



Stepan Specialty Alkoxylates

Stepan's Hard Surface Care Team brings you the **Stepan Specialty Alkoxylates** spreadsheet, a reference tool listing the typical physical and performance properties of 34 Specialty Alkoxylates.

Over 100 products from Stepan's Alkoxylate portfolio were reviewed. The final list was selected based on numerical scoring that took into account:

1. No Alkyl phenol ethoxylate (APEs) products.
2. Products with a targeted Hydrophilic-Lipophilic Balance (HLB) range of 12-14; providing optimal detergency as potential APE replacement candidates.
3. Product logistics.

The following list is not all-inclusive, but will serve as a starting point when looking for APE alternatives.

For a comprehensive list of Stepan's Alkoxylates, consult Stepan's Global Product Catalog or www.stepan.com. To request a sample, go to www.stepan.com. For more information, contact Stepan's U.S. Technical Service Department at 1-800-745-7837 (STEP) or techserv@stepan.com.

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Stepan Specialty Alkoxylates – Typical Properties

Stepan Trade Name	Hydrophobe	Average # of Moles EO	Chemical Description	CAS Number	Molecular Weight	Appearance at 25 °C	HLB	Activity, %	Viscosity at 25 °C, cps
ALCOHOL ETHOXYLATES									
BIO-SOFT® N91-2.5	C9-11	2.5	C9-11 Alcohol ethoxylate	68439-46-3	281	Liquid	8.5	99.5 min.	26
BIO-SOFT® N91-6	C9-11	6	C9-11 Alcohol ethoxylate	68439-46-3	425	Liquid	12.4	99.5 min.	43
BIO-SOFT® N91-8	C9-11	8	C9-11 Alcohol ethoxylate	98439-46-3	524	Liquid	13.9	99.5 min.	77
BIO-SOFT® N1-3	C11	3	C11 Alcohol ethoxylate	34398-01-1	305	Liquid	8.7	99.5 min.	38
BIO-SOFT® N1-5	C11	5	C11 Alcohol ethoxylate	34398-01-1	392	Liquid	11.2	99.5 min.	37
BIO-SOFT® N1-7	C11	7	C11 Alcohol ethoxylate	34398-01-1	479	Liquid	12.9	99.5 min.	52
BIO-SOFT® N1-9	C11	9	C11 Alcohol ethoxylate	34398-01-1	569	Liquid	13.9	99.5 min.	290
BIO-SOFT® N23-3	C12-13	3	C12-13 Alcohol ethoxylate	66455-14-9	322	Liquid	8.1	99.5 min.	27
BIO-SOFT® N23-5	C12-13	5	C12-13 Alcohol ethoxylate	66455-14-9	413	Liquid	10.7	99.5 min.	40
BIO-SOFT® N23-6.5	C12-13	6.5	C12-13 Alcohol ethoxylate	66455-14-9	484	Liquid	11.9	99.5 min.	51
BIO-SOFT® N25-3	C12-15	3	C12-15 Alcohol ethoxylate	68131-39-5	330	Liquid	8	99.5 min.	32
BIO-SOFT® N25-7	C12-15	7	C12-15 Alcohol ethoxylate	68131-39-5	524	Slurry	12.2	99.5 min.	Slurry
BIO-SOFT® N25-9	C12-15	9	C12-15 Alcohol ethoxylate	68131-39-5	597	Paste	13.3	99.5 min.	Paste
BIO-SOFT® E-678	C12-15	9	C12-15 Alcohol ethoxylate	68131-39-5	597	Liquid	13.3	85 min.	160
BIO-SOFT® EC-600	C12-14	7	C12-14 Alcohol ethoxylate	9002-92-0	494	Liquid	12.2	99.5 min.	50
BIO-SOFT® EC-690	C12-14	7	C12-14 Alcohol ethoxylate	9002-92-0	494	Liquid	12.2	89.5 min.	60
BIO-SOFT® EC-639	C12-14	8	C12-14 Alcohol ethoxylate	9002-92-0	547	Liquid	13.3	90 min.	96
BIO-SOFT® EN8-90	C12-15	7.8	C12-15 Alcohol ethoxylate	68131-39-5	560	Liquid	13.3	90 min.	109
BIO-SOFT® TD-630	C13	8	C13 Alcohol ethoxylate	24938-91-8	562	Liquid	12.3	95	100
MAKON® DA-6	C10	6	Decyl alcohol ethoxylate	61827-42-7	431	Liquid	12	99 min.	80
MAKON® DA-9	C10	9	Decyl alcohol ethoxylate	61827-42-7	563	Liquid	14	99 min.	65
MAKON® TD-6	C13	6	Tridecyl alcohol ethoxylate	24938-91-8	474	Liquid	11	99 min.	205

