

9.POLLUTION CONTROL AND SAFETY

Linear alkyl benzene sulfonates are accepted as adequately biodegradable. These are bio 'soft' surfactants. But they are not broken down as readily and completely as soaps and other surfactants derived from fats or synthesized to contain a completely unbranched chain with an even number of carbon atoms and no benzene ring. Years of systematic monitoring of sewage treatment plants and rivers has shown that in general the residual concentration of surfactants in streams is extremely small

Biodegradation in sewage treatment plant models show

Primary biodegradation.

OECD confirmatory test	90-95
% MBAS/BiAS/DAS removal	

Ultimate biodegradation

Coupled units test,	73±6 (C)
% C/COD/ removal	

Highly biodegradable anionic surfactants allowed by the law are of only marginal toxicity to fish. It is shown that toxicity is inversely proportionate to biodegradability.

Toxicity data of alkyl benzene sulfonate.

(mg/l)

LC ₅₀ (fishes)	3-10
LC ₅₀ (daphniae)	8-50
NOEC (algae, growth inhibition)	30-300

For anionic surfactants the length of the alkyl chain has been found to be closely related to skin irritability. Straight chain or linear alkyl benzene sulfonate show weak effects to skin since they are bio soft.