



# Global Agricultural Dispersants



**STEPAN AGRICULTURAL SOLUTIONS** LEVERAGES THE COMPANY'S CORE TECHNOLOGIES OF SULFONATION, ALKOXYLATION, AMIDATION, OXIDATION, QUATERNIZATION, AND POLYMERIZATION TO DELIVER A COMPLETE LINE OF PRODUCTS TO OUR CUSTOMERS. STEPAN'S GEOGRAPHIC FOOTPRINT AND GLOBAL DISTRIBUTION NETWORK IS SUCH THAT WE CAN SERVE OUR GLOBAL CUSTOMERS FROM A VARIETY OF MANUFACTURING LOCATIONS. IN ADDITION, OUR IN-HOUSE FORMULATION EXPERTISE PROVIDES A VALUE-ADDED SERVICE TO HELP SOLVE CUSTOMERS' MOST DIFFICULT CHALLENGES. TO HELP MEET EVER-CHANGING MARKET NEEDS, **STEPAN AGRICULTURAL SOLUTIONS** HAS A ROBUST PIPELINE OF INNOVATIVE NEW PRODUCTS. STEPAN OFFERS DISPERSANTS THAT PROVIDE FLEXIBILITY WHEN FORMULATING END-USE PESTICIDE PRODUCTS.

**Polymeric**

STEP-FLOW® 3000  
STEP-FLOW 4000

**Phosphate Esters**

STEPFAC 8170-U  
STEPFAC 8180  
STEPFAC 8181  
STEPFAC 8181 K  
STEPFAC 8181-E  
STEPFAC 8182  
STEPFAC TSP-PE  
STEPFAC TSP-PE K  
STEPFAC TSP-PE N  
STEPFAC TSP-PE N-60

**Lignosulfonate Blends**

STEPSPERSE® DF-200  
STEPSPERSE DF-500  
STEPSPERSE DF-600

**Ether Sulfates**

STEOL® TSP-16N  
STEOL TSP-16N-60

**Polyarylphenol Alkoxylates**

MAKON® TSP-16  
MAKON TSP-20  
MAKON TSP-25  
MAKON TSP-25F  
MAKON TSP-40 N  
MAKON TSP-40F  
MAKON TSP-60  
MAKON TSP-60F

**Sulfonate Salts**

BIO-SOFT® N-300  
BIO-SOFT 411-E  
BIO-SOFT N-411

**EO/PO Block Copolymers**

STEP-FLOW 26  
STEP-FLOW 26-18  
STEP-FLOW 26 F  
STEP-FLOW 1500  
TOXIMUL® 8315  
TOXIMUL 8320  
TOXIMUL 8321  
TOXIMUL 8322  
TOXIMUL 8323  
TOXIMUL 8325  
TOXIMUL 8350

## PRODUCT OVERVIEW

POLYMERICS							
TRADE NAME	CHEMICAL DESCRIPTION	ACTIVE %	FORM @ 25°C	DENSITY, G/ML @ 25°C	VISCOSITY, CPS @ 25°C	HLB	U.S. EPA CLEARANCE
STEP-FLOW 3000	Polymethyl Methacrylate-Polyethylene Glycol Graft Copolymer	40	Clear Liquid	1.1	490	12	40 CFR 180.910 40 CFR 180.930
STEP-FLOW 4000	Polymethyl Methacrylate-Polyethylene Glycol Graft Copolymer	35	Liquid	1.07	80	11-12	40 CFR 180.910 40 CFR 180.930 40 CFR 180.940a