For a complete listing of Stepan's alkoxylate products, consult Stepan's Global Product Catalog or website. For sampling, go to Stepan's website at www.stepan.com. For additional product information, contact Stepan's U.S. Technical Service Department at 1-800-745-7837 (STEP) or techserv@stepan.com.

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Stepan Trade Name	Pour Point, °C	Cloud Point, °C	Surface Tension, dynes/cm			Draves Wetting Test, seconds 0.1% in Deionized Water	Ross Miles Foam Test, cm		Dissolution Time, seconds at 25°C
			% Deionized Water				0.1% in Deionized Water		
			0.10%	0.01%	0.001%		Initial	5 minutes	
ALCOHOL ETHOXYLATES									
BIO-SOFT® N91-2.5	-10	<0	25.7	26.3	45.0	7	2	1.5	Insoluble
BIO-SOFT® N91-6	6	53	27.2	34.5	52.2	7	13.5	10.5	7
BIO-SOFT® N91-8	14	81	29.6	40.9	53.9	10	13	11	121
BIO-SOFT® N1-3	-7	8.5	26.0	26.3	41.3	19	3.2	3.1	Insoluble
BIO-SOFT® N1-5	7	34	27.1	27.0	44.0	5	10	7	15
BIO-SOFT® N1-7	12	58	28.0	28.7	44.8	7	12	9.5	151
BIO-SOFT® N1-9	20	83	30.6	32.2	47.3	12	12.5	10.5	189
BIO-SOFT® N23-3	4	1	26.0	26.3	28.4	66	1.7	1.7	Insoluble
BIO-SOFT® N23-5	11	<25	27.6	27.8	33.8	19	4.7	4.6	Insoluble
BIO-SOFT® N23-6.5	16.7	43	27.8	27.7	32.3	9	11	10	77
BIO-SOFT® N25-3	8	<25	26.1	26.4	29.3	123	Insoluble	Insoluble	Insoluble
BIO-SOFT® N25-7	20	49	28.6	28.5	34.1	16	10.5	9.5	546
BIO-SOFT® N25-9	25	74	30.3	30.4	36.6	17	10.5	9.5	Insoluble
BIO-SOFT® E-678	10	74	30.3	30.4	36.6	17	10.5	9.5	172
BIO-SOFT® EC-600	19	51	28.6	28.3	33.8	10	10.5	9.5	485
BIO-SOFT® EC-690	5	51	28.7	28.1	34.9	14	11	9	370
BIO-SOFT® EC-639	24	73	30.3	29.8	38.6	20	10.5	9	315
BIO-SOFT® EN8-90	10	62	29.2	29.7	33.9	19	9.6	9.5	221
BIO-SOFT® TD-630	7	47	27.5	27.7	37.3	4	9.5	5	49
MAKON® DA-6	15	43	26.6	42.4	56.3	5	12.5	1.5	13
MAKON® DA-9	1	80	28.7	44.9	49.7	19	11.5	4.5	6
MAKON® TD-6	7	<25	27.0	27.0	35.3	12	4	4	4

