

Steel Cleaner PRO

Biodegradation Information

Steel Cleaner PRO contains Alcohol ethoxylates (AE). Alcohol ethoxylates (AE) are presently the largest volume nonionic surfactants produced in the U.S., with linear AE as the predominant type. Approximately 632 million pounds of linear AE were produced during 1988. Variability in the alkyl chain length does not appear to greatly affect the rate and the extent of linear AE biodegradation. However, the degree of branching of the alkyl chain may affect the rate of biodegradation. As a class, alcohol ethoxylates undergo rapid primary (97% in 5-7 days) and ultimate (84% in 28 days) biodegradation under laboratory conditions. Although biodegradation of AE surfactants has been assumed to be slower under anaerobic as compared to aerobic conditions, a number of studies has confirmed biodegradation by anaerobic bacteria (>80%).

The available treatment plant data indicate extensive removal (>80%) of AE through both degradation and adsorption to sludge as determined by Cobalt Thiocyanate Active Substances (CTAS) method, Bismuth Iodide Active Substance (BIAS) method, Thin Layer Chromatography (TLC), or Biochemical Oxygen Demand Method (BOD). Field tests performed at sights other than treatment plants (e.g. pond water) show AE removal as being greater than 90% as measured by the CTAS method.

References:

*Swisher, R.D., "Surfactant Biodegradation", Vol. 18, 2nd Edition, Marcel Dekker, Inc., 1987, pp. 482-484, 846-847.

*Talmage, S.S., "Environmental and Human Safety of Major Surfactants, Part I: Alkylphenol Ethoxylates", Lewis Publishers, pp. 35-50.

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