PHOSPHATE ESTERS							
TRADE NAME	CHEMICAL DESCRIPTION	ACTIVE %	FORM @ 25°C	DENSITY, G/ML @ 25°C	VISCOSITY, CPS @ 25°C	POUR POINT °C	U.S. EPA CLEARANCE
STEPFAC 8170-U	Nonylphenol Ethoxylate Phosphate Ester, POE-10	100	Liquid	1.12	3,070	-2	40 CFR 180.910 40 CFR 180.930 (<7% in pesticide)
STEPFAC 8180	Tridecyl Alcohol Ethoxylate Phosphate Ester, POE-3	100	Liquid	1.03	760	-18	40 CFR 180.910 40 CFR 180.920 40 CFR 180.930 (<30% in pesticide)
STEPFAC 8181	Tridecyl Alcohol Ethoxylate Phosphate Ester, POE-6	100	Liquid	1.06	845	-16	40 CFR 180.910 40 CFR 180.920 40 CFR 180.930 (<30% in pesticide)
STEPFAC 8181 K	Tridecyl Alcohol Ethoxylate Phosphate Ester, POE-6	50-55	Clear Liquid	1.1	560	-24	40 CFR 180.910 40 CFR 180.930 (<83% in pesticide)
STEPFAC 8181-E	Tridecyl Alcohol Ethoxylate Phosphate Ester, POE-6	100	Liquid	1.06	845	-16	40 CFR 180.910 40 CFR 180.920 40 CFR 180.930
STEPFAC 8182	Tridecyl Alcohol Ethoxylate Phosphate Ester, POE-1	100	Liquid	1.06 (@ 50°C)	210 (@ 50°C)	6	40 CFR 180.910 40 CFR 180.920 40 CFR 180.930 (<30% in pesticide)
STEPFAC TSP-PE	Tristylphenol Ethoxylate, POE-16 Phosphate Ester	98	Liquid	1.14	4,500	4	40 CFR 180.920 (<15% in pesticide)
STEPFAC TSP-PE K	Tristylphenol Ethoxylate, POE-16 Phosphate Ester Potassium Salt	40	Liquid	1.11	245	0	40 CFR 180.920 (<15% in pesticide)
STEPFAC TSP-PE N	Tristylphenol Ethoxylate, POE-16 Phosphate Ester Triethanolamine Salt	98	Liquid	1.15	4,000	5	Non-Food Only
STEPFAC TSP-PE N-60	Tristylphenol Ethoxylate, POE-16 Phosphate Ester Triethanolamine Salt	60	Clear Amber Liquid	1.1	-	-	Non-Food Only

### LIGNOSULFONATE BLENDS

TRADE NAME	CHEMICAL DESCRIPTION	FORM @ 25°C	DENSITY, G/ML @ 25°C	Moisture %	PH (5% AQ SOLN)	NPE FREE	U.S. EPA CLEARANCE
STEPSPERSE DF-200	Anionic*/Lignosulfonate Blend	Powder	0.21	6	8.6	No	40 CFR 180.910
STEPSPERSE DF-500	Anionic/Lignosulfonate Blend	Powder	0.37	6	9.9	Yes	40 CFR 180.910 40 CFR 180.930
STEPSPERSE DF-600	Nonionic/Lignosulfonate Blend	Powder	0.37	6	8.8	Yes	40 CFR 180.910 40 CFR 180.930

\*Alkylphenol based

### ETHER SULFATES

TRADE NAME	CHEMICAL DESCRIPTION	ACTIVE %	FORM @ 25°C	DENSITY, G/ML @ 25°C	VISCOSITY, CPS @ 25°C	POUR POINT °C	U.S. EPA CLEARANCE
STEOL TSP-16N	Ethoxylated Polyarylphenol Sulfate, Ammonium Salt	93	Liquid	1.15	8,600	6	40 CFR 180.920 (<15% in pesticide)
STEOL TSP-16N-60	Ethoxylated Polyarylphenol Sulfate, Ammonium Salt	60	Liquid	1.1	480	-12	40 CFR 180.920 (<15% in pesticide)

