


PRODUCT DESCRIPTION	
The TICO® product line represents a novel approach to pigment preparations made by a proprietary co-finishing process to attach the organic high performance pigments to the surface of the inorganic titanium yellows. TICO® Orange 640 is a brilliant medium shade orange with high opacity and heat resistance. Due to its excellent fastness properties it can be used for highly durable applications.	
Chemical Type	hybrid pigment
Color Index	-
Hue Angle at Full Shade <sup>1)</sup>	44,2
1/3 ISD Reduction Ratio <sup>2)</sup>	1:1,6

APPLICATION PROFILE	
Water-borne Paints	recommended
Air-drying Alkyds	recommended
Stoving Enamels	recommended
Acid curing Systems	recommended
Amine curing Epoxies	recommended
Isocyanate cured Systems	recommended

REGULATIONS	
This product is not approved for food contact use in Europe.	
USA (FDA) 21 CFR § 178.3297	not listed
Toys Europe EN 71-3	compliant
Toys USA ASTM F 963-03	compliant
CONEG, EC 94/62	compliant
ROHS, 2002/95/E, 2005/618/EC	compliant
End of Life Vehicles, 2000/53/EC, 2002/525/EC	compliant

CHEMICAL INVENTORY LISTING STATUS	
All ingredients of TICO® Orange 640 are listed in the following national chemical inventories:	
EINECS [Europe], TSCA [USA], MITI [Japan], IECSC [China].	

FULL TONE	REDUCTION
	

FASTNESS PROPERTIES	
Acid <sup>7)</sup>	5
Alkali <sup>7)</sup>	5
Overpainting [AM (160°C/30 min)] <sup>6)</sup>	5
Water <sup>5)</sup>	5
Butanol <sup>5)</sup>	4
Butylacetate <sup>5)</sup>	4
Xylene <sup>5)</sup>	5
MEK <sup>5)</sup>	3
White Spirits <sup>5)</sup>	5
DOP <sup>5)</sup>	4 - 5
Heat Resistance [°C] <sup>8)</sup>	200
Light Fastness [Full Shade] <sup>3)</sup>	8
Weather Fastness [Full Shade] <sup>4)</sup>	5
Weather Fastness [1:3 Reduction] <sup>4)</sup>	4 - 5

PHYSICAL DATA	
Appearance	orange powder
Density [g/cm <sup>3</sup> ]	2,5
Bulk Volume [cm <sup>3</sup> /g]	4,0
Oil Absorption [g/100g]	26
Specific Surface [m <sup>2</sup> /g]	5,9
pH	7 - 9

STANDARD PACKAGING
- 15 kg Paper Bags - Different types of packaging are available on request

1) Hue angle at full shade according to German Standard 6174.

2) Ratio of pigment to titanium dioxide in order to achieve 1/3 ISD according to German Standard 53235.

3) Light fastness was tested in an alkyd/melamine system. Assessment with Blue Wool Scale according to DIN 54003. Rating: 1=very poor, 8=outstanding.

4) Weathering fastness was tested in a waterborne acrylic resin system. Assessment with Grey Scale according to DIN 54001 after 2000h accelerated weathering (Arc Xenontest acc. to DIN EN ISO 11341-1-A, 1998). Rating: 1=poor, 5=very good.

5) Pigments were dipped into solvent. Assessment with Grey Scale according to DIN 54002. Rating: 1=severe, 5=none.

6) Assessment of bleeding of a white NC-topcoat using the Grey Scale according to DIN 54002. Rating: 1=severe, 5=none.

7) Pigments were dipped into hydrochloric acid or sodium carbonate solutions of varying concentrations. Rating: 1=poor, 5=excellent.

8) Pigments were tested in an alkyd / melamine system with 30 minutes baking time. Temperature range 140°C to 200°C.

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