



MAMMALIAN TOXICOLOGY OF ALPHA OLEFIN SULFONATES (AOS)

Applicable to these current Stepan products:

BIO-TERGE® AS-40 BIO-TERGE® AS-40 CG-P BIO-TERGE® AS-40 HP POLYSTEP® A-18 BIO-TERGE® AS-90 BEAD STEPANTAN® AS-18	BIO-TERGE® AS-40 CG BIO-TERGE® AS-40 CG-PN BIO-TERGE® AS-40A STEPANTAN® AS-1216 POLYSTEP® A-18-LV	BIO-TERGE® AS-40 CG-K BIO-TERGE® AS-40 HA BIO-TERGE® AS-40K POLYSTEP® A-18S STEPANTAN® AS-12
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Applicable to these inactive Stepan products:

STEPANTAN® 39N STEPANFLOW® 30	STEPANTAN® AS-40 STEPANFLOW® 70	1618 AOS
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Toxicological Information:

<u>Test/Conditions</u>	<u>Results/Classification</u>	<u>References*</u>
Acute Oral Toxicity (rat) (14 day)	LD50 (Lethal Dose) > 2000 mg/kg (slightly toxic orally)	ECHA REACH Dossier ,EHSMS, CIR, HPV Assessment
Acute Dermal Toxicity (rabbit) (14 day)	LD50 > 2000 mg/kg (slightly toxic dermally)	ECHA REACH Dossier, HPV Assessment
Primary Skin Irritation (rabbit) (4 hr. exposure)	Moderately irritating to skin @ ≥ 10% active	ECHA REACH Dossier
Primary Irritation Patch Test (human) n=19	Slight skin irritation @ 1% active	ECHA REACH Dossier, Stepan Study No. 80-018A, HPV Assessment
Dermal Sensitization (human) (closed patch) n=10	Not a dermal sensitizer	ECHA REACH Dossier, Stepan Study No. 80-017C, EHSMS,

		HPV Assessment
Primary Eye Irritation (rabbit)	Severe eye irritation at > 40% active. Moderate eye irritation at 10% active and slight irritation at 1% to 5%	ECHA REACH Dossier, Stepan Study No. 82-003K, EHSMS, CIR HPV Assessment
Mutagenicity Study (Ames test)	Not mutagenic	ECHA REACH Dossier, EHSMS, HPV Assessment
Chronic Toxicity/Carcinogenicity (rat) (diet) (2 years)	No increased incidences of tumors in rats fed up to 500 ppm	ECHA REACH Dossier, EHSMS, CIR, HPV Assessment
Repro/Development Toxicity	The NOAEL was 600 mg a.i./kg bw/day both for maternal and developmental toxicity	ECHA REACH dossier, HPV Assessment

NOAEL= No Observed Adverse Effect Level

Expert Panel Review of sodium alpha-olefin sulfonate: The Cosmetic Ingredient Review (CIR) Expert Panel concluded that sodium alpha -olefin sulfonate is safe as used in rinse-off products and safe up to 2% in leave on products. The concentration of the gamma sultone impurity (potent sensitizer) of leave on or rinse-off formulation is limited to: unsubstituted alkane sultones = 10 ppm; chlorosultones = 1 ppm and unsaturated sultones = 0.1 ppm.

References:

ECHA REACH Dossier for CASRN 68439-57-6, EC No. 931-534-0.

* Environmental and Human Safety of Major Surfactants (EHSMS), Vol. 1, Anionic Surfactants, Part 4. Alpha Olefin Sulfonates. Final Report to: The Soap and Detergent Association, August 1993.

* Sodium Alpha-Olefin Sulfonates, Cosmetic Ingredient Review (CIR), Final Report 1996.

* Alkyl Sulfates, Alkane Sulfonates and Alpha - Olefin Sulfonates: SIDS Initial Assessment Report, 2007.

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