



Dow Industrial Solutions

Low Foam Surfactants for Metal Cleaning

Improved Oil Removal with Reduced Foaming



ECOSURF™ LFE Low Foam Surfactants

Dow has introduced a new low foam surfactant product family to enable improved performance in metal cleaning applications. ECOSURF™ LFE-635 offers efficient oil removal from metal surfaces and low foam generation under circulating use conditions.

ECOSURF™ LFE Series Surfactants are readily biodegradable, low foam surfactants with very low aquatic

Table 1: Typical Product Properties⁽¹⁾

SURFACTANT	% ACTIVES	CLOUD POINT (°C) 1% AQ.	CMC ⁽²⁾	SURFACE TENSION ⁽³⁾	HLB	DRAVES WETTING (SEC)	READILY BIODEGRADABLE	MEETS US EPA SAFER CHOICE CRITERIA
ECOSURF™ LFE-635	100	35	315	32	9.9	17	Yes	Yes

⁽¹⁾These are typical properties, not to be construed as specifications.

⁽²⁾Critical Micelle Concentration: ppm at 25°C

⁽³⁾Equilibrium Surface Tension: dynes/cm at 1% actives, 25°C

toxicity, which meet or exceed existing environmental regulations. These surfactants meet the criteria for the U.S. EPA's Safer Choice program.

Key features include:

- Excellent removal of oil from metal surfaces
- Low foam generation in cleaning process

Comparison to Industry Benchmark

Metal Cleaning Surfactants

Excellent Oil Removal Efficiency

ECOSURF™ LFE-635 Surfactant enhances oil removal from stainless steel when cleaned at high temperatures as compared to industry benchmark surfactants. ECOSURF™ LFE-635 Surfactant delivers comparable oil removal performance at low temperatures.

Table 2: Cleaning Time (sec) by Surfactant^(1,2)

CLEANING TEMPERATURE (°C)	ECOSURF™ LFE-635 SURFACTANT	BENCHMARK SURFACTANT
20-25	~150	~120
35-40	~40	> 40

⁽¹⁾ Method JB/T 4323.2 (1999) "Standard Oil Soil (machinery oil/petroleum jelly/barium petroleum sulfonate)" on stainless steel.

⁽²⁾ These are typical properties, not to be construed as specifications.

For more information on how ECOSURF™ LFE Low Foam Surfactants can improve performance in metal cleaning applications, contact your Dow representative or visit dow.com.

Reduced Foam in Application

ECOSURF™ LFE-635 Surfactant generates less foam during continuous or circulating process conditions as compared with an industry benchmark surfactant.

Figure 1: Circulation Foam Testing at 35°C^(3,4)

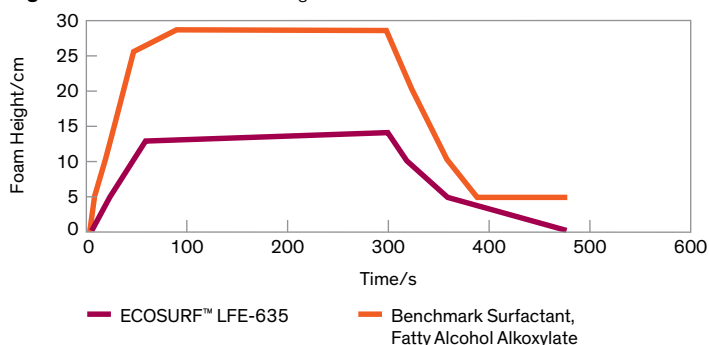
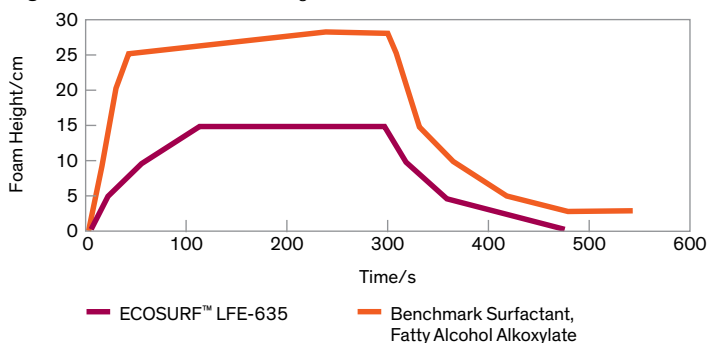


Figure 2: Circulation Foam Testing at 40°C^(3,4)



⁽³⁾ The graphic representations are presented here for illustrative purposes only and should not be construed as product specifications.

⁽⁴⁾ 0.1 wt % surfactant in water

North America

U.S. & Canada 1 800 441 4369
1 989 832 1426
Mexico + 1 800 441 4369

Latin America

Argentina + 54 11 4319 0100
Brazil + 55 11 5188 9000
Colombia + 57 1 219 6000
Mexico + 52 55 5201 4700

Europe/Middle East

00 800 3694 6367
00 31 115 672626
Italy 800 783 825

South Africa

00 800 99 5078

Asia Pacific

+ 800 7776 7776
+ 603 7965 5392
+ 86 21 3851 4988
China + 400 889 0789

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