

# EO/PO Block Copolymers

# Properties

Stepan Company's Ethylene Oxide/Propylene Oxide (EO/PO) Block Copolymers are generated utilizing a variety of hydrophobe bases and across a range of HLB values. Our EO/PO product portfolio can be used as dispersants, emulsifiers and wetting agents in multiple water- and solvent-based formulation types.

Trade Name	CAS No. (Alt. CAS No.)	Base	HLB	Avg Molecular Weight	Surface Tension, 0.1% aqueous, dynes/cm	Cloud Point, 1% aqueous, °C	Pour Point, °C
STEP-FLOW® 26	9003-11-6	PPG/PEG	13	5,900	34.5	82	32
STEP-FLOW 26 F	9003-11-6	PPG/PEG	13	7,900	35.0	82	7
STEP-FLOW 26-18 <sup>1</sup>	9003-11-6	PPG/PEG	13	5,900	34.9	-8.6	<-40
STEP-FLOW 27 <sup>2</sup>	9003-11-6	PPG/PEG	>13	12,000	39.6	>100	46
STEP-FLOW LF-ULTRA <sup>2</sup>	9003-11-6	PPG/PEG	3	2,000	Pending	23	-39
TOXIMUL® 8321	9003-11-6	PPG/PEG	7	3,650	34.5	28	-3
TOXIMUL 8322 <sup>2</sup>	9003-11-6	PPG/PEG	15	6,500	35.1	63	35
TOXIMUL 8323	9003-11-6	PPG/PEG	17	3,800	36.5	82	27
TOXIMUL 8323/33	9003-11-6	PPG/PEG	17	3,800	36.5	84	-6
TOXIMUL L62 <sup>2</sup>	9003-11-6	PPG/PEG	7	2,500	42.3	24	-3
TOXIMUL L64 <sup>2</sup>	9003-11-6	PPG/PEG	15	2,900	41.5	60	18
TOXIMUL 8325	9038-95-3	Butyl	11	4,000	38.2	20	26
TOXIMUL 8320	9038-95-3	Butyl	12	5,500	45.0	48	21
TOXIMUL 8315	9038-95-3	Butyl	15	3,500	39.7	71	3
TOXIMUL 8350 <sup>2</sup>	9038-95-3	Butyl	14	6,200	34.7	71	21
MAKON® NF-5	64175-88-8 (64175-92-4)	Isopropanolamide	5	1,000	36.4 <sup>3</sup>	-1	4
NIPOL® 2782	37251-69-7	Nonylphenol	13	2,700	35.2	82	27
STEP-FLOW 1500	132580-45-1 (70880-56-7)	Tristyrylphenol	13	1,510	43.6	61	4

<sup>1</sup> European product only.

<sup>2</sup> For commercial status of this product, please contact your Stepan Sales Representative.

<sup>3</sup> Measure at 0.25% aqueous.

# Formulation Types

Trade Name	CAS No. (Alt. CAS No.)	HLB	EC	ME	SC	SE	WG	WP	OD	OW
STEP-FLOW 26	9003-11-6	13	●	●	●	●	●	●		
STEP-FLOW 26 F	9003-11-6	13	●	●	●	●				
STEP-FLOW 26-18	9003-11-6	13	●	●	●	●	●	●		
STEP-FLOW 27	9003-11-6	>13	●	●	●	●	●	●		
STEP-FLOW LF-ULTRA	9003-11-6	3	●	●	●	●				
TOXIMUL 8321	9003-11-6	7	●	●	●	●				
TOXIMUL 8322	9003-11-6	15	●	●	●	●				
TOXIMUL 8323	9003-11-6	17	●	●	●	●				
TOXIMUL 8323/33	9003-11-6	17	●	●	●	●				
TOXIMUL L62	9003-11-6	7	●		●					●
TOXIMUL L64	9003-11-6	15	●		●	●				
TOXIMUL 8325	9038-95-3	11	●	●	●	●			●	
TOXIMUL 8320	9038-95-3	12	●	●	●	●			●	
TOXIMUL 8315	9038-95-3	15	●	●	●	●				
TOXIMUL 8350	9038-95-3	14	●	●	●	●			●	
MAKON NF-5	64175-88-8 (64175-92-4)	5	●	●	●	●				
NIPOL 2782	37251-69-7	13	●	●	●	●				
STEP-FLOW 1500	132580-45-1 (70880-56-7)	13	●	●	●	●				

# Formulation Examples

## Tebuconazole 240 g/L (2E) Emulsifiable Concentrate

Component	Amount (wt%)
Tebuconazole Technical	25.99
HALLCOMID® M-12-14	64.01
TOXIMUL 8320	2.00
TOXIMUL 8323	2.00
MAKON TSP-16	4.00
NINEX® MT-630F	2.00

## Tebuconazole 480 g/L Suspension Concentrate

Component	Amount (wt%)
Tebuconazole Technical	39.30
STEP-FLOW 4000	2.00
TOXIMUL 8320	2.20
SAG™ 1572 (Momentive Performance Materials Inc.)	0.50
PROXEL™ GXL (Lonza Group Ltd.)	0.20
KELZAN® S (CP Kelco)	0.30
Propylene Glycol	5.00
Tap Water	50.50

## Trifluralin 480 g/L (4E) Emulsifiable Concentrate

Component	Amount (wt%)
Trifluralin Technical	44.60
HALLCOMID M-8-10	50.40
NINATE® 60E	1.00
TOXIMUL 8240	1.50
TOXIMUL 8320	1.25
MAKON TD-12	1.25

## Captan Suspension Concentrate

Component	Amount (wt%)
Captan Technical	41.10
STEP-FLOW 26F	0.50
Surfactants	3.30
Other Components	55.10

## Methyl Ester OD Oil Dispersion

Component	Amount (wt%)
STEPAN® C-65	90.00
TOXIMUL 8320	2.50
Surfactants	7.50

To order a sample or contact Technical Service, visit [www.stepan.com](http://www.stepan.com).

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