



## Dow Surfactants

### TERGITOL™ TMN-100X (90%) Surfactant

#### Introduction

TERGITOL TMN-100X (90%) Surfactant is a 70:30 blend of TERGITOL TMN-10 (90%) Surfactant and TERGITOL TMN-6 (90%) Surfactant, developed in May 2001 to match the cloud point and performance profiles of TRITON X-100 Surfactant. TERGITOL TMN-100X (90%) Surfactant is a Non-APE based nonionic performance alternative for TRITON X-100 Surfactant for most applications.

TERGITOL TMN-Series (TMN = 2,6,8-trimethyl-4-nonanol) Nonionic Surfactants are based on a branched C12 secondary alcohol hydrophobe. This product family characteristically has rapid aqueous dissolution rates, low equilibrium and dynamic aqueous surface tension profiles, fast foam dissipation rates and outstanding wetting and stabilizing profiles compared to similar nonionic surfactants based on other hydrophobe types.

#### Property Comparison

TERGITOL TMN-100X (90%)	Property	TRITON X-100
b-SAE branched-Secondary Alcohol Ethoxylate	Nonionic Surfactant Family	OPE Octyl Phenol Ethoxylate
90	% Actives	100
Water	Diluent	None
65	Cloud Point, °C	66
10.1	Moles EO	9.5
70.5	%EO	67.0
14.1	HLB	13.4
150/24	Ross-Miles Foam <sup>1</sup>	160/145
27	Aq. Surface Tension <sup>2</sup>	31

<sup>1</sup> Ross-Miles foam height: mm at 1 wt.% actives, 25°C, initial / 5 minutes

<sup>2</sup> Equilibrium surface tension: dynes/cm at 1 wt.% actives, 25°C

#### Benefits

- Non-APE based hydrophobe
- Very effective wetting agent
- Low equilibrium and dynamic aqueous surface tension profiles
- Rapid aqueous dissolution rate
- Narrow gel range
- Broad solvent solubility/miscibility
- Compatible with fluoro-surfactants
- Alternative to fluoro-surfactant applications
- Excellent cleaner and emulsifier
- Unstable foam

#### Applications

- Hard surface cleaners
- PTFE Dispersions
- Alkaline cleaners and degreasers
- Pigment, wax and resin dispersions
- Textile processing
- Paints and coatings
- Metal cleaners
- Metalworking fluids
- Agrochemicals
- Pulp and paper
- Felt washes

## Physical Properties

Actives, wt%	90
Diluent, wt%	10 Water
Appearance	Transparent, colorless liquid
Cloud point, 1.0% aq solution, °C (°F)	65 (149)
HLB	14.1
pH, 10% aq solution	6
Viscosity at 25°C (77°F), cP	88
Density at 20°C (68°F), g/ml	1.025
Flash Pt, Closed Cup, ASTM D93	None
Pour Point, °C (°F)	-6 (21)

Note: Additional physical and chemical property data is located on the product Material Safety Data Sheets

## Performance Properties

Equilibrium surface tension <sup>1</sup> , dynes/cm	27
Dynamic surface tension <sup>2</sup> , dynes/cm	33
Critical micelle concentration in distilled water at 25°C (77°F), ppm	830
Draves 20 sec wetting conc., wt% at 25°C (77°F)	0.07
50°C (122°F)	0.4
Ross-Miles Foam Test <sup>3</sup> initial/5 min, 0.1 at 25°C (77°F)	150 (24)
37.7°C (100°F)	155 (29)
50°C (122°F)	157 (27)

1. Surface tension; 1 wt.% actives, 25°C, Cloud Point: °C, 1wt.% aqueous solution.
2. Measured at 0.1 wt.% and 25°C (77°F), Maximum Bubble Pressure at 4 bubbles/sec.
3. Ross-Miles Foam Test: measured at 0.1 wt.% and 25°C (77°F)

