KRONOS 2233

Titanium Dioxide

Product Specification

Specified Product Parameters

These product properties are part of the continual production control and final product release testing.

Property	Unit	Method	Standard based on	Specification
PLV Brightness		PLV	DIN 53163	98.3 - 99.1
PLV Tone b*		PLV	DIN 53163	-0.20 - 0.60
FOG Relative Tinting Strength		FOG	DIN EN 14469	106.0 - 114.0
FOG Spectral Characteristic		FOG	DIN EN 14469	4.3 - 4.9
Rutile Content	%(m)	XRD	DIN EN 13925-3	>= 99.7
C-Content	%(m)	C	ASTM D 5373	0.40 - 0.60

Description of the Test Methods (more detailed explanation, see page 2)

Method	Description
PLV	Brightness (CIELAB L*) and Tone (CIELAB a* and b*) of pressed powder tablets
FOG	Relative Tinting Strength and Spectral Characteristic in a grey Vinnol paste at pigment volume concentration of 1.22 %
XRD	Rutile Content with respect to Titanium Dioxide measured by X-ray diffraction
C	Amount of organic post-treatment by means of carbon analysis

Release date: October 15, 2021

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Explanation of the Test Methods

Method	Unit	Standard based on	Description	Explanation
PLV		DIN 53163	Brightness (CIELAB L*) and Tone (CIELAB a* and b*) of pressed powder tablets	The Titanium Dioxide pigment is compacted under defined conditions to a powder tablet. The spectral remission values of the pressed powder tablets are determined using a colorimeter with 45°/0° geometry. Brightness (CIELAB L*) and Tone (CIELAB a* and b*) are calculated from the X, Y, Z values.
FOG		DIN EN 14469	Relative Tinting Strength (TS) and Spectral Characteristics (SC) in a grey Vinnol paste at a pigment volume concentration of 1.22 %	The Titanium Dioxide pigment is dispersed into a ready-made black Vinnol paste using an automatic muller. The resulting grey paste is drawn down on a card with an applicator. The reflectance values of the paste-like film and the reflectance values of the undried the wet film are determined using a colorimeter with 45°/0° geometry. The Relative Tinting Strength (TS) and Spectral Characteristics (SC) are calculated subsequently from the CIELAB L* and b* values against the corresponding values of the internal standard.
XRD	%(m)	DIN EN 13925-3	Rutile Content with respect to Titanium Dioxide measured by X-ray diffraction	The residual amounts of anatase in rutile Titanium Dioxide pigments or rutile in anatase Titanium Dioxide pigments are determined using X-ray diffraction. The sample is irradiated with monochromatic X-rays. By means of a goniometer the diffracted radiation is measured at the characteristic angles for anatase and rutile and the contents are calculated using reference values.
C	%(m)	ASTM D 5373	Amount of organic post-treatment by means of carbon analysis	The organic substance on the Titanium Dioxide pigment is combusted under an oxygen atmosphere in an induction furnace. The carbon dioxide which is generated is analysed using an infrared detection.

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