

StimMax Corrosion Inhibitor Toxicity

Environmental Aspects: The discharge of chemicals used as corrosion inhibitors into the environment is under ever increasing scrutiny. A case study involves a Norwegian oil producing company that operates several installations in the North Sea. As regulations regarding disposal and aquatic toxicity were being implemented, the company looked for non-traditional ways to protect their equipment. The two phase technology used in StimMax™ products was the cost-effective and environmentally friendly method used. The product could be safely discharged as opposed to oil-water emulsions that were far more toxic. (See table below)

STIMMAX™ TOXICITY TO AQUATIC ORGANISMS			
Algae Test	Exposure (h)	Effect Concentration (mg/L)	Limit (mg/L)
EC ₅₀	72	240 (230 to 260)	≥100
EC ₅₀	72	680 (600 to 790)	-
No observed effect concentration	72	32	-
Crustacean Test	Exposure (h)	Effect Concentration (mg/L)	Limit (mg/L)
LC ₅₀	48	100 (60 to 140)	≥100
LC ₅₀	48	220 (160 to 560)	-
No observed effect concentration	48	32	-
Sediment Reworker Test	Exposure (h)	Effect Concentration (mg/L)	Limit (mg/L)
LC ₅₀	240	1,410	≥100
LC ₅₀	240	2,800	-
No observed effect concentration	240	1,014	-

In the case of algae or other aquatic plants, the upper limit for acute toxicity measured as 72-h EC₅₀ is 100 mg/L. According to test results, the 72-h EC₅₀ for StimMax is 240 mg/L. This indicates that StimMax is not classified as an acute toxicant per the criteria defined in the test guideline. Similar statements can be made with respect to the crustacean and sediment reworker test results.

This represents a new generation of CIs that provide excellent corrosion protection while having a very low toxicity level especially when placed in a marine environment.