



Colloidal Performance Materials

NYACOL® TiSol 70-EG

TiO₂ in Ethylene Glycol

Nyacol® TiSol 70-EG is a colloidal dispersion of 10–30 nm TiO₂ particles dispersed in ethylene glycol. Nyacol® TiSol 70-EG has been developed as an inorganic alternative to organic type UV blockers. TiSol 70-EG is transparent, but still UV absorbing as a result of the small, highly dispersed nature of the TiO₂ dispersion. The product is intended to be added in PET synthesis and is supplied in fiber grade EG.

Figure 1 shows the typical particle size and particle size distribution using the Malvern Zetasizer instrument.

Nyacol® TiSol 70-EG has been designed for PET packaging and PET fiber applications. In packaging, TiSol 70-EG will enable the production of transparent bottles with inorganic UV blocking built into the package. In fibers, TiSol 70 - EG will enable bright, fine denier, UV blocking fibers. The amount of TiSol 70-EG required will depend on the desired amount of UV blocking at particular wavelengths, and the thickness of the container PET wall. Figures 2 and 3 show the absorbance (Figure 2) or transmission (Figure 3) as a function of wavelength and TiO₂ concentration. This information can be used to estimate starting point formulations for protecting the contents of PET packaging. Consult Nyacol Technical Service for a recommendation on initial formulation details.

TYPICAL PROPERTIES

% TiO ₂ , wt:	12 – 16
Particle size, nm:	10 – 30
%H ₂ O:	<2.5
Viscosity:	50 cps
Appearance:	Transparent
Carrier:	Ethylene glycol

Using TiSol 70-EG

TiSol 70-EG should be diluted to 1-2% TiO₂ with ethylene glycol before using to avoid problems with agglomeration. TiSol 70-EG can be added in the primary ester exchange reactor or prior to polycondensation, depending on the available injection systems. Consult Nyacol Technical Service as needed.

Figure 1 - Typical Particle Size by Volume and Particle Size Distribution, Malvern

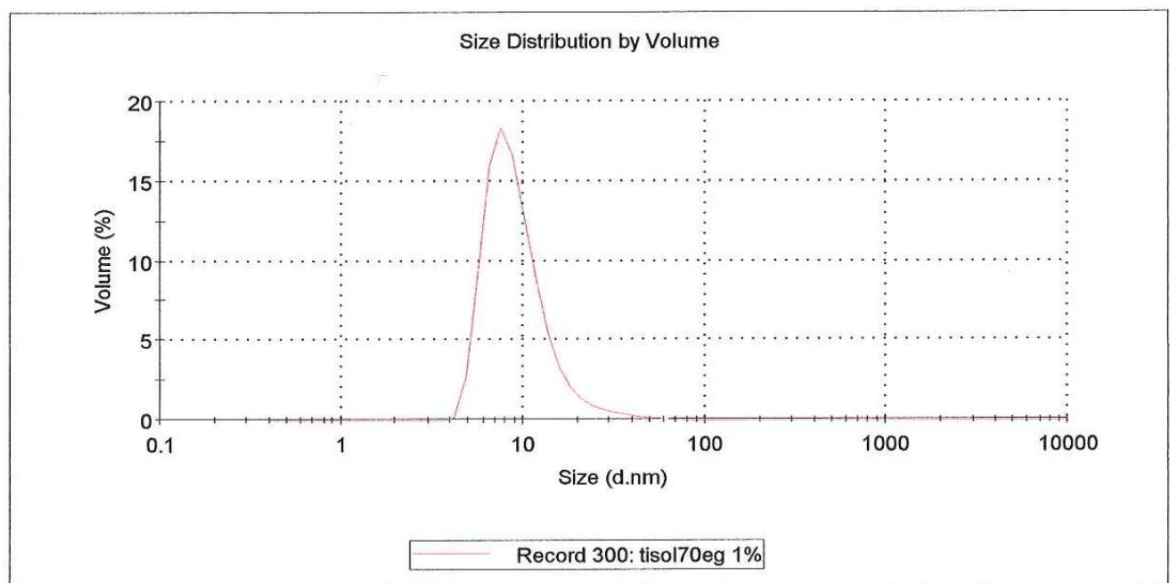
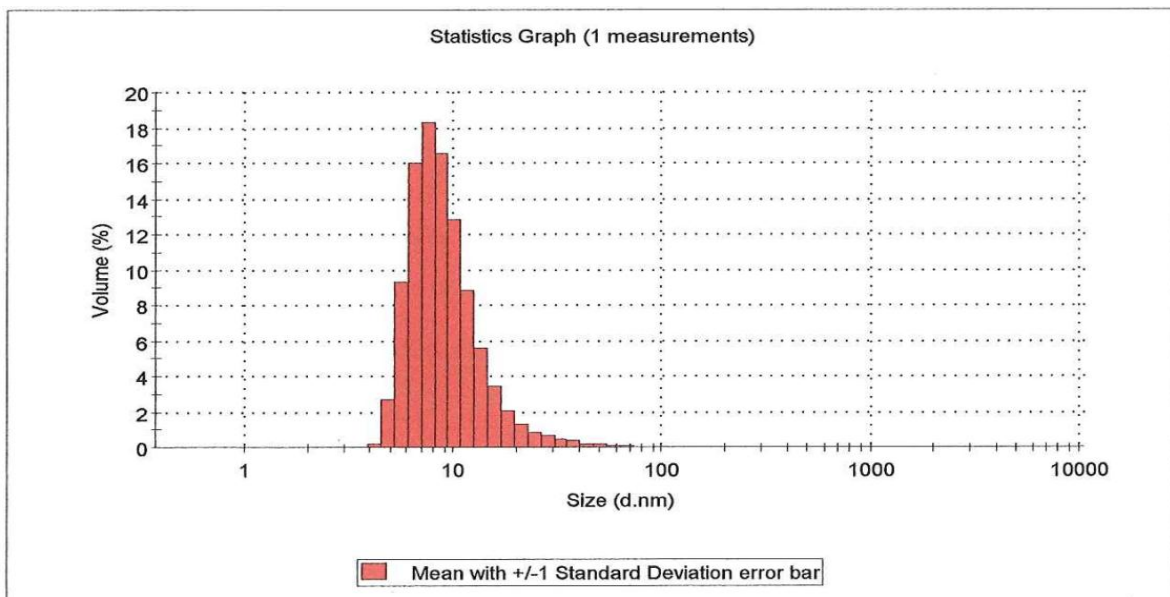


