



# BIO-SOFT® EC-Series

The BIO-SOFT® EC-Series products are plant-derived, readily biodegradable, low odor nonionic surfactants.

These EC products provide high detergency for use in laundry detergents and hard surface cleaning products. They are moderate foamers, excellent wetting agents and are highly effective at low concentrations in cool to hot water.

These attributes along with their functional profile make the EC-Series an eco-friendly alternative for replacement of nonylphenol ethoxylates.

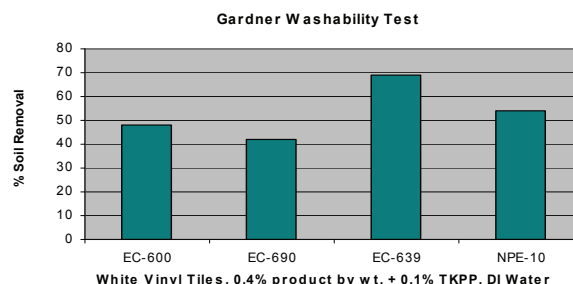
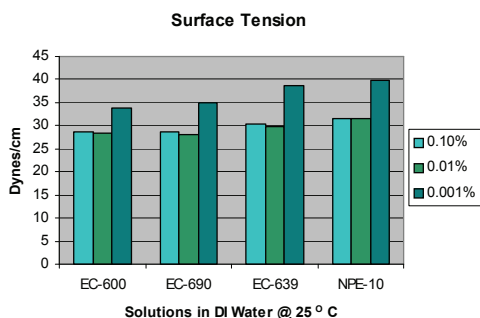
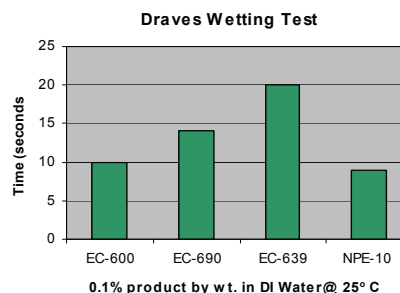
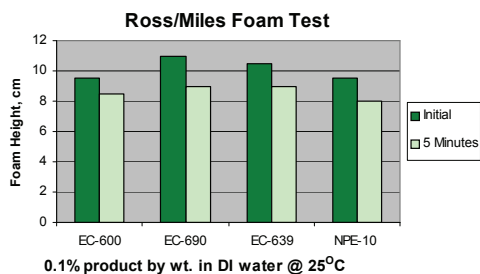
<b>Chemical Description:</b>	Fatty alcohol ethoxylates
<b>CAS Number:</b>	9002-92-0
<b>Use level:</b>	1-20%
<b>Unique Attributes:</b>	Oil/Water Emulsifier, Solubilizer, Wetting Agent
<b>Applications:</b>	Multi-purpose Cleaners, Dilutable Cleaners Hard Surface Cleaners, Laundry Detergents

## Typical Properties

	EC-600	EC-690	EC-639
Carbon Chain	C1214	C1214	C1214
Av. Moles, EO	7	7	8.2
HLB	12.2	12.2	13.3
Color, APHA	50 Max	50 Max	100 Max
% Activity	100	90	90
Viscosity, cps @ 25 °C	50	60	95
Cloud Point, 1% aq., °C	51	51	73
Pour Point, °C	19	5	24
Melting Range, °C	4 to 9	-2 to 4	0 to 5

**Biodegradation** As a class, linear alcohol ethoxylates are considered readily biodegradable. They undergo rapid primary (97% in 5 days) and ultimate (84% in 28 days) biodegradation under laboratory conditions.

## Performance Attributes



- EC-Series products are ideal replacements for NPE-10 as demonstrated by their foaming, wetting and surface tension profiles.
- EC-639 outperformed NPE-10 in the Gardner soil removal test.

## Formulating with the EC Series

		Liquid Laundry Detergent	Dilutable All-Purpose Cleaner	Spray and Wipe Hard Surface Cleaner
Ingredients	Function	% by Weight	% by Weight	% by Weight
BIO-SOFT® EC-600	Emulsifier/ Detergency	18		
BIO-SOFT® EC-639	Emulsifier/ Detergency			1.9
BIO-SOFT® EC-690	Emulsifier/ Detergency		1	
BIO-SOFT® N-300	Emulsifier/Detergency	10		
BIO-TERGE® PAS-8S	Solubilizer			1.0
Butyl Carbitol	Solvent		4	
DOWANOL® PnP	Solvent		4	
NAOH 50%	pH Adjustment			0.1
Sodium Carbonate	Builder	1		
Sodium Citrate	Builder		4	0.8
STEPANATE® SXS	Hydrotrope	10		
STEPANOL® WA-Extra	Emulsifier/Detergency		1	
Water	Diluent	61	86	96.2
Total		100	100	100

*Formulation tip:  
To facilitate blending, first charge water and any solubilizing agent, such as sodium xylene sulfonate (SXS) or solvent. Then, with good agitation, slowly add the nonionic. Mild heat will also speed up the processing.*

For additional information, contact Stepan Technical Service at 1-800-745-7837 or at [techserv@stepan.com](mailto:techserv@stepan.com).

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