



BIODEGRADATION OF ALKYL SULFATES

Applicable to these current Stepan products:

POLYSTEP® B-3	POLYSTEP® B-5	STEPANOL® AM
STEPANOL® AM-CIT/MIT	STEPANOL® AM-K	STEPANOL® AM 30-KE
STEPANOL® AMV	STEPANOL® AMV PCK	STEPANOL® DCFAS-F
STEPANOL® DCFAS-N	STEPANOL® DCFAS-P	STEPANOL® LCP
STEPANOL® ME-DRY	STEPANOL® SLS PASTE™	STEPANOL® WA-100 NF/USP
STEPANOL® WA-EXTRA	STEPANOL® WA-EXTRA HP	STEPANOL® WA-EXTRA K
STEPANOL® WA-EXTRA PCK	STEPANOL® DX-AS 165 N	STEPANOL® DX-AS 165 P
STEPANOL® WA-EXTRA HA		

Applicable to these inactive Stepan products:

STEPANOL® WA-SPECIAL	STEPANOL® WAC	STEPANOL® WAQ
STEPANOL® WAC-LCP		

Biodegradation Information:

The biodegradation characteristics of linear alkyl sulfates (AS) have been extensively studied. The linear form of AS, found in the Stepan products identified above, will typically undergo rapid primary and ultimate biodegradation under both aerobic and anaerobic conditions. Primary biodegradation of AS generally exceeds 90% within 2 days. Ultimate or complete mineralization (>90% in 28 days, meeting 10 day window) has been observed under several OECD test methods (301B-E). The pH of the test media was around 7.5. Based on the results of these tests Alkyl Sulfates are considered readily biodegradable.

The products listed above comply with the EU Detergent Regulation (EC) No. 648/2004.

References:

* ECHA REACH Dossiers for Alkyl Sulfates.

* Swisher, R.D., "Surfactant Biodegradation", Vol. 18, 2nd Edition, Marcel Dekker, Inc., 1987, pp 808-810.

* Arthur D. Little, Inc., "Environmental and Human Safety of Major Surfactants, Volume 1. Anionic Surfactants, Part 3. Alkyl Sulfates", Final Report to the Soap and Detergent Association, February 1991.

* Sivak, A., M. Goyer, J. Perwak, and P. Thayer, "Environmental and Human Health Aspects of Commercially Important Surfactants" pp. 161-188, Solution Behavior of Surfactants, Vol. 1 edited by K.L. Nilttrai and E.J. Fendler, Plenum Publishing Corporation, 1982.

* HPV alkyl sulfates SIDS Assessment Report (2007).

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