Figure 2 - Absorbance:

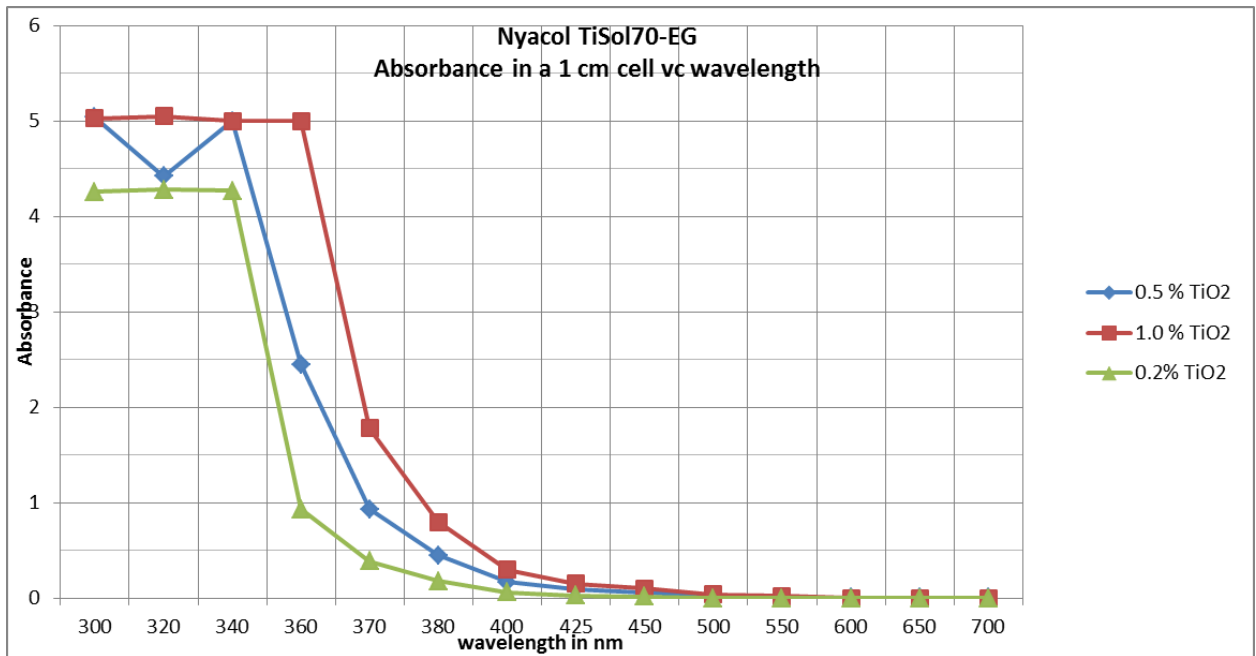
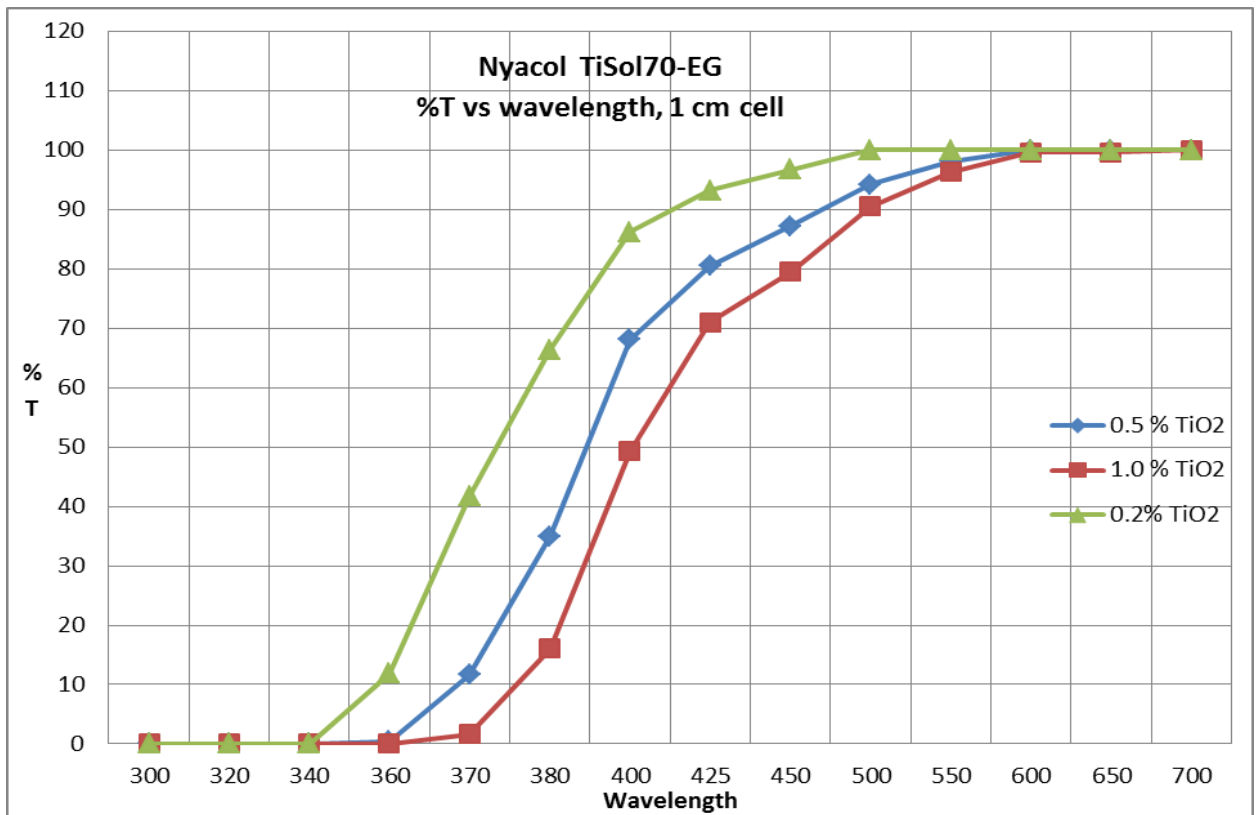


Figure 3 - Transmission:





DATA SHEET
NYACOL® TiSol 70-EG

TO ORDER MATERIAL OR FOR INFORMATION

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