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OTHER ALKOXYLATES									
BIO-SOFT® TA-2	Tallowamine	2	Tallowamine ethoxylate	61791-26-2	Proprietary	Liquid	5	100	70
MAKON® NF-5	Methyl ester	Proprietary	Alkoxylated isopropylamide	64175-88-8	Proprietary	Liquid	5	97	260
MAKON® NF-12	C10-12 alcohol	Proprietary	Lauryl alcohol alkoxylate	68154-97-2	Proprietary	Liquid	6	100	230
NINEX® MT-610	Fatty acid	10	Fatty acid ethoxylate POE-10	67784-86-5	Proprietary	Liquid	12	99.5 min.	300
STEPANTEX® CO-30	Castor oil	30	Castor oil ethoxylate	61791-12-6	Proprietary	Liquid	12	100	640
STEPANTEX® CO-36	Castor oil	36	Castor oil ethoxylate	61791-12-6	Proprietary	Liquid	13	100	600
STEPANTEX® CO-40	Castor oil	40	Castor oil ethoxylate	61791-12-6	Proprietary	Liquid	13	100	2,090
STEP-FLOW® 26	Block copolymer	Proprietary	Polyalkylene oxide block copolymer	9003-11-6	Proprietary	Paste	14	99.8	640
TOXIMUL® 8320	Block carbitol	Proprietary	Butyl block copolymer	9038-95-3	Proprietary	Liquid	12	100	2,000
TOXIMUL® TA-15	Tallowamine	15	Tallowamine ethoxylate	61791-26-2	Proprietary	Liquid	14	100	90
NONIONIC BLENDS									
BIO-SOFT® GSB-9	N/A	N/A	Nonionic blend	Proprietary	Proprietary	Liquid	13.3	100	40
BIO-SOFT® N-900	C9-11	N/A	Alcohols, C9-11 ethoxylated	68439-46-3	484	Liquid	13	95	59
STEPOSOL® DG	N/A	N/A	Nonionic/Cationic blend	Proprietary	Proprietary	Liquid	N/A	98 min.	56

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Stepan Trade Name	Pour Point, °C	Cloud Point, °C	Surface Tension, dynes/cm			Draves Wetting Test 0.1% in Deionized Water	Ross Miles Foam Test, cm		Dissolution Time, seconds at 25°C
			% Deionized Water				0.1% in Deionized Water		
			0.10%	0.01%	0.001%		Initial	5 minutes	
OTHER ALKOXYLATES									
BIO-SOFT® TA-2	-10	15	27.7	28.1	29.4	133 seconds	Insoluble	Insoluble	Insoluble
MAKON® NF-5	4	-1	32.5	40.4	45.7	55 seconds	1.3	0.3	2
MAKON® NF-12	-10	15	32.7	33.8	36.6	9 seconds	0.25	0	10 (Cloudy)
NINEX® MT-610	21	N/A	37.0	38.6	52.3	12.5 minutes	6.5	4	22
STEPANTEX® CO-30	6	80	42.4	48.1	53.0	>20 minutes	4.5	3	392
STEPANTEX® CO-36	13	82	39.6	42.9	53.3	>20 minutes	4	3.5	130
STEPANTEX® CO-40	16	85	39.5	40.8	51.8	>20 minutes	6	5	47
STEP-FLOW® 26	32	82	34.5	38.2	42.4	39 seconds	8	7	Solid
TOXIMUL® 8320	20	80	36.5	40.3	44.8	3 minutes	7.5	4.5	452
TOXIMUL® TA-15	2	>100	40.4	41.4	48.5	>20 minutes	9.5	0.5	222
NONIONIC BLENDS									
BIO-SOFT® GSB-9	9	56	26.6	30.3	37.7	7 seconds	13	11	22
BIO-SOFT® N-900	6	64	29.5	35.7	55.9	7 seconds	N/A	N/A	N/A
STEPOSOL® DG	-22	>100	27.8	33	52.6	18 seconds	12.5	11.25	8

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