### POLYARYLPHENOL ALKOXYLATES

TRADE NAME	CHEMICAL DESCRIPTION	FORM @ 25°C	DENSITY, G/ML @ 25°C	VISCOSITY, CPS @ 25°C	POUR POINT, °C	HLB	U.S. EPA CLEARANCE
MAKON TSP-16	Tristyrylphenol Ethoxylate, POE-16	Liquid	1.11	920	19	13	40 CFR 180.910 40 CFR 180.920 (<15% in pesticide)
MAKON TSP-20	Tristyrylphenol Ethoxylate, POE-20	Paste	1.09 (@ 50°C)	310 (@ 50°C)	30	14	40 CFR 180.910 40. CFR 180.920 (<15% in pesticide)
MAKON TSP-25	Tristyrylphenol Ethoxylate, POE-25	Solid	1.08 (@ 50°C)	220 (@ 50°C)	40	15	40 CFR 180.910 40 CFR 180.920 (<15% in pesticide)
MAKON TSP-25F	Polyarylphenol Alkoxyate, POE-25	Liquid	1.11	1,190	8	-	40 CFR 180.960
MAKON TSP-40 N	Tristyrylphenol Ethoxylate, POE-40	Solid	1.09 (@ 50°C)	465 (@ 50°C)	35	16	40 CFR 180.910 (<15% in pesticide)
MAKON TSP-40F	Polyarylphenol Alkoxyate, POE-40	Liquid	1.1	1,200	19	-	40 CFR 180.960
MAKON TSP-60	Tristyrylphenol Ethoxylate, POE-60	Solid	1.09	310 (@ 50°C)	44	18	40 CFR 180.910 40 CFR 180.920 (<15% in pesticide)
MAKON TSP-60F	Polyarylphenol Alkoxyate, POE-60	Liquid	1.11	2,150	21	-	40 CFR 180.960



SULFONATE SALTS							
TRADE NAME	CHEMICAL DESCRIPTION	ACTIVE %	FORM @ 25°C	DENSITY, G/ML @ 25°C	VISCOSITY, CPS @ 25°C	HLB	U.S. EPA CLEARANCE
BIO-SOFT N-300	Linear Triethanolamine Dodecyl Benzene Sulfonate	60	Liquid	1.08	2,238	-9	40 CFR 180.920 40 CFR 180.930
BIO-SOFT 411-E	Isopropylamine Dodecylbenzene Sulfonate	90	Liquid	1.01	3,000	-	Under Evaluation
BIO-SOFT N-411	Linear Isopropyl Amine Dodecyl Benzene Sulfonate	90	Liquid	1.02	5,500	3	40 CFR 180.920 40 CFR 180.930

EO/PO BLOCK COPOLYMERS							
TRADE NAME	CHEMICAL DESCRIPTION	FORM @ 25°C	DENSITY, G/ML @ 25°C	VISCOSITY, CPS @ 25°C	POUR POINT, °C	HLB	U.S. EPA CLEARANCE
STEP-FLOW 26	Polyalkylene Oxide Block Copolymer	Paste	1.04 (@ 50°C)	640 (@ 50°C)	32	13	40 CFR 180.940a 40 CFR 180.940c 40 CFR 180.960
STEP-FLOW 26-18	Polyalkylene Oxide Block Copolymer	Liquid	1.01-1.03 (@ 20°C)	20 (@ 20°C)	-	-	40 CFR 180.920
STEP-FLOW 26 F	Polyalkylene Oxide Block Copolymer	Liquid	1.04	3,750	7	13	40 CFR 180.940a 40 CFR 180.940c 40 CFR 180.960
STEP-FLOW 1500	Tristyrylphenol Polyalkylene Oxide Block Copolymer	Liquid	1.10	800	4	17	40 CFR 180.960
TOXIMUL 8315	Butyl Polyalkylene Oxide Block Copolymer	Liquid	1.05	555	3	15	40 CFR 180.960
TOXIMUL 8320	Butyl Polyalkylene Oxide Copolymer	Liquid	1.05	2,000	21	14	40 CFR 180.960
TOXIMUL 8321	Polyalkylene Oxide Block Copolymer	Liquid	1.03	900	2	7	40 CFR 180.940a 40 CFR 180.940c 40 CFR 180.960
TOXIMUL 8322	Polyalkylene Oxide Block Copolymer	Paste	1.06 (@ 50°C)	720 (@ 50°C)	35	15	40 CFR 180.940a 40 CFR 180.940c 40 CFR 180.960
TOXIMUL 8323	Polyalkylene Oxide Block Copolymer	Paste	1.04 (@ 50°C)	315 (@ 50°C)	27	15	40 CFR 180.940a 40 CFR 180.940c 40 CFR 180.960
TOXIMUL 8325	Butyl Polyalkylene Oxide Block Copolymer	Liquid	1.05	620	26	14	40 CFR 180.960
TOXIMUL 8350	Butyl Polyalkylene Oxide Block Copolymer	Liquid	1.05	840	21	14	40 CFR 180.960