## Solubility and Compatibility

- Soluble in water
- Soluble in most polar and non-polar solvents and oils
- Chemically stable in the presence of dilute acids, bases and salts
- Compatible with soaps, anionic and cationic surfactants, and many organic solvents

## Chemical Description

Name: Branched Secondary Alcohol Ethoxylate  
Surfactant Type: Nonionic

## Customized Blending

Should TERGITOL TMN-100X (90%) Surfactant not exactly meet a particular performance target, the end-user / formulator has the option to customize a blend of TERGITOL TMN-6 (90%) and TERGITOL TMN-10 (90%) Surfactants using Figures 1, 2 and 3 as guidelines. This customized blending allows selection of the desired cloud point, HLB value, Moles EO, and/or wt.% EO that will best meet the performance application requirement.

Figure 1. TERGITOL TMN-100X (90%) Surfactant  
Property Profiles as Function of Blend Ratio

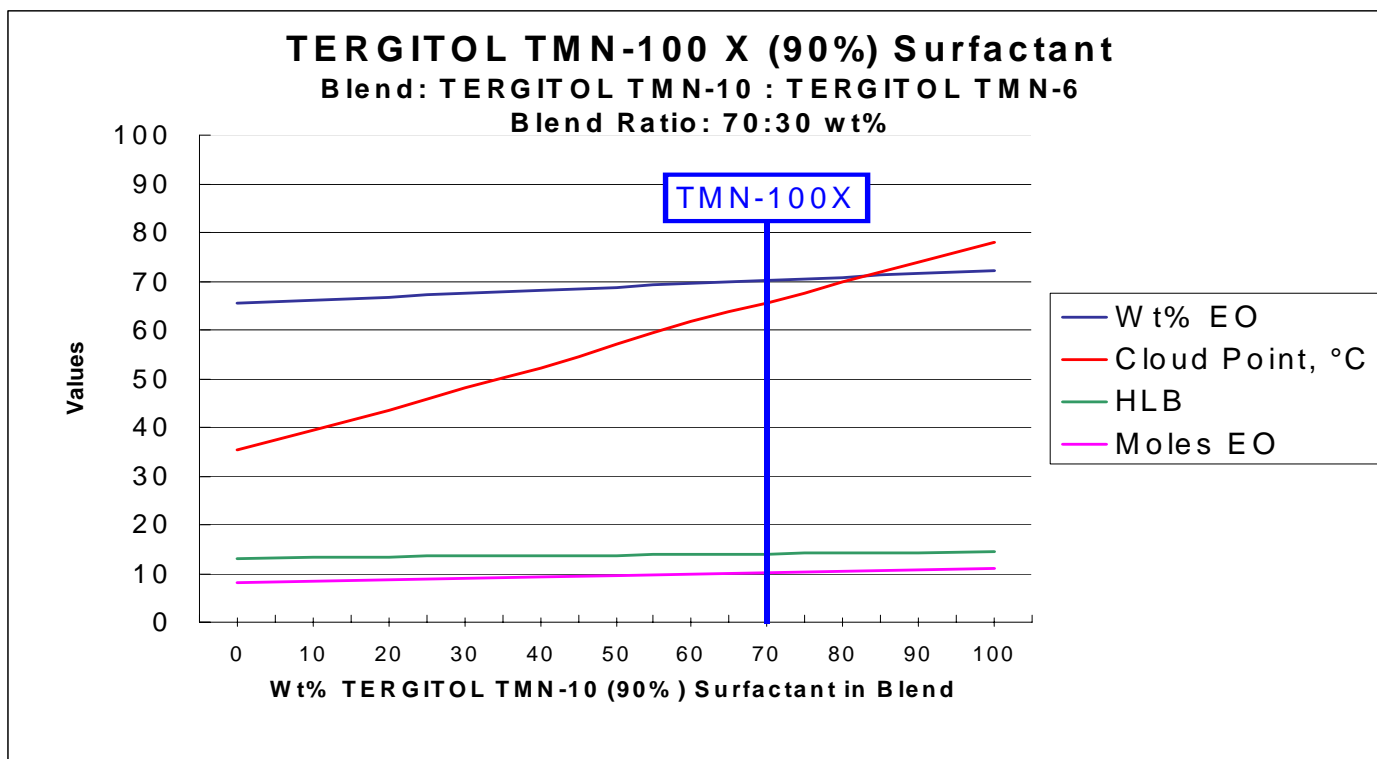


Figure 2. TERGITOL TMN-100X (90%) Surfactant  
HLB & Moles EO Profiles s Function of Blend Ratio

