Dynol™ 810 surfactant

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

Applications

Dynol 810 surfactant is recommended in a wide range of waterborne applications including:

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

Features and benefits of Dynol 810 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 inks and coatings on low energy substrates such as plastics, films and poorly prepared metal surfaces presents significant challenges to the coatings formulator. To 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. Dynol 810 surfactant has been developed to meet the growing need for high performance surfactants.

Description

Dynol 810 surfactant provides a superior balance of properties compared to traditional silicone and fluorosurfactants, with exceptional performance in inks, and a wide variety of other water-based coating applications. Based on Gemini technology, Dynol 810 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 Dynol 810 surfactant an excellent alternative for difficult-to-wet substrates requiring good flow and leveling under diverse application conditions.

Table 1: Dynol 810 surfactant typical physical properties

Appearance	Clear, light yellow liquid
Activity (%)	100
Viscosity (mPa·s at 21°C)	250
Specific Gravity at 21°C	0.97
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

Printing inks

The multifunctional benefits of exceptional wetting and defoaming that Dȳnol 810 surfactant provides in waterborne surface printing or laminating inks can be seen in Figure 3. Dȳnol 810 surfactant offers superior wetting and printability while maintaining excellent foam control over traditional organic, silicone and fluoro-based surfactants when used to print on film substrates such as oriented polypropylene or high-slip polyethylene.

Figure 3: Results for a blue packaging ink printed on low density polyethylene

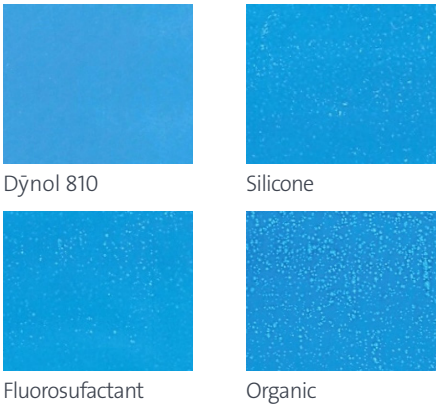

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Table 2: Dȳnol 810 surfactant typical performance characteristics

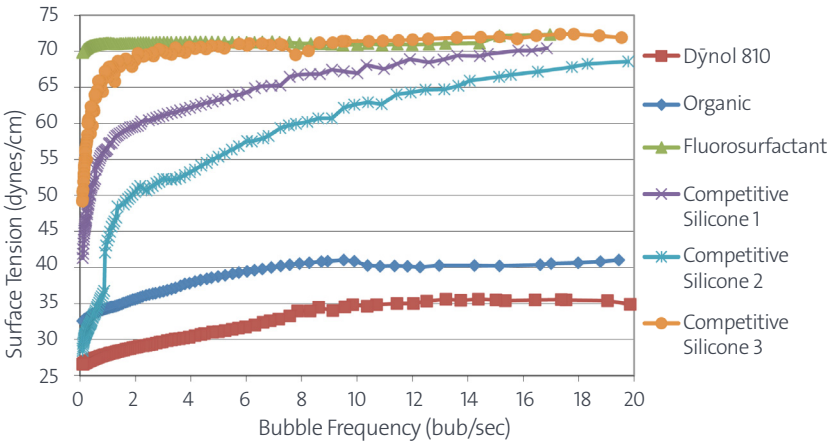
Equilibrium Surface Tension[1] at 0.1 wt % in water (mN/m)	26
Dynamic Surface Tension[2] at 0.1 wt % in water (mN/m, 6 bubbles/sec)	32
Initial Ross-Miles Foam Height[3] (cm)	1.2
Final Ross-Miles Foam Height[3] at 5 minutes (cm)	0.5

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

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

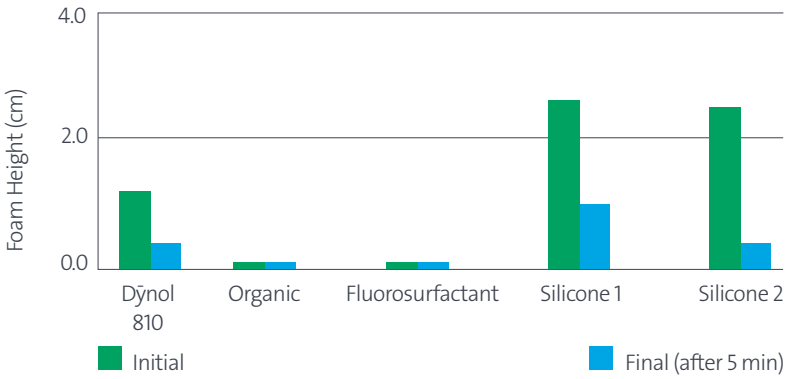
[3] ASTM D1173, 25°C, 0.1 wt % surfactant in water.

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



* Compared to organic, fluoro- and silicone-based surfactants, Dȳnol 810 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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