We welcome you to engage with one of our Stepan Representatives in effort to outline your global regulatory and supply chain requirements. Please note: It is the responsibility of the end user to review the chemical control regulations for each country where the end product is intended to be sold or used. For REACH registration status inquiries, please contact Stepan Europe Technical Service at [tech.service@stepaneurope.com](mailto:tech.service@stepaneurope.com). For other country clearances, consult the product Safety Data Sheet (SDS) or contact Stepan Technical Service at [techserv@stepan.com](mailto:techserv@stepan.com).

# FORMULATION GUIDE

PRODUCT NAME	FORMULATION TYPE*						PRODUCT DESCRIPTION
	SC	SE	OD	FS	WG	WP	

POLYMERS							
STEP-FLOW 3000	•	•		•			STEP-FLOW 3000 is a polymethacrylate/PEG comb polymer with a hydrophilic backbone that displays good dispersing properties in inorganic systems.
STEP-FLOW 4000	•	•		•			STEP-FLOW 4000 is a polymethacrylate/PEG comb polymer with a more hydrophobic backbone than STEP-FLOW 3000. STEP-FLOW 4000 is a very versatile dispersant for a variety of aqueous formulations.

PHOSPHATE ESTERS							
STEPFAC 8170-U	•	•	•	•			STEPFAC 8170-U is a strong, versatile dispersant that provides stability in high electrolyte systems and can improve tank mix compatibility issues.
STEPFAC 8180	•	•	•	•			STEPFAC 8180 is a water dispersible free-acid phosphate ester that demonstrates good dispersing properties and can be used to improve stability in high electrolyte environments.
STEPFAC 8181	•	•	•	•			STEPFAC 8181 is a water dispersible free-acid phosphate ester that demonstrates good dispersing properties and can be used to improve stability in high electrolyte environments.
STEPFAC 8181 K	•	•		•			STEPFAC 8181 K is the potassium-neutralized version of STEPFAC 8181. STEPFAC 8181 K is easily incorporated into water and can be used as a dispersant and compatibility agent.
STEPFAC 8181-E	•	•	•	•			STEPFAC 8181-E is a water dispersible free-acid phosphate ester that demonstrates good dispersing properties and can be used to improve stability in high electrolyte environments.
STEPFAC 8182	•	•	•	•			STEPFAC 8182 is a water soluble free-acid phosphate ester that demonstrates good dispersing properties and can be used to improve stability in high electrolyte environments.
STEPFAC TSP-PE	•	•	•	•			STEPFAC TSP-PE is a free-acid phosphate ester based on bulky tristyrylphenol hydrophobe, offering good dispersing properties in water and oil based liquid formulations.
STEPFAC TSP-PE K	•	•	•	•			STEPFAC TSP-PE K is a potassium-neutralized phosphate ester based on bulky tristyrylphenol hydrophobe, offering good dispersing properties in water and oil based liquid formulations.
STEPFAC TSP-PE N	•	•	•	•			STEPFAC TSP-PE N is a TEA-neutralized phosphate ester based on bulky tristyrylphenol hydrophobe, offering good dispersing properties in water and oil based liquid formulations.
STEPFAC TSP-PE N-60	•	•	•	•			STEPFAC TSP-PE N-60 is a TEA-neutralized phosphate ester based on bulky tristyrylphenol hydrophobe, offering good dispersing properties in water and oil based liquid formulations in an easy to handle form.



