



Ti-Pure™

R-103 Titanium Dioxide

Product Information

Product Description

Ti-Pure™ R-103 is a rutile titanium dioxide pigment manufactured by the chloride process. Its high opacity and very blue undertone tint produces clean, bright whites at low loadings in clear resins and those having natural color. Ti-Pure™ R-103 is specially formulated to reduce discoloration of resin compounds and finished plastic products during processing and exposure to ultraviolet light.

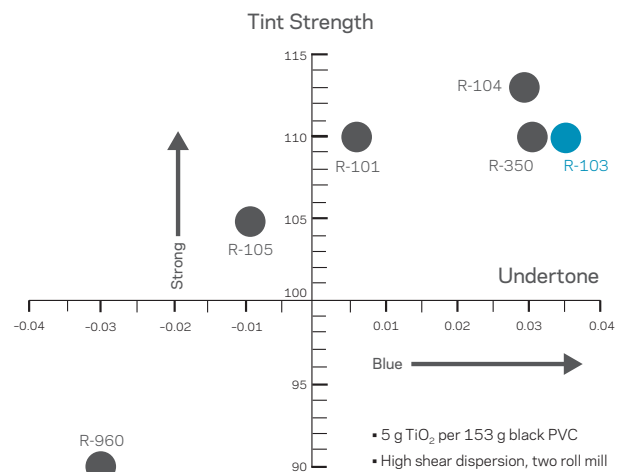
Table 1. Physical Properties

| | |
|---|-----|
| 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 |

Table 2. General Properties

| | |
|--------------------------|-----------|
| Opacity Strength | High |
| Undertone Tint | Very Blue |
| Dispersibility in: | |
| Plasticized Vinyl | Very Good |
| Plasticizers | Fair |
| Dry Blending Operations | Good |
| Melt Compounding | Excellent |
| Flocculation Resistance | Very Good |
| Discoloration Resistance | Excellent |
| Weathering Resistance | Good |

Figure 1. Optical Properties



The exceptional blueness of Ti-Pure™ R-103 is of particular value in naturally colored resin systems like ABS. As much as 30% less TiO₂ can be used to achieve finished product requirements compared to neutral undertone pigments (Figure 2).

The unique alumina surface treatment of Ti-Pure™ R-103 provides excellent discoloration resistance.

The volatility of R-103 allows acceptable processing in all applications except high temperature thin PE cast film or PE extrusion coating. For these demanding applications, Ti-Pure™ grades R-101, R-104, or R-350 are recommended.

Ti-Pure™ R-103 is excellent in polyolefin or engineering resin applications requiring high opacity strength, very blue tint, excellent dispersion, and discoloration resistance. Ti-Pure™ R-103's surface treatment allows its use in lead-stabilized PVC systems, while still providing controlled chalking in exterior PVC applications.

Ti-Pure™ R-103 surface treatment makes it a preferred choice in liquid systems such as plastisols, liquid colorants, etc. Its blue tinted value and high tint strength in plastics products coupled with its ease of dispersion into liquid systems makes Ti-Pure™ R-103 a very good grade for liquid colorant concentrates, flexible PVC, and PVC plastisol applications.

Figure 2. Value of Blue Undertone in “Colored” Resin Exhibits Prepared in Cycloac® TD 1001 ABD

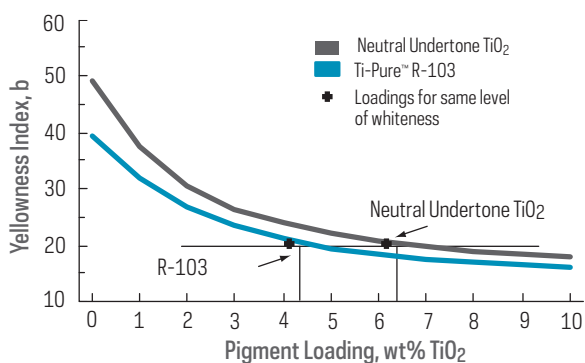
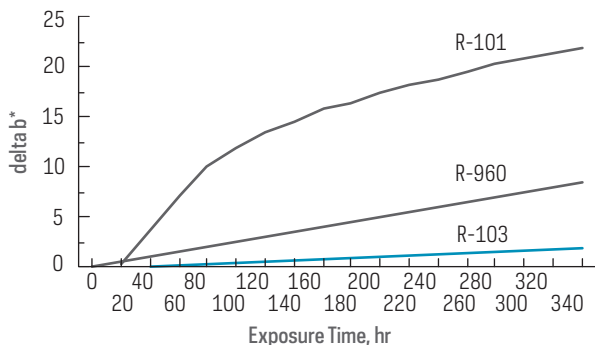
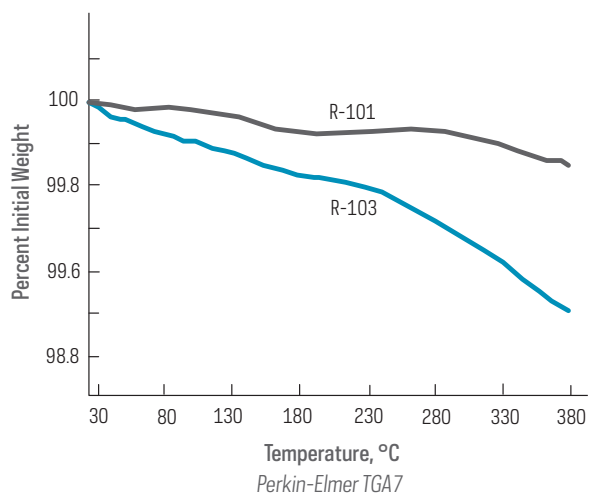


Figure 3. Ti-Pure™ R-103 Discoloration Resistance in HALS Stabilized LDPE



*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. Thermo-Gravimetric Measurement of TiO₂ Volatility



Shipping Containers

Ti-Pure™ R-103 rutile titanium dioxide is available in two recyclable package types to meet your needs:

- 25 kg polyethylene bags
- 1 metric ton (1,000 kg) flexible intermediate bulk containers

Ti-Pure™ R-103 is listed with NSF International for use in plastic pipe products.

For further information about this grade or to request a sample, please see the Ti-Pure™ web site.

CAUTION: Do not use or resell Chemours™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use. For further information, please contact your Chemours representative. These products may not be directly added to food, pharmaceuticals, cosmetics, or cigarette papers/filters for tobacco products.

For medical emergencies, spills, or other critical situations, call (844) 773-2436 within the United States. For those outside of the United States, call (302) 773-1000. The information set forth herein is furnished free of charge and based on technical data that Chemours believes to be reliable. It is intended for use by persons having technical skill, at their own discretion and risk. The handling precaution information contained herein is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Because conditions of product use are outside our control, Chemours makes no warranties, express or implied, and assumes no liability in connection with any use of this information. As with any material, evaluation of any compound under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

NO PART OF THIS MATERIAL MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE WITHOUT THE PRIOR WRITTEN PERMISSION OF CHEMOURS.

For more information, visit tipure.com

© 2020 The Chemours Company FC, LLC. Ti-Pure™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC. Chemours™ and the Chemours Logo are trademarks of The Chemours Company.

C-10427-2 (2/20)