Corrosion Diagram for ULTIMET Alloy in Nitric Acid



### Phosphoric Acid

Conc. Wt.%	125°F	150°F	175°F	200°F	225°F	250°F	Boiling
	52°C	66°C	79°C	93°C	107°C	121°C	
10	-	-	-	-	-	-	<0.01
20	-	-	-	-	-	-	0.01
30	-	-	-	-	-	-	0.01
40	-	-	-	-	-	-	0.03
50	-	-	-	<0.01	-	-	0.14
60	-	-	-	0.01	-	0.01	0.25
70	-	-	-	0.01	0.01	0.02	0.46
80	-	-	-	0.01	0.07	0.55	10.95
85	-	-	-	0.01	0.07	0.57	30.58

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 Job 183-90.

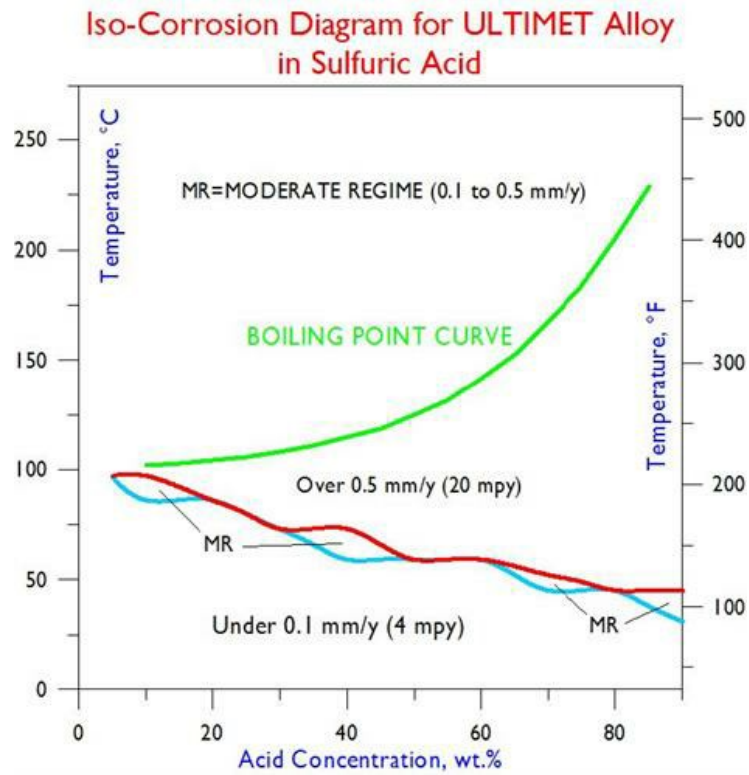
All tests were performed in reagent grade acids under laboratory conditions; field tests are encouraged prior to industrial use.



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 159-90 and 8-91.

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



Reagent Grade Solutions, mm/y

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Chemical	Conc. wt. %	100°F	125°F	150°F	175°F	200°F	Boiling
		38°C	52°C	60°C	79°C	93°C	
Acetic Acid	99	-	-	-	-	-	<0.01
Hydrochloric Acid	1	-	-	-	-	-	0.05
	2.5	-	-	<0.01	<0.01	<0.01	43.85
	5	-	-	0.01	-	-	-
	10	0.16	0.80	1.74	-	-	-
	15	0.73	1.83	-	-	-	-
	20	0.56	1.04	-	-	-	-
Nitric Acid	10	-	-	-	-	-	<0.01
	20	-	-	-	-	-	<0.01
	30	-	-	-	-	-	0.01
	40	-	-	-	-	-	0.03
	50	-	-	-	-	-	0.07
	60	-	-	-	-	0.03	0.12
	65	-	-	-	-	0.04	0.15
	70	-	-	-	-	0.06	0.18
Phosphoric Acid	10	-	-	-	-	-	<0.01
	20	-	-	-	-	-	0.01
	30	-	-	-	-	-	0.01
	40	-	-	-	-	-	0.03
	50	-	-	-	-	<0.01	0.14
	60	-	-	-	-	0.01	0.24
	70	-	-	-	-	0.01	0.45
	80	-	-	-	-	0.01	10.92
	85	-	-	-	-	0.01	30.58
Sulfuric Acid	1	-	-	-	-	-	0.13
	2	-	-	-	-	<0.01	0.27
	5	-	-	<0.01	-	0.01	1.26
	10	-	-	-	-	0.43	1.92
	20	-	-	<0.01	0.01	1.83	-
	30	-	-	<0.01	1.36	-	-
	40	<0.01	<0.01	0.29	2.25	-	-
	50	<0.01	-	0.96	-	-	-
	60	<0.01	<0.01	1.48	-	-	-
	70	<0.01	0.55	-	-	-	-
	80	<0.01	1.02	-	-	-	-
	90	0.26	1.68	-	-	-	-
96	0.21	1.76	-	-	-	-	