DuPont™ Ti-Pure® R-100/R-101

TITANIUM DIOXIDE

Product Description

DuPont™ Ti-Pure® R-100 and R-101 are rutile titanium dioxide pigments manufactured by the chloride process. They are excellent for high-temperature plastics applications requiring outstanding dispersibility and lowest possible volatility. These grades are fine, dry, white powders with the following general properties.

Table 1
Physical Properties

Titanium Dioxide, wt%, min.	97
Alumina, wt%, max.	1.7
Organic Treatment, wt%, carbon	0.2
Specific Gravity	4.2
Mean Particle Size, µm R-100 R-101	 0.32 0.29
pH (aqueous slurry) R-100 R-101	 8.0 8.5
Resistance (aqueous slurry), k ohm-cm, min.	2

Suggestions for Use

Ti-Pure® R-100 and R-101 are designed primarily for plastic applications. Chemical composition and product performance of these two grades are essentially identical, except for their relative undertone tint effects (**Figure 1**).

The low level of surface treatment on Ti-Pure® R-100 and R-101 gives them excellent dry blend dispersion. **Figure 2** demonstrates relative opacity strength of pigments for simple tumble blending versus high shear dispersion.

Figure 1. Optical Properties

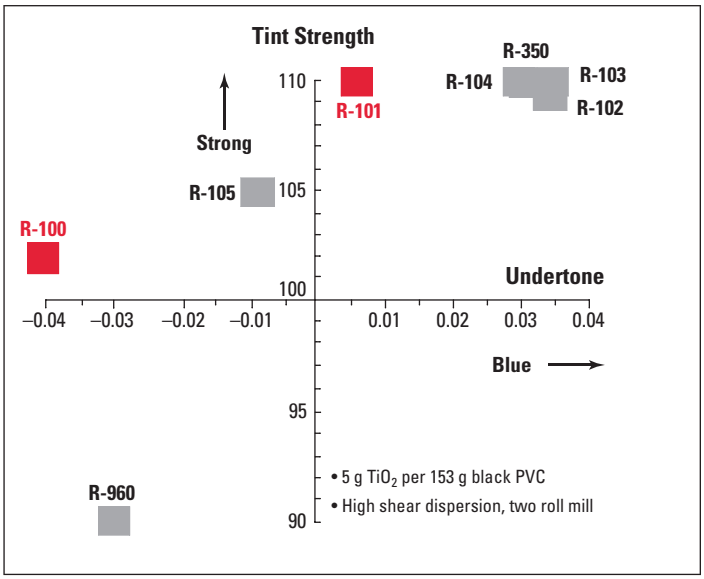


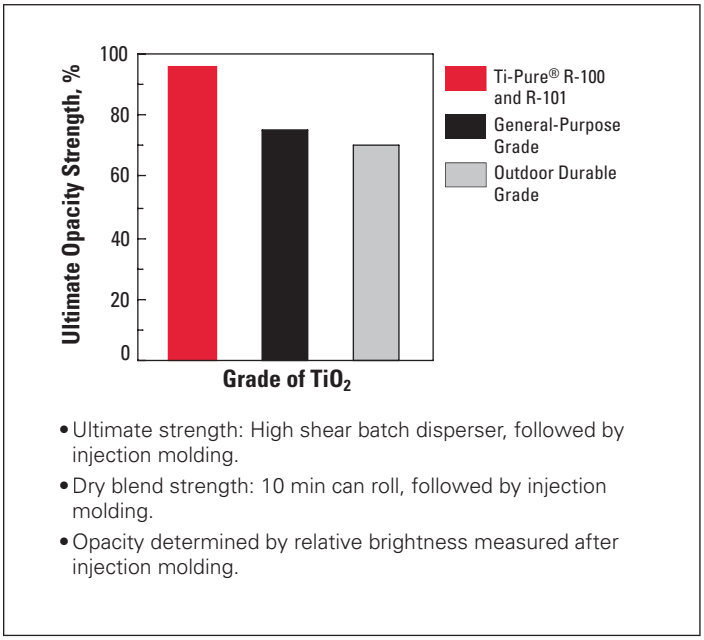
Table 2
General Properties

Opacity Strength	High
Undertone Tint R-100* R-101	 Cream Neutral
Dispersibility in: Plasticized Vinyl Plasticizers Dry Blending Operations	 Good Fair Excellent
Effect on Melt Flow	Minimal
Melt Compounding Operations	Excellent**

