



®

Dow sustainable nonionic surfactants in Industrial and Institutional (I&I) laundry

Dow sustainable nonionic surfactants, including ECOSURF™ EH, ECOSURF™ SA and TERGITOL™ 15-S series products enable formulation of high performance laundry detergents with improved wetting and anti-redeposition properties. These surfactants are excellent emulsifiers, suitable for concentrated formulations and help formulators achieve their desired foam profiles.

Physical properties

	ECOSURF™ SA-7	ECOSURF™ SA-9	TERGITOL™ 15-S-7	TERGITOL™ 15-S-9	ECOSURF™ EH-6	ECOSURF™ EH-9
Actives (%)	100	100	100	100	100	100
HLB	10-12	11-13	12.1	13.3	11-12	13-14
Cloud point, 1% aqueous (°C)	37	57	37	60	40	61
Pour point (°C)	3	3	1	9	5	16
Surface tension, 1% (mN/m)	29	29	30	30	30	31

Performance comparison chart for laundry

Performance	ECOSURF™ SA	TERGITOL™ 15-S	Tridecyl C13 alcohol ethoxylate	Linear C12-14 alcohol ethoxylate
Whiteness maintenance	++	+++	+	+++
Wetting	++	+++	+	+
Emulsification	+++	++	++	+
Low foam performance	+++	+	+	+
Handling/stability	+++	+	+	+

+++ Excellent ++ Good + Moderate



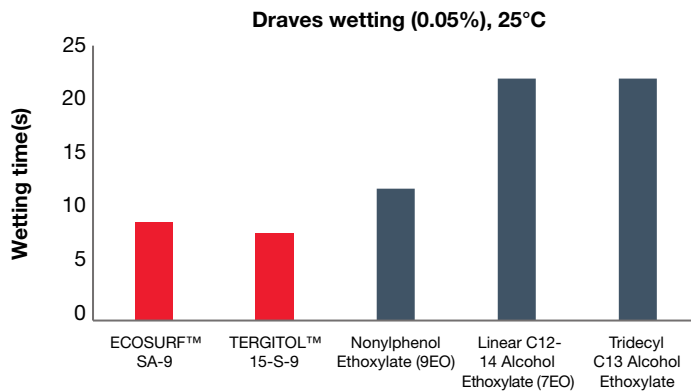
Environmental profile

TERGITOL™ 15-S, ECOSURF™ EH and ECOSURF™ SA series surfactants help formulators maintain or improve the environmental profile of I&I laundry formulations.

Performance	Environmental profile
ECOSURF™ SA	Biobased hydrophobe Readily biodegradable (OECD 301)
TERGITOL™ 15-S	Readily biodegradable (OECD 301) Selected products listed on CleanGredients Approved for US EPA Safer Choice Formulations Extensive FDA clearances
ECOSURF™ EH	Excellent low aquatic toxicity (EC50 >10 mg/L) Readily biodegradable (OECD 301) Listed on CleanGredients Approved for US EPA Safer Choice Formulations

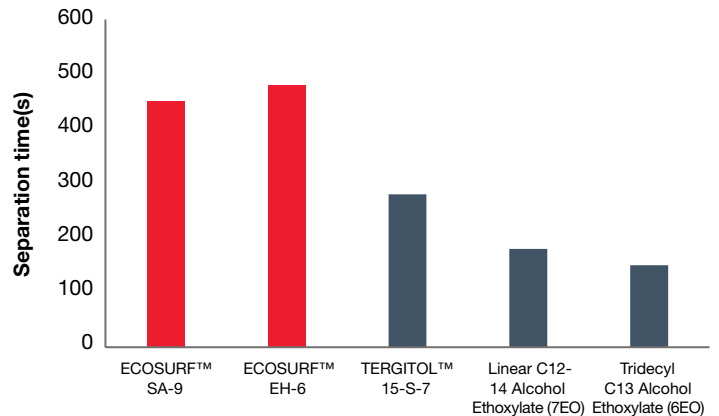
Excellent wetting

ECOSURF™ SA series and TERGITOL™ 15-S series surfactants exhibit excellent wetting. Shorter wetting times means faster wetting in short wash cycles, enabling more effective soil removal.



