

Corrosive Effects of Peroxyacetic Acid

Experimental Methods:

Corrosion coupons of the various metals were suspended in the various concentrations of PAA for 30 days. A solution was prepared in the laboratory at 250 ppm hardness to which each indicated amount of PAA was added. The PAA solution was kept at 70° F throughout the test and changed every other day for 30 days. At the end of the test each coupon was rinsed and cleaned in accordance with ASTM procedures and reweighed. Corrosion rates were then calculated and expressed in mpy (*Mils Per Year*) which is thousandths of an inch per year. 1 mpy is equivalent to 0.0010 inches per year. General industry standards are: <5 mpy is very good; 5.1-10 mpy is acceptable/marginal; and >10 mpy is corrosive in relative degrees.

Results:

All corrosion rates are presented in MPY (*mils per year*).

Corrosion Rate (mpy)

Metal	100 ppm	200 ppm	400 ppm
Aluminum 99.5%	0 mpy	0 mpy	0 mpy
Stainless Steel 304	0	0	0
Stainless Steel 316	0	0	0
Tinned Iron	0	0	0
Galvanized Iron	5.4	19.4	49.5
Mild Steel	34.1	53.8	78.1
Copper	1.9	23.1	54.0

Conclusions:

Galvanized iron and copper are attacked but the effects are minimal at the lowest concentration. 150 ppm active PAA is the limit of the acceptable range for galvanized iron and copper. Shorter recirculation or sanitizing contact times would reduce the corrosion effects (*less than 30 minutes*). Increasing or decreasing the sanitizing solution temperature will have effects that increase or decrease corrosion rates respectively.