



Ti-Pure™

R-103 Titanium Dioxide

Grade Snapshot

Product Information

Product Description

Ti-Pure™ R-103 is a rutile titanium dioxide pigment, manufactured by the chloride process that produces a high TiO₂ content product delivered as a fine, dry powder. Ti-Pure™ R-103 is broadly used in demanding applications where discoloration, photodurability, and color formulation are critical.

Ti-Pure™ R-103 is designed with a blend of hydrophilic organic and inorganic treatments to support ease of dispersion and reduced discoloration of resin compounds. Additionally, this surface design provides a level of color stability during processing and UV exposure.

Available in 25 kg bag and 1 metric ton (1000 kg) FIBC packaging.

Key Benefits

- Excellent dispersion performance and versatility during extrusion process to deliver high masterbatch uniformity
- Combination of high opacity and blue undertone for creation of reliable color formulations as well as good print-pop quality
- Outstanding chemical discoloration resistance against light stabilizers and antioxidants in complex formulations and high temperature processes to keep products looking new longer
- Good photodurability that protects from UV light degradation
- Excellent dry-blend dispersion for chalking PVC applications
- Brighter whites at lower pigment loading



Suggestions For Use

Ti-Pure™ R-103 is frequently found in white and colored automotive interior seats and parts and chalking PVC building products such as window profiles siding, decks, and fences. It can also be found in footwear, PVC flooring, detergent and personal care bottles, and liquid colorant systems.

Injection and Blow Molded Parts

Ti-Pure™ R-103 is ideal for applications such as detergent and personal care bottles because of its discoloration resistance and “print pop.”

Exterior PVC Applications

Ti-Pure™ R-103 is excellent for use with rigid chalking profiles because of the combination of blue undertone and high L* value. It delivers moderate durability coupled with excellent processability.

High Temperature Engineering Polymers

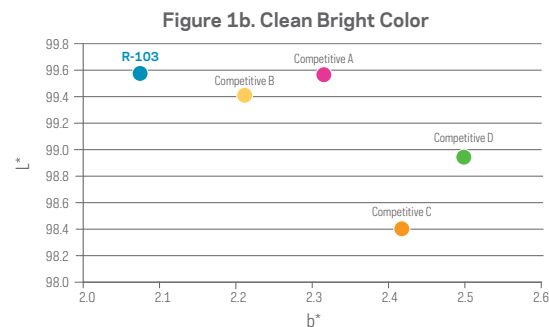
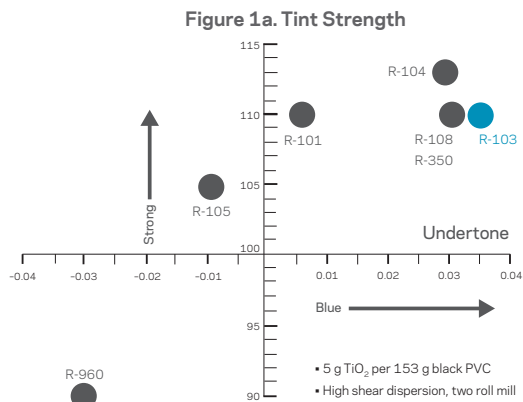
Ti-Pure™ R-103 is used in a wide variety of resin systems such as styrenic and polyamides due to its excellent dispersion. Ti-Pure™ R-103 is highly recommended for footwear due to its bright whiteness and excellent discoloration resistance.

Table 1. Physical Properties

Property	Ti-Pure™ R-103
Titanium Dioxide, wt%, min.	96
Alumina, wt%, max.	3.2
Organic Treatment, wt%, carbon	0.2
Specific Gravity	4.1
pH (aqueous slurry)	6.5
Resistance (aqueous slurry), k ohm-cm, min.	4

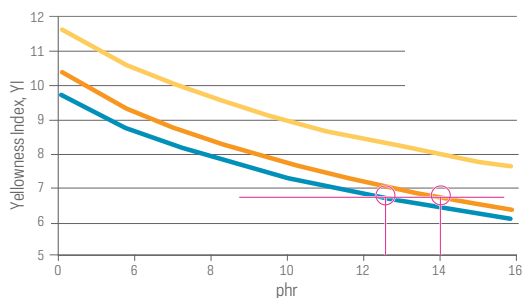
Note: All values are typical unless otherwise specified.

Figure 1. Optical Properties



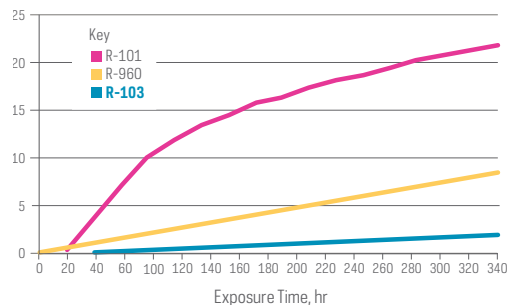
Ti-Pure™ R-103 provides high L* combined with blue undertone and good tinting strength to produce brightest white products with efficient TiO₂ use.

Figure 2. Value of Blue Undertone in Rubber



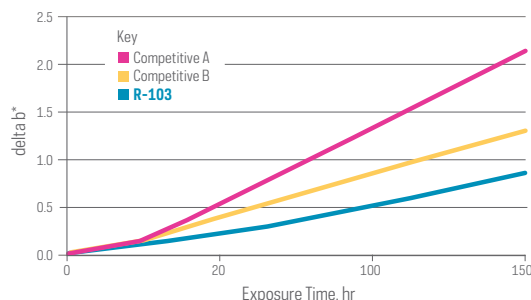
The blue undertone of R-103 TiO₂ can color the rubber with lower dosage as compared with anatase pigment grade and rutile cream tone pigment grade.

Figure 3. Discoloration Resistance in HALS Stabilized LDPE



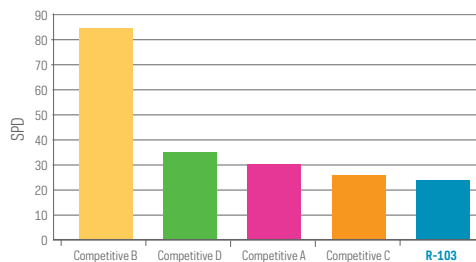
* Delta b as a function of UV exposure time. The test was conducted on LDPE with 2.6% by weight TiO₂. The system was stabilized with 0.3% piperidyl HALS and 0.3% BHT. Exposure was made using an F15T8/BLB blacklight illuminating the samples at 25 cm.

Figure 4. Stable During Processing



Ti-Pure™ R-103 provides excellent discoloration resistance when in contact with additives like light stabilizers and antioxidants during the extrusion process (Figure 4).

Figure 5. Average of 50 wt% Screen Pack Dispersion



Excellent dispersion performance of R-103 allows good processing in injection/blow molding and blown film polyolefin applications (Figure 5).

For more information, visit tipure.com