PRODUCT NAME	FORMULATION TYPE*						PRODUCT DESCRIPTION
	SC	SE	OD	FS	WG	WP	

LIGNOSULFONATE BLENDS							
STEPSPERSE DF-200	•	•		•	•	•	STEPSPERSE DF-200 is a blend of lignosulfonate and anionic surfactant that can improve hard water performance and reduce flocculation with high silica levels.
STEPSPERSE DF-500	•	•		•	•	•	STEPSPERSE DF-500 is a blend of lignosulfonate and anionic surfactant that can improve long term stability and reduce the viscosity in SC formulation.
STEPSPERSE DF-600	•	•		•	•	•	STEPSPERSE DF-600 is a blend of lignosulfonate and nonionic surfactant that can improve hard water performance and reduce viscosity in SC formulation.

ETHER SULFATES							
STEOL TSP-16N	•	•	•	•			STEOL TSP-16N is a sulfonated anionic dispersing agent neutralized with ammonium. STEOL TSP-16N displays good dispersing properties in water and oil based formulations.
STEOL TSP-16N-60	•	•	•	•			STEOL TSP-16N-60 is a more fluid version of STEOL TSP-16N that has improved handling properties.

\*SC = Suspension Concentrate, SE = Suspo-Emulsion, OD = Oil Dispersion, FS = Flowable Concentrate, WG = Water Dispersible Granules, WP = Wetttable Powder

PRODUCT NAME	FORMULATION TYPE*						PRODUCT DESCRIPTION
	SC	SE	OD	FS	WG	WP	

POLYARYLPHENOL ALKOXYLATES							
MAKON TSP-16	•	•	•	•			MAKON TSP-16 is a versatile dispersant and emulsifier that can be used in a wide range of pesticide delivery systems.
MAKON TSP-20	•	•	•	•			MAKON TSP-20 is a versatile dispersant and emulsifier that can be used in a wide range of pesticide delivery systems.
MAKON TSP-25	•	•	•	•			MAKON TSP-25 is a versatile dispersant and emulsifier that can be used in a wide range of pesticide delivery systems.
MAKON TSP-25F	•	•	•	•			MAKON TSP-25F is a 100% active fluidized version of MAKON TSP-25 and is a versatile dispersant and emulsifier that can be used in a wide range of pesticide delivery systems.
MAKON TSP-40 N	•	•	•	•	•	•	MAKON TSP-40 N is a versatile dispersant and emulsifier that can be used in a wide range of pesticide delivery systems.
MAKON TSP-40F	•	•	•	•			MAKON TSP-40F is a 100% active fluidized version of MAKON TSP-40 and is a versatile dispersant and emulsifier that can be used in a wide range of pesticide delivery systems.
MAKON TSP-60	•	•	•	•	•	•	MAKON TSP-60 is a versatile dispersant and emulsifier with high EO content that can be used in a wide range of pesticide delivery systems.
MAKON TSP-60F	•	•	•	•			MAKON TSP-60F is a 100% active fluidized version of MAKON TSP-60 and is a versatile dispersant and emulsifier with high EO content that can be used in a wide range of pesticide delivery systems.

SULFONATE SALTS							
BIO-SOFT N-300	•	•		•			BIO-SOFT N-300 is a 60% active aqueous solution of triethanolamine linear alkylate sulfonate that demonstrates both dispersing and wetting properties.
BIO-SOFT 411-E	•	•	•	•			BIO-SOFT 411-E is a 92.5% active isopropylamine linear alkylate sulfonate that is both oil and water soluble that demonstrates both dispersing and wetting properties.
BIO-SOFT N-411	•	•	•	•			BIO-SOFT N-411 is a 90% active isopropylamine linear alkylate sulfonate that is both oil and water soluble that demonstrates both dispersing and wetting properties.