*R-100 has the bluest available undertone in transmitted light applications.

**Both grades can be used for controlled chalking in exterior PVC applications.

Figure 2. Dry Blend Dispersion Performance



- Ultimate strength: High shear batch disperser, followed by injection molding.
- Dry blend strength: 10 min can roll, followed by injection molding.
- Opacity determined by relative brightness measured after injection molding.

A major advantage of Ti-Pure® R-100 and R-101 are their low level of crystalline and surface adsorbed water. This characteristic gives superior performance in high-temperature polyolefin extrusion coating operations sensitive to lacing. The very low volatility of Ti-Pure® R-100 and R-101 are reflected in **Figures 3** and **4**.

Figure 3. Thermogravimetric Measurement of TiO2 Volatility

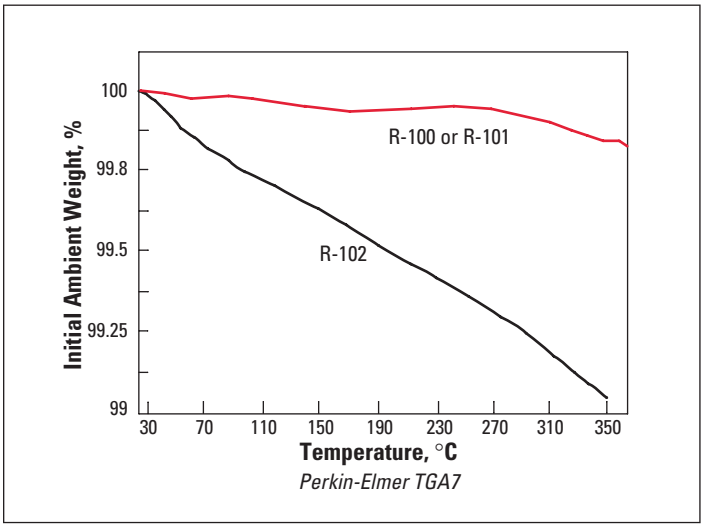
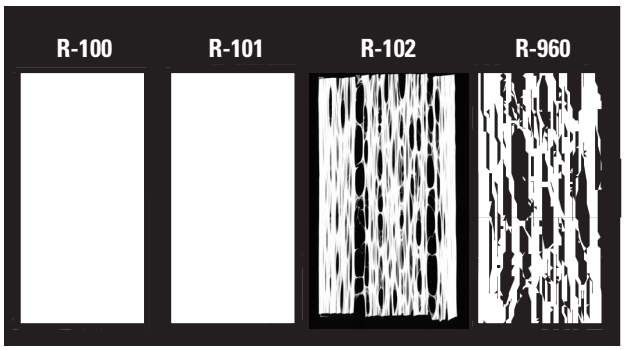


Figure 4. DuPont™ Titanium Dioxide Lacing Resistance



15% TiO_2 in Low Density Polyethylene
Extruded at 316°C (600°F), 1.5–2 mil Thick

Shipping Containers

Ti-Pure® R-100 and R-101 rutile titanium dioxides are available in the following package types:

- 25 kg polyethylene bags
- 2,000 lb (907 kg) semi-bulk container

NSF® Both Ti-Pure® R-100 and R-101 are listed with NSF International for use in plastic pipe products.

For further information about this grade or to request a sample, please see the DuPont Titanium Technologies web site.

www.titanium.dupont.com

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