Technical Bulletin
SAI-40

DESCRIPTION

SAI-40 is an environmentally friendly acid corrosion inhibitor for use in acidising operations. It contains no aromatic solvents, alkyl phenols, quaternaries or heavy metals.

SAI-40 is effective in hydrochloric acid of concentrations up to 28%. **SAI-40** is effective up to 250°F but this can be extended with the use of intensifiers to 350°F though the concentrations required at this temperature are much higher.

APPLICATION

SAI-40 may be added to the dilution water prior to the addition of the HCL or it may be added directly to the various concentrations of HCL. SAI-40 is normally used in concentrations ranging from 0.5 to 20 gallons per thousand gallons of acid. The actual concentrations will vary depending on the temperature, acid concentration, type of steel, intended contact time etc. The table below will serve as a useful guide.

PHYSICAL PROPERTIES

Appearance	Liquid	
Density	0.89-0.90g/cc	
Flash Point	45°F	
Pour Point	<-20°F	
Solubility In	15% HCL	Dispersible
	Isopropanol	Soluble
	Water	Dispersible
	Kerosene	Insoluble
	Xylene	Soluble

PACKAGING

Usually supplied in 200L UN standard drums

Aubin Ltd, Unit 1 Castle Street, Castlepark Industrial Estate, Ellon, Scotland, AB41 9RF. Tel- 00 44 (0) 1358 724 361

ADDITIONAL INFORMATION

SAI-40 corrosion data for J-55 steel:

GPT Inhibitor	% HCl	Test:		Corrosion Rate (lbs/ft^2)
		Time	Temp. (°F)	
1	15	6	150	0.004E-1
1	15	24	150	0.007E-1
2	15	24	150	0.004E-1
3	15	24	150	0.005E-1
1	28	6	150	0.009E-1
2	28	6	150	0.006E-1
3	28	6	150	0.005E-1
3	28	24	150	0.010E-1
6	28	24	150	0.008E-1
9	28	24	150	0.006E-1
1	15	6	175	0.046E-3
2	15	6	175	0.008E-1
3	15	6	175	0.005E-1
3	15	24	175	0.009E-1
4	15	24	175	0.007E-1
5	15	24	175	0.007E-1
4	28	6	175	0.023E-2
6	28	6	175	0.018E-2
8	28	6	175	0.012E-1
10	28	24	175	0.026E-2
15	28	24	175	0.012E-2
20	28	24	175	0.010E-2
3	15	6	200	0.008E-2
4	15	6	200	0.008E-1
5	15	6	200	0.008E-1
6	15	24	200	0.015E-1
8	15	24	200	0.013E-1
10	15	24	200	0.010E-1
8	28	5	200	0.017E-1
8	28	6	200	0.029E-2

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SAI-40 corrosion data for 13-CR steel:

GPT Inhibitor	% KI	% HCl	Test:		Corrosion Rate (lbs/ft^2)
			Time	Temp. (°F)	
8	0	15	6	225	0.009E-1
8	0.2	15	6	225	0.006E-1
10	0	15	6	225	0.009E-1
10	0.2	15	6	225	0.007E-1
10	0	28	6	225	0.040E-2
10	0.2	28	6	225	0.019E-1
15	0	28	6	225	0.039E-1
15	0.2	28	6	225	0.016E-1
8	0	15	6	225	0.013E-3
8	0.2	15	6	225	0.006E-1
10	0	15	6	225	0.008E-2
10	0.2	15	6	225	0.005E-1
10	0	28	6	225	0.217E-1
10	0.2	28	6	225	0.087E-1
15	0	28	6	225	0.185E-1
15	0.2	28	6	225	0.072E-1
10	0.4	28	6	225	0.083E-1
15	0.4	28	6	225	0.070E-1
4	0	10	6	225	0.013
6	0	10	6	225	0.011
8	0	10	6	225	0.010
10	0	10	6	225	0.009
6	0	12-3 HCl:HF	6	225	0.023
8	0	12-3 HCl:HF	6	225	0.019
10	0	12-3 HCl:HF	6	225	0.020
6	0	13-1.5 HCl:HF	6	225	0.018
8	0	13-1.5 HCl:HF	6	225	0.015
10	0	13-1.5 HCl:HF	6	225	0.014
8	0	15	6	250	0.118E-4
8	0.2	15	6	250	0.028E-1
10	0	15	6	250	0.114E-4
10	0.2	15	6	250	0.021E-1
20	0.2	28	6	250	0.148E-1
20	0.4	28	6	250	0.136E-1
30	0.2	28	6	250	0.146E-1
30	0.4	28	6	250	0.112E-1

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SAI-40 corrosion data for 13-CR steel (cont.):

GPT Inhibitor	Inhibitor Intensifier	% HCl	Test:		Corrosion Rate (lbs/ft^2)
			Time	Temp. (°F)	
10	Cu = 0.2	15	6	300	0.091E-1
20	Cu = 0.05	15	6	300	0.094E-3
20	Cu = 0.1	15	6	300	0.086E-2
10	Formic-100	15	6	300	0.028E-2
10	Formic-150	15	6	300	0.027E-2
10	Formic-200	15	6	300	0.026E-2
20	Formic-100	15	6	300	0.027E-2
20	Formic-150	15	6	300	0.035E-2
20	Formic-200	15	6	300	0.030E-2

SAI-40 corrosion data for N-80 steel:

GPT Inhibitor	Inhibitor Intensifier	% HCl	Test:		Corrosion Rate (lbs/ft^2)
			Time	Temp. (°F)	
4	0	10	6	225	0.010
6	0	10	6	225	0.008
8	0	10	6	225	0.008
10	0	10	6	225	0.008
6	0	12-3 HCl:HF	6	225	0.013
8	0	12-3 HCl:HF	6	225	0.009
10	0	12-3 HCl:HF	6	225	0.009
6	0	13-1.5 HCl:HF	6	225	0.010
8	0	13-1.5 HCl:HF	6	225	0.010
10	0	13-1.5 HCl:HF	6	225	0.009
4	0	10	24	225	0.017
6	0	10	24	225	0.014
8	0	10	24	225	0.018
10	0	10	24	225	0.057
10	Cu = 0.2	15	6	300	0.051E-2
20	Cu = 0.05	15	6	300	0.068E-2
20	Cu = 0.1	15	6	300	0.060E-2
10	Formic-100	15	6	300	0.028E-2
10	Formic-150	15	6	300	0.025E-2
10	Formic-200	15	6	300	0.022E-2
20	Formic-100	15	6	300	0.026E-2
20	Formic-150	15	6	300	0.024E-2
20	Formic-200	15	6	300	0.023E-2
20	Formic-100	15	3	350	0.035E-1
20	Formic-150	15	3	350	0.033E-1
20	Formic-200	15	3	350	0.027E-1
20	Formic-100	15	4	350	0.041E-1
20	Formic-150	15	4	350	0.040E-1
20	Formic-200	15	4	350	0.034E-1
20	Formic-100	15	5	350	0.057E-2
20	Formic-150	15	5	350	0.053E-2
20	Formic-200	15	5	350	0.041E-1