

DuPont™ RPD-2

RUTILE PAPER DRY TITANIUM DIOXIDE

TiO₂ FOR PAPER

Product Description

DuPont™ RPD-2 rutile paper dry titanium dioxide delivers improved opacifying value for coating and wet end paper applications.

Key Features

- Excellent brightness
- Superior pigment dispersion
- Higher opacity/hiding power

Particle Size

Particle size and distribution are important contributors to light scattering by diffraction. **Figure 1** shows the RPD-2 particle size distribution compared with anatase. The narrower geometric standard deviation (GSD) of RPD-2 combined with the higher refractive index of rutile result in higher scattering efficiency.

Brightness

RPD-2 has extremely high inherent brightness, 97.2 TAPPI pigment brightness, and 99.7 L*. High brightness combined with superior light scattering provides excellent brightness and whiteness to paper and paperboard products.

Improved Opacity/Hiding Power Means Lower TiO₂ Costs

RPD-2 provides excellent opacifying performance for paper applications, due to extremely efficient light scattering. The higher refractive index of the rutile TiO₂ crystal provides a significant advantage over anatase TiO₂. In addition, the RPD-2 particle size distribution is scientifically designed and controlled to provide enhanced light scattering performance. This gives RPD-2 20–25% higher light scattering than anatase. **Figure 2** shows relative performance versus anatase in a paper coating application.

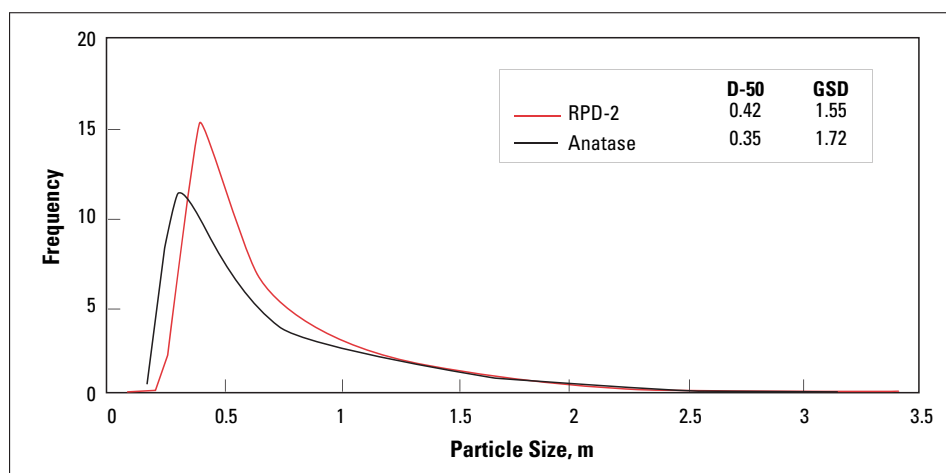
Mylar® Coating Opacity Test

- 15 parts TiO₂ in paper coating
- Precise coat weights on transparent Mylar®
- Coating opacity and light scattering calculated from reflectance and transmittance measurements

Table 1. TiO₂ Scattering Power

	RPD-2	Anatase
Refractive Index	2.72	2.55
TiO ₂ Scattering Efficiency	0.57	0.44
Relative Light Scattering Efficiency	1.0	0.77

Figure 1. Particle Size Distribution (Horiba Laser)



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Safety Precautions

Titanium dioxide is classified as a nuisance dust. Follow all local regulations and DuPont recommendations for exposure limits as described in the Material Safety Data Sheet (MSDS). If the recommended exposure limits are to be exceeded, air-purifying respirators with particulate filters should be used. As a matter of good industrial hygiene, safety glasses with side shields or better eye protection should be worn when handling TiO₂. For more details, refer to the MSDS.

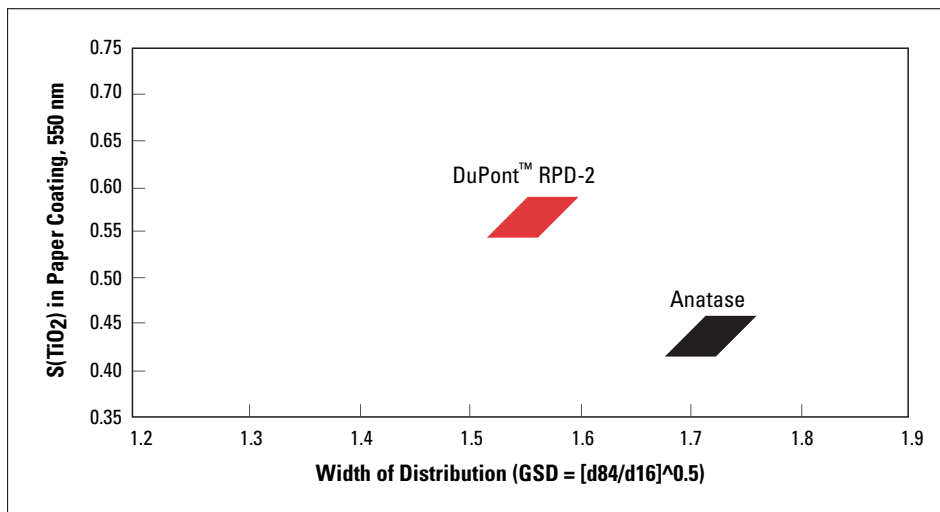
FDA Status

RPD-2 Vantage® is acceptable for FDA indirect food use as a colorant under 21 CFR 176.170 and 21 CFR 176.180, without restriction on Conditions of Use (compliant for Conditions A–H) or Food Type (compliant for Food Types I–IX). In addition, this product may be used in contact with all types of foods (I–IX) as described in Table 1 of 21 CFR 176.170, under microwave susceptor conditions.

Packaging

RPD-2 Vantage® is available in truckload quantities of 55.066-lb (25-kg) repulpable bags, which are shipped on pallets in units of forty (40) bags.

Figure 2. Improved TiO₂ Light Scattering Efficiency*



*As TiO₂ particle size distribution is tightened (GSD reduced), TiO₂ scattering performance improves.

DuPont Titanium Technologies

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