Excellent emulsification

ECOSURF™ EH, ECOSURF™ SA, and TERGITOL™ 15-S series surfactants are excellent oil emulsifiers. The longer separation times shown below mean that oily soil will stay suspended during the wash cycle, which helps reduce soil redeposition on fabric.

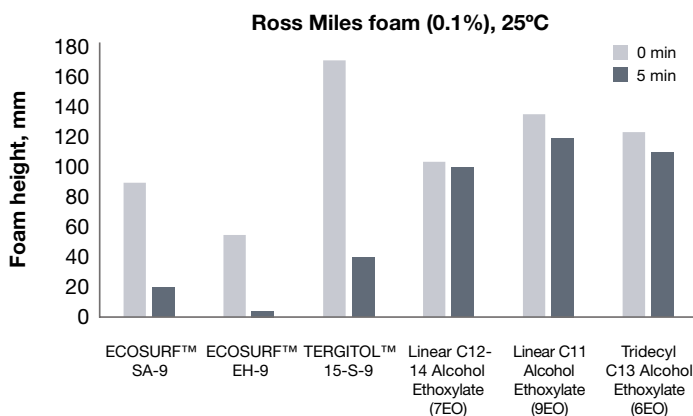


Test conditions:

- 5g/L surfactant solution 20mL + 20mL liquid paraffin in 100mL cylinder.
- Vibrate the cylinder up and down for 10 times, standing for 1min, repeat the vibration 5 times.
- Record the phase separation time. Longer time means better emulsifying power.

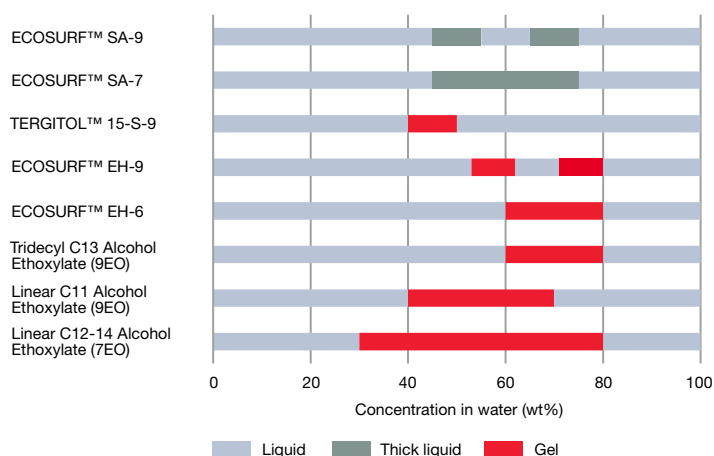
A range of foaming profiles

ECOSURF™ EH and ECOSURF™ SA series are lower foam surfactants with rapid foam collapse. TERGITOL™ 15-S surfactants have higher initial foam with fast foam collapse. Surfactants with low foam or fast foam collapse enable short rinsing cycles, and lower water use.



Concentrated formulations

Preparing concentrated formulations can be challenging. ECOSURF™ SA series surfactants have NO gel range, while ECOSURF™ EH and TERGITOL™ 15-S series exhibit a very NARROW gel range.



Starting formulations

High alkaline liquid commercial laundry

Ingredients	A	B	C	D
Water	23.6	25.0	27.0	28.8
ECOSURF™ SA-9 or TERGITOL™ 15-S-9	5.0	5.0	5.0	5.0
ACUSOL™ 810A	5.0	5.0	5.0	5.0
ACUSOL™ 445N	3.0	3.0	3.0	3.0
Sodium Silicate 3.22 (38%)	8.4	2.0	0.0	8.2
NaOH (50%)	55.0	60.0	60.0	50.0
Total	100	100	100	100

Note: Use hydrotrope surfactant TRITON™ H series if the formulation needs to be transparent

Light duty liquid commercial laundry

Ingredients	A	B	C
Water	82.5	76.7	66.7
ACUSOL™ 820	2.5	3.3	3.3
ECOSURF™ SA-9 or TERGITOL™ 15-S-9	5.0	10.0	10.0
NaOH (50%)	10.0	10.0	20.0
Total	100	100	100

About Dow

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