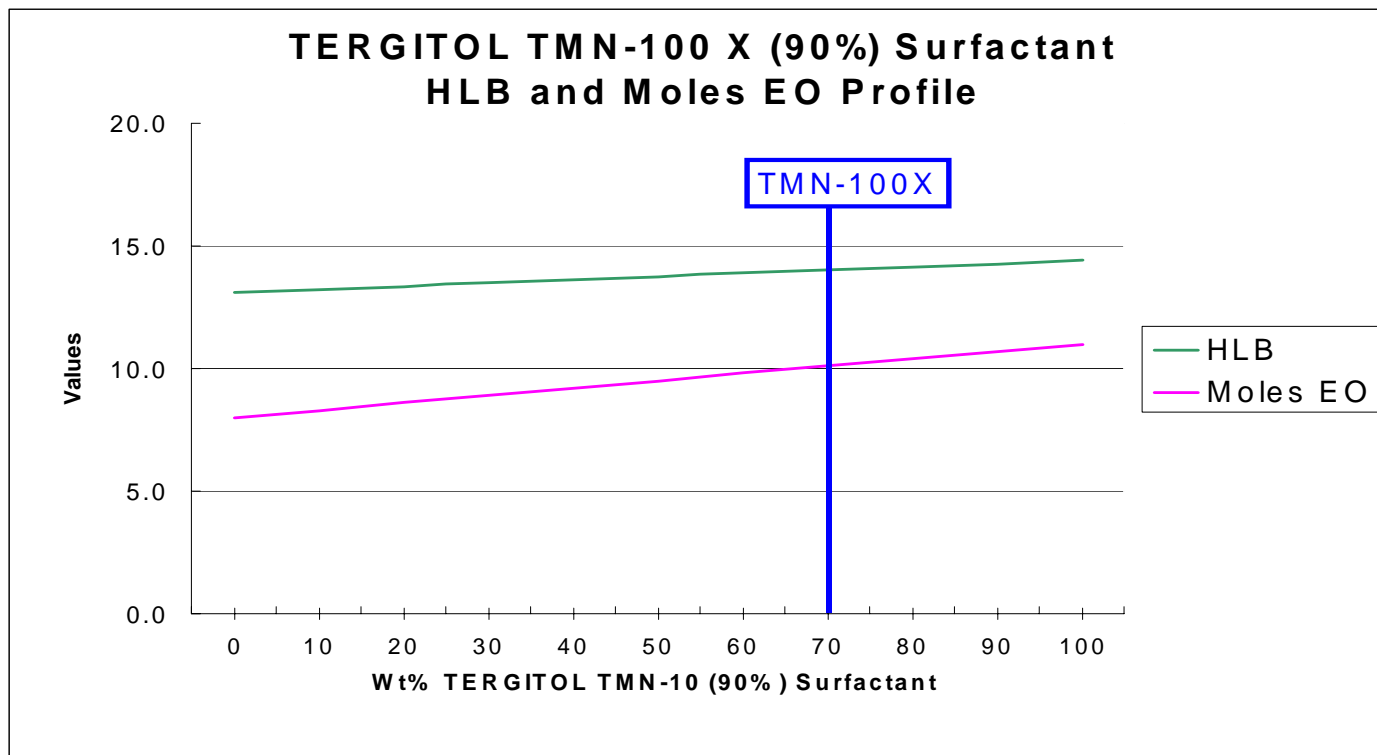
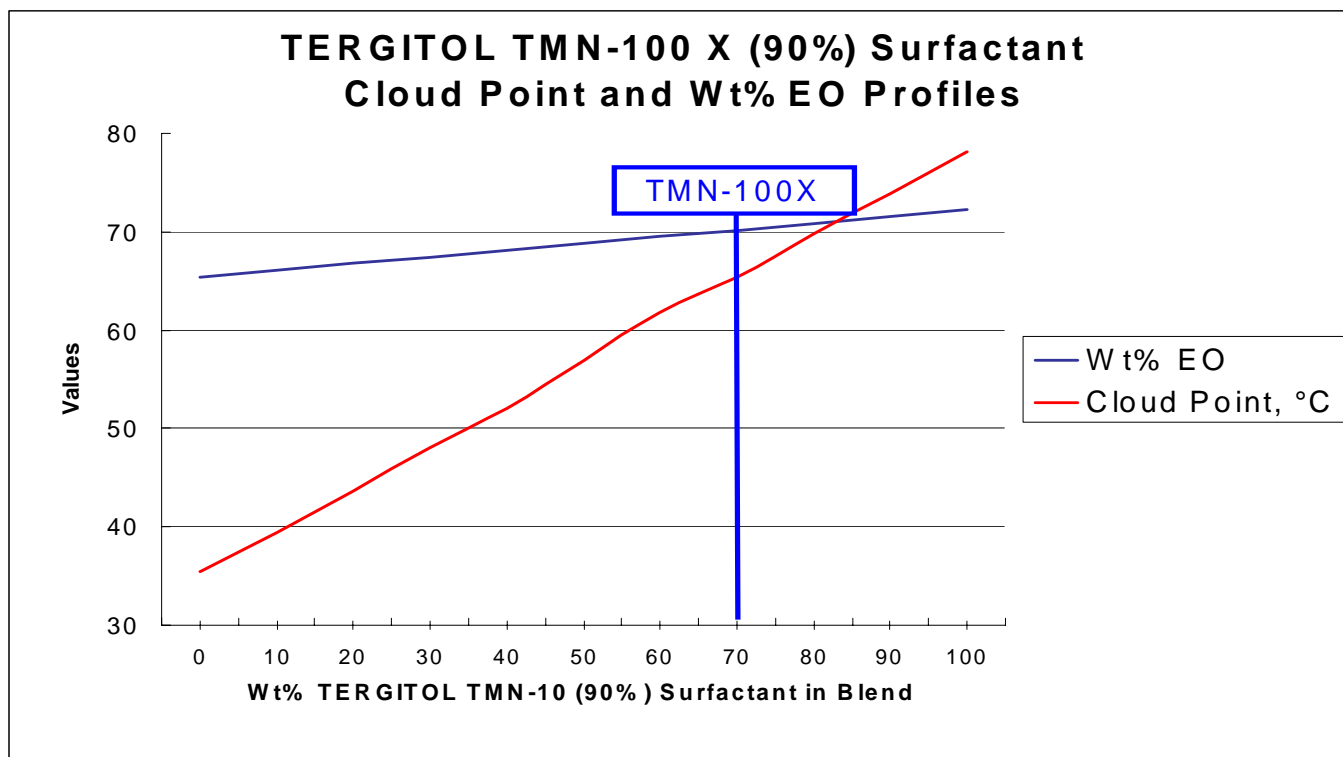


Figure 3. TERGITOL TMN-100X (90%) Surfactants  
 Cloud Point and Wt.% EO as Function of Blend Ratio



**For More Information:**

North America: toll-free 1-800-447-4369  
 fax 1-989-832-1465  
 Europe: toll-free +800 3 694 6367  
 call +32 3 450 2240  
 fax +32 3 450 2815  
 Pacific: call +852 2879 7260  
 fax +852 2827 5881  
 Other Areas: call 1-989-823-1560  
 fax 1-989-832-1465  
<http://www.dow.com>

NOTICE: No freedom from any patent owned by Seller or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. Seller assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

