TIOXIDE® TR28
the new reference

excellent processing properties
higher pigment loading
ease of dispersion
TIOXIDE® TR28

TIOXIDE® TR28 pigment is a fine crystal rutile pigment designed specifically for use by the plastics industry. Its surface treatment ensures very easy dispersion, improved throughput and minimum moisture absorption.

High thermal stability

TIOXIDE® TR28 pigment is recommended for use in polyolefin masterbatch. The high thermal stability of TIOXIDE® TR28 makes it ideal for plastics that are processed at high temperatures, consequently minimising phenomena such as die build-up and lacing. (See Fig 1)

Disperses easily

TIOXIDE® TR28 pigment disperses easily during the masterbatch preparation process to optimise the performance of internal mixers and twin screws allowing you to produce masterbatches with exceptional dispersibility levels much faster.

FIGURE 1

Die build-up and lacing

FIGURE 2

PE-LD masterbatches (TiO2: 60% & 75%)

FIGURE 3

PE-LD masterbatches (TiO2: 75%)

PROPERTIES

This table includes the typical properties of this grade. It is not a specification, although specifications are available.

<table>
<thead>
<tr>
<th>Property</th>
<th>TIOXIDE® R-FC5 (75% MB)</th>
<th>TIOXIDE® TR28 (75% MB)</th>
<th>TIOXIDE® R-FC5 (60% MB)</th>
<th>TIOXIDE® TR28 (60% MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TiO2 Content</td>
<td>98%</td>
<td></td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>Inorganic coating</td>
<td>Alumina</td>
<td></td>
<td>Alumina</td>
<td></td>
</tr>
<tr>
<td>Organic treatment</td>
<td>present</td>
<td></td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>Crystal size</td>
<td>0.21µm</td>
<td></td>
<td>0.21µm</td>
<td></td>
</tr>
<tr>
<td>Specific gravity</td>
<td>4.05 g/cm³</td>
<td></td>
<td>4.05 g/cm³</td>
<td></td>
</tr>
<tr>
<td>Loss at 290°C</td>
<td>0.4% Max</td>
<td></td>
<td>0.4% Max</td>
<td></td>
</tr>
<tr>
<td>Bulk density (tamped)</td>
<td>1.4 g/cm³</td>
<td></td>
<td>1.4 g/cm³</td>
<td></td>
</tr>
<tr>
<td>Oil absorption</td>
<td>13 cm³/100g pigment</td>
<td></td>
<td>13 cm³/100g pigment</td>
<td></td>
</tr>
<tr>
<td>Durability</td>
<td>Moderate</td>
<td></td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>ISO 593 classification</td>
<td>R1</td>
<td></td>
<td>R1</td>
<td></td>
</tr>
</tbody>
</table>

*Karl Fischer SPTM2019

*Based on ISO 7651

*Inside tin method, ISO 787/5
No lubricants, reduced energy consumption

TIOXIDE® TR28 pigment allows masterbatchers to produce highly loaded masterbatches using internal mixers, without the use of lubricants. Fig 2 illustrates how TIOXIDE® TR28 pigment helps increase the fill factor from 75% (standard condition for standard plastics grades) to 90%, without impairing dispersion. In practical terms, this equates to an increased output of around 15%.

TIOXIDE® TR28 pigment also enables masterbatchers to produce masterbatches using a twin screw extruder, without the use of lubricants. Fig 3 illustrates how TIOXIDE® TR28 pigment contributes to a 30% increase in production throughput, whilst still retaining excellent dispersion.

Increases like these are additionally often accompanied by a reduction in energy consumption.

Melt Flow Index

The incorporation of a TiO₂ pigment into a polymer induces a reduction in the melt flow of the resin used. TIOXIDE® TR28 pigment minimises this reduction and contributes to the development of much more efficient processing conditions (figure 4).

Colour in polymers

TIOXIDE® TR28 pigment has been developed to give polymers superior brightness and blue tone (figure 5). When used in combination with most coloured pigments, TIOXIDE® TR28 pigment gives excellent depth of shade and undertone (see figure 6).
TIOXIDE® TR28 pigment is recommended for polyolefin masterbatch including polyethylene for extrusion. The high thermal stability of TIOXIDE® TR28 pigment makes it ideal for plastics that are processed at high temperatures, consequently minimising phenomena such as die build-up and lacing.

<table>
<thead>
<tr>
<th>PRINCIPAL APPLICATIONS</th>
<th>OUTSTANDING PROPERTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyolefin Masterbatch</td>
<td>Highly dispersible. Makes high pigment loading accessible. Low reactivity with antioxidant</td>
</tr>
<tr>
<td>Polyolefin Extrusion Coatings</td>
<td>Low lacing and die build-up. High throughput rate. Minimal impact on Melt Flow Index</td>
</tr>
<tr>
<td>Engineering Polymers</td>
<td>Low moisture content. Minimal impact on melt rheology</td>
</tr>
</tbody>
</table>

Huntsman does not recommend any of its titanium dioxide pigments for use in lead-stabilised, rigid PVC formulations.

SAFETY, HEALTH AND ENVIRONMENT
As for all fine powders, the handling of titanium dioxide pigments can give rise to airborne dust. Good industrial hygiene practice should be observed so as to avoid the generation and subsequent inhalation of dust. For more information refer to our material safety data sheet.

FOOD CONTACT
The subject is too wide to be adequately covered in a technical data sheet and customers should seek confirmation of compliance with each of the particular regulations in which they are interested by contacting Huntsman Pigments Technical Service or the local sales force.

STORAGE AND SHELF LIFE
The pigment should not be stored in outside areas exposed to the weather. All direct contact with moisture should be avoided. By storing the pigment correctly, its properties should not deteriorate with time. However to ensure optimum performance, it is recommended that the product is used on a first in, first out basis from receipt of shipment.

For further information, contact:

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