Ti-Pure™
R-350 Titanium Dioxide

Designed for use in ABS Systems
Ti-Pure™ R-350 titanium dioxide for ABS Systems...

Acrylonitrile butadiene styrene (ABS) is a plastic that has added dimensions of performance beyond a single phase polymer. The blending of different polymer phases gives ABS a balance of toughness, mechanical strength, temperature resistance, ease of molding, and a high quality surface finish. The unique blending of ABS polymer phases requires a TiO$_2$ material that can maintain the balance of performance attributes while adding the dimensions of clean appearance and opacity. The TiO$_2$ of choice for ABS is Ti-Pure™ R-350.

**Ti-Pure™ R-350 offers the unique blend of attributes such as:**

- brighter, cleaner white for initial color
- excellent thermostability
- excellent UV-stability
- superior mechanical properties

**Ti-Pure™ R-350**

Ti-Pure™ R-350 rutile titanium dioxide is a bright, white pigment made from our proprietary chloride manufacturing process, designed to create a high purity pigment. It is a dry, fine white powder specifically formulated for the most demanding plastic applications.

With its unique combination of functionalities, Ti-Pure™ R-350 helps retain the mechanical properties ABS applications demand while providing maximum opacity and a brilliant white color. Ti-Pure™ R-350 utilizes an innovative pigment coating technology that results in a titanium dioxide that is as multi-dimensional as the ABS is in its performance!

**Appearance**

A TiO$_2$ pigment with optimal small particle size gives a preferred blue color (Figure 1). This blue undertone is essential in off-toning yellow colors that commonly contaminate ABS formulations after processing. The Ti-Pure™ R-350 blue undertone ensures the ABS compound has a cleaner, whiter color.

**Figure 1: Ti-Pure™ R-350 Initial Color**

**Figure 2: Oven Aging Thermostability**
**Color Stability for Compounding and Thermoforming Operations**

With its innovative coating technology, Ti-Pure® R-350 minimizes interaction of a TiO$_2$ surface with the polymer phases in ABS. Ti-Pure® R-350 demonstrates minimal color formation in an ABS matrix during post-processing thermal exposure (Figure 2).

Additionally, the innovative coating technology for Ti-Pure® shows minimal interaction with the ABS matrix during thermal processing (Figure 3).

**Color Stability For Limited Outdoor Applications**

Ti-Pure® R-350 utilizes an innovative coating that passivates the TiO$_2$ surface during UV light exposure. This passivation allows the TiO$_2$ to be incorporated in polymer articles that are frequently exposed to ultraviolet bombardment without accelerating polymer decomposition. The utility of the innovative coating can be noted in ABS matrices containing UV-stabilizers as well as those without stabilizers. Ti-Pure® R-350 demonstrates excellent color stability for ABS matrices when exposed under UV stress (Figure 4).

**Mechanical Strength For Rigid Applications**

The addition of TiO$_2$ reduces ABS impact strength, sometimes as much as 22%. Ti-Pure® R-350 helps retain the mechanical properties better than other TiO$_2$ (Figure 5).
**Ti-Pure® R-350 provides the optimal blend of performance in ABS**

Figure 6: ABS Performance—Summary Data

![ABS Performance Summary Data](image)

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