



URS : UKAS

M/S. BIMAL PHARMA PVT. LTD. MUMBAI, INDIA



Titanium Dioxide in Food Processing Industries

Introduction

- Titanium Dioxide, known in Food as the Colourant E-171, is used in the Food Processing Industry, for more than five Decades, to make food to look Brighter and more Appealing.
- It is used in food in its most **Purified** Form, with **Purity** more than 99% & it complies with current European Legislation, which means, it does not contain substances that are considered dangerous to consumers.
- It is used, not only to make food look Great but also, in consumer Packagings, which protect food from degradation, increasing the Shelf Life of the packed Food.
- It is not readily absorbed by the body & its use in food has not been shown to have negative Health Impacts.
- It is the most effective white Colorant in food, **five times more efficient** than alternatives, such as, Silica or Calcium Carbonate.
- It is the most safe Colourant as it doesn't enter the bloodstream and passes through the digestive system, unchanged and unabsorbed.
- In June 2018, the European Food Safety Authority (EFSA) confirmed their opinion that data on Titanium Dioxide, E-171 in food, showed no health concerns for consumers.

Technical Information

- **NOMENCLATURE** : Titanium dioxide
: Titanium (IV) oxide
: Titanium white
: Titania
: Pigment White 6 (PW6)
- **CAS NO.** : 13463-67-7
- **HSN CODE** : 32061110 / 28230000
- **EMPIRICAL FORMULA** : TiO_2
- **MOL. WT.** : 79.87
- **MELTING POINT** : 1843 °C
- **STRUCTURAL FORMULA** : $O=Ti=O$



Technical Specification

- **DESCRIPTION** : White, Amorphous Powder
: Odorless Powder
- **SOLUBILITY** : Insoluble in Water
- **IDENTIFICATION** : Orange – Red color with H₂O₂
- **pH (50% Water Suspension)** : 6.0 to 8.0
- **LEAD** : NMT 10 mg / kg. (10 ppm Max)
- **ARSENIC (As)** : NMT 1 mg / kg. (1 ppm Max)
- **ANTIMONY** : NMT 2 mg / kg. (2 ppm Max)
- **MERCURY** : NMT 1 mg / kg. (1 ppm Max)
- **CADMIUM** : NMT 1 mg / kg. (1 ppm Max)
- **LOSS ON DRYING (105°C, 3 hrs)** : NMT 0.50%
- **LOSS ON IGNITION (800°C)** : NMT 0.50%
- **WATER SOLUBLE SUBSTANCES** : NMT 0.50%
- **ACID SOLUBLE SUBSTANCES** : NMT 0.50%
- **ASSAY** : 99.0% to 100.5%
- **PACKING** : 25 Kgs. PP Bags with single LDPE Liners
: 25 kgs. Fibre Drum with PE Liner inside

Applications

- It is used in a Range of Foods, from Sweets to processed Cheese.
- It gives Brightness and more vibrant in colour, to look the Foods as most Fresher.
- It adds Texture & also used as an Anti-Caking Agent.
- It gives Natural whiteness and opacity to foods.

Examples : Cakes, White Chocolates, Cake Glaze, Edible Icing Sheets, Chewing Gum, Mints, Mayonnaise, Coffee Creamers, Donuts Ditches, Salad Dressings, Cheese, Pastries, Candies, Confectioneries, Bakery Products etc.

Comparison of Parameters under different Standards & our Top-Notch Quality

Sr. No.	Particulars	E-171	FDA 21 CFR	BIS	OUR QUALITY
1.	TiO ₂ content [%]	Min. 99.00	Min. 99.00	Min. 99.0	>99.00
2.	Loss on Drying [%]	Max. 0.50	-	Max. 0.5	<00.20
3.	Loss on Ignition [%]	Max. 0.50	Max.0.50	Max 0.50	<00.30
4.	Al ₂ O ₃ and/or SiO ₂ [%]	Max. 2.00	Max. 2.00	Max. 2.0	<00.02
5.	Acid Soluble Salts [%]	Max. 0.50	Max. 0.50	Max 0.35	<00.35
6.	Water Soluble Salts (Hot) [%]	Max. 0.50	Max. 0.50	Max. 0.25	<00.25
7.	Cadmium (Total content) [mg/kg]	Max. 1.00	-	-	<1.00
8.	Antimony (Total content) [mg/kg] / ppm	Max. 50.00		Max. 2.00	<2.00
9.	Antimony (HCL soluble) [mg/kg] / ppm	-	Max. 2.00	-	<2.00
10.	Arsenic (Total content) [mg/kg] / ppm	Max. 3.00		Max 1.00	<1.00
11.	Arsenic (HCL soluble) [mg/kg]	-	Max. 1.00	-	<1.00
12.	Lead (Total content) [mg/kg]	Max. 10.00		Max. 10	<10.00
13.	Lead (HCL soluble) [mg/kg]	-	Max. 10.00		<10.00
14.	Mercury (Total content) [mg/kg]	Max. 1.00		Max. 1	<1.00
15.	Mercury (HCL soluble) [mg/kg]	-	Max. 1.00	-	<1.00
16.	Zinc (Total content) [mg/kg]	Max. 50.00	-	Max. 50	<10.00

Heavy Metals Contents, Tested by Independent Professional Testing Laboratory, NABL & FSSAI approved (By one Lab.)

Sr. No.	Parameters	Units	Results of Analysis	Limits as per FCC
1	Lead	mg/kg	BLQ	Max. 10
2	Cadmium	mg/kg	BLQ	Not Specified
3	Copper	mg/kg	BLQ	Not Specified
4	Arsenic	mg/kg	BLQ	Max. 1
5	Tin	mg/kg	BLQ	Not Specified
6	Methyl Mercury as Mercury	mg/kg	BLQ	Not Specified
7	Mercury	mg/kg	BLQ	Max. 1

BLQ - Below Limit of Quantification
 LOQ (Limit of Quantification) for Heavy Metals = 0.5mg/kg
 FCC : Food Chemical Codex

M/s. Bimal Pharma Pvt. Ltd.
Mumbai, India.

Heavy Metals Contents & Other Critical Parameters, Tested by Independent Professional Testing Laboratory, NABL & FSSAI approved (By The other Lab.)

Sr. No.	Test Parameters	Test Results	Specification
1	Loss on Drying	0.31%	NMT 0.5%
2	Loss on Ignition	0.26%	NMT 1.0%
3	Water Soluble Substance	0.17%	NMT 0.5%
4	Acid Soluble Substance	0.31%	NMT 0.5%
5	Lead	Not Detected	NMT 10.0 mg/kg
6	Cadmium	Not Detected	NMT 1.0 mg/kg
7	Mercury	Not Detected	NMT 1.0 mg/kg
8	Arsenic	Not Detected	NMT 1.0 mg/kg