PRODUCT NAME	FORMULATION TYPE*						PRODUCT DESCRIPTION
	SC	SE	OD	FS	WG	WP	

EO/PO BLOCK COPOLYMERS							
STEP-FLOW 26	•	•	•	•	•	•	STEP-FLOW 26 is a bifunctional EO/PO block copolymer with a high MW and EO content. STEP-FLOW 26 can be used as a dispersant and wetting agent in a wide range of pesticide delivery systems.
STEP-FLOW 26-18	•	•		•			STEP-FLOW 26-18 is an 18% active solution of STEP-FLOW 26 in water that can be used as a dispersant and wetting agent in a wide range of pesticide delivery systems in an easy to handle form.
STEP-FLOW 26 F	•	•	•	•			STEP-FLOW 26 F is a 100% active fluidized version of STEP-FLOW 26 that can be used as a dispersant and wetting agent in a wide range of pesticide delivery systems.
STEP-FLOW 1500	•	•	•	•			STEP-FLOW 1500 is an EO/PO block copolymer based on the bulky tristyrylphenol hydrophobe that offers good dispersing and wetting properties.
TOXIMUL 8315	•	•	•	•			TOXIMUL 8315 is a butyl based EO/PO block copolymer with reduced pour point and good dispersing and emulsifying properties.
TOXIMUL 8320	•	•	•	•			TOXIMUL 8320 is a versatile butyl based EO/PO block copolymer with reduced pour point and good dispersing and emulsifying properties.
TOXIMUL 8321	•	•	•	•			TOXIMUL 8321 is a bifunctional EO/PO block copolymer with a relatively low MW and EO content, making it ideal for oil containing systems such as OD and SE formulations.
TOXIMUL 8322	•	•	•	•	•	•	TOXIMUL 8322 is a bifunctional EO/PO block copolymer with a high MW and EO content. TOXIMUL 8322 can be used as a dispersant and wetting agent in a wide range of pesticide delivery systems.
TOXIMUL 8323	•	•	•	•			TOXIMUL 8323 is a bifunctional EO/PO block copolymer with a high MW and EO content. TOXIMUL 8323 can be used as a dispersant and wetting agent in a wide range of pesticide delivery systems.
TOXIMUL 8325	•	•	•	•			TOXIMUL 8325 is a versatile butyl based EO/PO block copolymer with reduced pour point and good dispersing and emulsifying properties.
TOXIMUL 8350	•	•	•	•			TOXIMUL 8350 is a versatile butyl based EO/PO block copolymer with reduced pour point and good dispersing and emulsifying properties.

\*SC = Suspension Concentrate, SE = Suspo-Emulsion, OD = Oil Dispersion, FS = Flowable Concentrate, WG = Water Dispersible Granules, WP = Wettable Powder



**Stepan Company NORTH AMERICA**

Technical Service  
+1-800-745-7837  
techserv@stepan.com

**Stepan MEXICO**

Technical Service  
+52-555-533-1697  
mperea@stepan.com

**Stepan MERCOSUL**

Technical Service  
+55-11-5089-2200  
tservicemercosul@stepan.com

**Stepan COLOMBIA**

Technical Service  
+571-636-2808  
melissamartinez@stepan.com

**Stepan EUROPE**

Technical Service Surfactant  
+33-476-505-160 / +33-476-507-942  
tech.service@stepaneurope.com

**Stepan SINGAPORE**

Technical Service  
+65-6879-9895  
asia.techservice@stepan.com

For more information on our products, go to [www.stepan.com/Markets/Agricultural\\_Solutions\\_Digital\\_Tool\\_Box.aspx](http://www.stepan.com/Markets/Agricultural_Solutions_Digital_Tool_Box.aspx)