

Nouryon

Duomeen® TDO

Paint, Coatings & Inks



Duomeen TDO, an additive with well documented performance used globally by paint and ink formulators. This product is solely based on raw materials that have a renewable origin, thereby making it a sustainable alternative.

Wetting and dispersing agent for solvent borne paints, inks and coatings

Duomeen TDO - for wetting and dispersing

The primary function is to provide pigment and substrate wetting, providing for good and quick dispersion of the pigment and improved paint adherence to various substrates.

Functions and applications

Duomeen TDO is a product suitable for formulating solvent borne and other non water borne paints, coatings and inks. In particular it is useful in primer formulation. The binder compatible could be for instance a varnish, an alkyd or an epoxy resin. Also in low polar systems the Duomeen TDO works well.

The primary function is as pigment and filler dispersant. In particular it is good for very hydrophilic, often inorganic, pigments. It is also working well in mixed pigment systems, and for most organic pigments. Examples of some pigments where Duomeen TDO works as a wetting and dispersing agent include:

- Titanium Dioxide
- Carbon Black
- Iron oxide Red and Black
- Calcium Carbonate

Duomeen TDO will disperse pigments efficiently, and keep the dispersion stable, thereby avoiding flocculation, floating, flooding and other effects associated with poor pigment dispersion, for instance poor colour strength.

The good dispersion resulting provides for low viscosity and good flow behavior in the mill base. An increased production throughput is realized through the quick wetting by using Duomeen TDO. As pigment loading can be increased, more high solids formulations are possible to obtain.

Dispersant demand curve

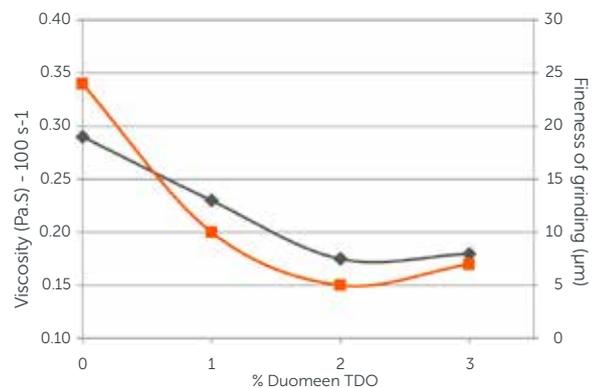


Fig 1. Dispersant demand curve at 40% pigment (Bayferrox™ 130) load in alkyd resin

Duomeen TDO has proven not to have any adverse effects on drying time or hardness properties of the paint film. The film also tends to exhibit better QUV resistance.

This product also has good emulsifying properties, and is thereby able to effectively create stable emulsions of water in for instance alkyd resins and printing ink varnishes.





Fig 2. Appearance of primer after 300 hours of QUV ageing
Sample A, containing Duomeen TDO, display less degradation and whitening

Duomeen TDO exhibit very strong adsorption to most surfaces. Apart from the good dispersion resulting from this, the product also exhibit further benefits, summarized as of below:

- Good pigment dispersion
- Improved adhesion even to rusty or wet surfaces
- Improved corrosion protection
- Improves early water resistance

Due to the above mentioned abilities, Duomeen TDO is used in particular when formulating protective paints and primers intended for use on steel and concrete.

Provides good pigment dispersion and improved adhesion to difficult substrates

For more information visit surfacechemistry.nouryon.com

Duomeen TDO improves adhesion to difficult substrates such as steel with mil scale and corrosion products. The example below is an epoxy resin system.

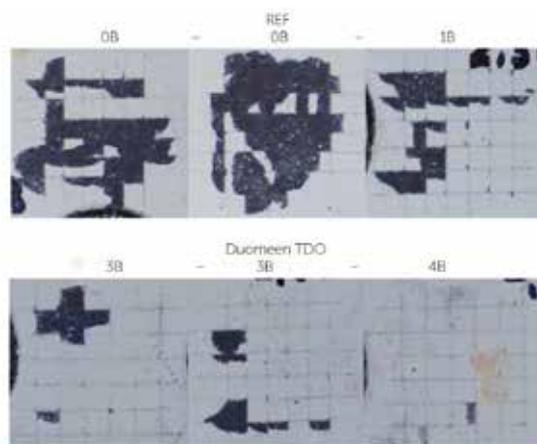


Fig 3. Steel with mil scale and corrosion products, after 6 Volvo ageing cycles (6 weeks). REF=without wetting agent and 0.3% Duomeen TDO. Tested according to ASTM D3359

Chemical composition

Duomeen TDO chemically is a surfactant with amine and carboxylic functionality, and is classified as cationic. It has long hydrophobic tails, which provides for compatibility with most solvents and resins.

The physical form of Duomeen TDO is a semi-solid, paste material. It can be readily made liquid by dilution with solvents typically used for solvent borne paints.



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for high performance
surfactants, enabling
sustainable formulations