Dȳnol™ 800 surfactant

A low foam superwetter with exceptional performance in water-based coatings and inks

Applications

Dȳnol 800 surfactant is recommended in a wide range of waterborne applications including:

- OEM and DIY wood coatings
- Metal coatings
- Plastic coatings
- Printing inks
- Overprint varnishes
- Adhesives

Features and benefits of Dȳnol 800 surfactant:

- Premium surface tension reduction
- Improved formulation compatibility and ease of incorporation
- Low viscosity, easy-to-handle liquid
- Contains no added APEs, HAPs or VOCs
- 100% active
- Non-silicone
- Non-fluorine
- Low foam

The application of waterborne coatings and inks on difficult-to-coat substrates such as wood, plastics, films and poorly prepared metal surfaces presents significant challenges to the coatings formulator. To maximize wetting and minimize defects like craters, fisheyes, orange peel and pinholes, the proper surfactant is needed to not only promote substrate wetting but also to minimize foam generation. Dȳnol 800 surfactant has been developed to meet the growing need for high performance surfactants.

Description

Dȳnol 800 surfactant provides a superior balance of properties compared to traditional fluorosurfactants and silicone surfactants, with exceptional performance in wood and plastic coatings as well as a wide variety of other water-based coating applications. Based on Gemini technology, Dȳnol 800 surfactant has the ability to reduce both equilibrium and dynamic surface tension to levels not achieved with other surfactants. This excellent balance of properties makes Dȳnol 800 surfactant an excellent alternative for difficult-to-wet substrates requiring good flow and leveling under diverse application conditions.

Table 1: Dȳnol 800 surfactant typical physical properties

Appearance	Clear, light yellow liquid
Activity (%)	100
Viscosity (mPa·s at 21°C)	250
Specific Gravity at 21°C	0.98
Wt % VOC (US EPA Method 24)[1]	0
Wt % VOC (ASTM 6886 GC Analysis)[2]	0

[1] This product was found to contribute no VOC under EPA Method 24 testing conditions when evaluated at a 1 wt % use level in a zero-VOC coating formulation.

[2] Diethyl adipate was used as the 250°C boiling point marker.

Typical applications

Wood coatings

The multifunctional benefits of exceptional wetting and defoaming that Dȳnol 800 surfactant provides in waterborne wood coatings can be seen in Figure 3. In a three-coat brush application of a model urethane-acrylic hybrid interior wood coating, Dȳnol 800 surfactant offers improved wetting, superior flow and leveling, and foam control compared to coatings containing silicone surfactants.

Figure 3: Results for a urethane-acrylic hybrid wood coating on red oak

Blank

Dȳnol 800

Silicone

Table 2: Dȳnol 800 surfactant typical performance characteristics

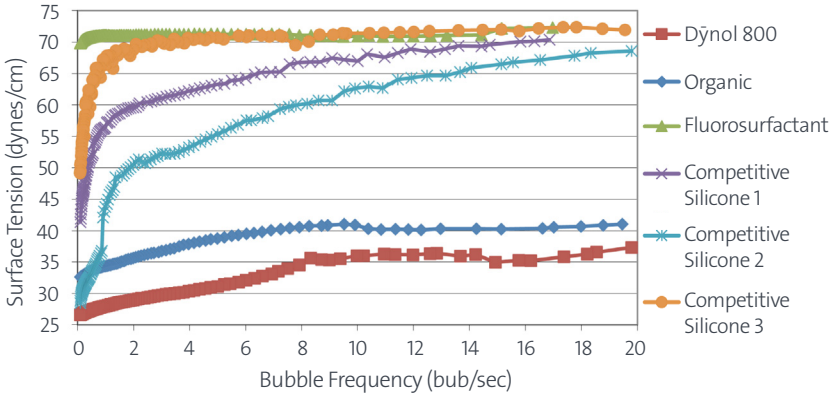
Equilibrium Surface Tension[1] at 0.1 wt % in water (mN/m)	26
Dynamic Surface Tension[2] at 0.1 wt % in water (mN/m, 6 bubbles/sec)	32
Initial Ross-Miles Foam Height[3] (cm)	1.2
Final Ross-Miles Foam Height[3] at 5 minutes (cm)	0.3

[1] Measured using the Wilhelmy plate method at 25°C.

[2] Measured using the maximum bubble pressure method at 25°C.

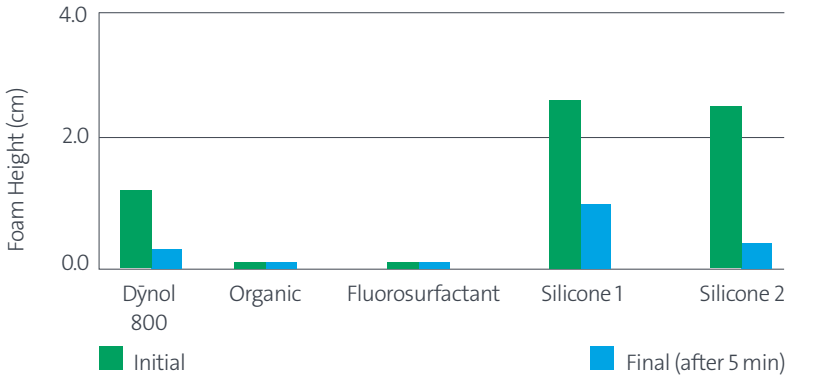
[3] ASTM D1173, 25°C, 0.1 wt % surfactant in water.

Figure 1: Dynamic surface tension 0.1 wt % surfactant in water



* Compared to organic, fluoro- and silicone-based surfactants, Dȳnol 800 surfactant imparts the lowest dynamic surface tension.

Figure 2: Ross-Miles Foam



* Comparison of Ross-Miles foam heights for various surfactants (ASTM D1173, 25°C, 0.1 wt % in water)

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