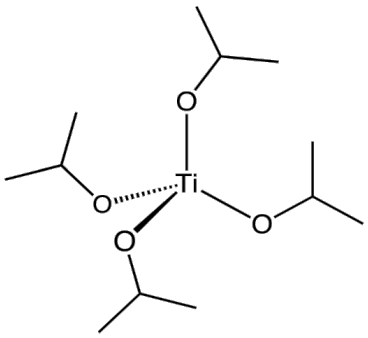
AdaKem®
Kimya San. Ve Tic Ltd. Şti.

TETRA ISOPROPYL TITANATE



IUPAC NAME: propan-2-olate

CHEMICAL FORMULA: $Ti(OiPr)_4$

CAS NO: 546-68-9

MOLECULAR WEIGHT: 284.22 g/mol

PACKING:

PRODUCT DESCRIPTION:

Tetra isopropyl titanate (Ti(OiPr)4) is an organic compound composed of titanium and isopropyl groups (-C(CH3)2). It is used as a precursor for the production of titanium dioxide (TiO2), a white pigment widely used in paint, cosmetics, and food industries. TIPT is also used as a starting material in the synthesis of other titanium compounds and as a catalyst in organic synthesis.

PROPERTIES:

Features:

- Organic compound composed of titanium and isopropyl groups
- Colourless liquid with a low melting point
- Low toxicity and is considered relatively safe to handle
- Reacts readily with water and air

Benefits:

- Versatile: TIPT is a versatile compound that can be used in various industries, including pigment production, organic synthesis, and polymer synthesis.
- Efficient: As a catalyst, TIPT can facilitate organic reactions in a fast and efficient manner.
- High-quality products: TIPT is used as a precursor for the production of high-quality titanium dioxide pigment used in paints, cosmetics, and food products.
- Precursor for other compounds: TIPT is used as a starting material for the synthesis of other titanium compounds.
- Adhesion promoter: TIPT can also act as an adhesion promoter, improving the adhesion of coatings and adhesives to various substrates.
- Overall, the features and benefits of TIPT make it a valuable compound in various industries, providing an efficient and versatile solution for the production of high-quality products.

APPLICATION AREAS:

Tetra isopropyl titanate (TIPT) has a wide range of applications in various industries, including:

- Pigment production: TIPT is used as a precursor for the production of titanium dioxide (TiO2), a white pigment widely used in the paint, cosmetic, and food industries.
- Organic synthesis: TIPT is used as a catalyst in organic synthesis reactions, such as the production of pharmaceuticals, agrochemicals, and other specialty chemicals.
- Polymer synthesis: TIPT is used as an initiator for the polymerization of vinyl monomers and as a coupling agent for polymer-polymer and polymer-inorganic material interactions.
- Adhesion promoter: TIPT can act as an adhesion promoter, improving the adhesion of coatings and adhesives to various substrates.

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- Electronics: TIPT is used in the production of thin-film capacitors and in the fabrication of metal-insulator-metal capacitors.
- Surface treatment: TIPT can be used for the surface treatment of metals, ceramics, and glass to improve their properties, such as corrosion resistance and adhesion.

These are some of the common applications of TIPT, and its use may vary depending on the specific needs of each industry.

IT IS APPLIED IN THE PRODUCTION OF:

TIPT usage in Glass Industry:

- Tetra isopropyl titanate, also known as titanium tetraisopropoxide or TTIP, is commonly used as a cross-linking agent and catalyst in the glass industry.
- Anti-reflective coatings: TTIP is often used as a cross-linking agent in anti-reflective coatings for glass. The coating helps to reduce glare and improve visibility, making it ideal for applications like eyeglasses, camera lenses, and flat panel displays.
- Self-cleaning coatings: TTIP is also used to create self-cleaning coatings for glass. When exposed to sunlight, the coating reacts with oxygen to produce free radicals that break down organic matter on the surface of the glass. This helps to keep the glass clean and reduces the need for manual cleaning.
- Pigments: As I mentioned earlier, TTIP is used as a precursor for the synthesis of titanium dioxide (TiO2) nanoparticles. These nanoparticles are used as pigments in glass and ceramic applications, providing improved optical properties and colour saturation. They are often used in products like decorative glassware, ceramic tiles, and automotive glass.
- Scratch-resistant coatings: TTIP can also be used to create scratch-resistant coatings for glass. When added to the coating, TTIP reacts with the hydroxyl groups on the surface of the glass to create a durable, cross-linked network. This network helps to protect the glass from scratches, abrasion, and chemical damage, making it ideal for applications like smartphone screens and protective eyewear.

TIPT in Ink Industry:

- Tetra isopropyl titanate, also known as titanium tetraisopropoxide or TIPT, is commonly used in the ink industry as a cross-linking agent and as a catalyst for polymerization reactions.
- Here are some specific ways that TIPT is used in the ink industry:
- UV-curable inks: TIPT is often used as a cross-linking agent in UV-curable inks. When exposed to UV light, the ink undergoes a polymerization reaction that cross-links the ink molecules and hardens the ink film. TIPT can be added to the ink formulation to promote cross-linking and improve the ink's adhesion, durability, and resistance to abrasion and chemical attack.
- Pigment dispersions: TIPT is also used as a dispersant in pigment dispersions for ink formulations. It helps to stabilize the pigment particles and prevent them from settling out of the ink. This improves the colour consistency and print quality of the ink.
- Metal printing: TIPT can be used as a catalyst for the polymerization of acrylic resins used in metal printing. The resin is applied to the metal substrate as an ink and then cured using TIPT as a catalyst. This creates a durable and scratch-resistant coating on the metal surface.
- Inkjet printing: TIPT can be added to inkjet inks as a cross-linking agent to improve the ink's adhesion and durability on various substrates, such as paper, plastic, and metal.
- Overall, TIPT is a valuable tool in the ink industry, helping to improve the performance and quality of ink formulations. Its ability to promote cross-linking, stabilize pigments, and catalyse polymerization reactions makes it a versatile material for ink manufacturers.

CHEMICAL PROPERTIES	
PURITY	≥ 98.0
ACID CONTENT	
MOISTURE AMOUNT	
COLOUR (APHA)	
INHIBITOR	
PHYSİCAL PROPERTIES	
APPEARANCE	Clear, colorless to pale yellow liquid
PHYSICAL STATE	liquid
ODOR	Mild odor
DENSITY	0.986 g/cm3
BOILING POINT	300°C
FREEZING POINT	-24°C
FLASH POINT	102°C (closed cup)

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SAFETY INFORMATİON	
HAZARD PICTOGRAM(S)	
HAZARD STATEMENT(S)	H226 Flammable liquid and vapor. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness.
RISK PHRASES	R 10 Flammable.
SAFETY PHRASES	S 16 Keep away from sources of ignition - No smoking.
PRECAUTIONARY STATEMENT(S)	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use non-sparking tools. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
STORAGE CLASS	Storage class (TRGS 510): 3: Flammable liquids
STORAGE CONDITIONS	Handle under nitrogen, protect from moisture. Store under nitrogen. Keep the container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Hydrolyses readily.
DISPOSAL	Dispose of in a manner consistent with federal, state, and local regulations.
TRANSPORT INFORMATION	**IATA:** • Shipping Name: FLAMMABLE LIQUID, N.O.S.* • Hazard Class: 3 • UN Number: 1993

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	• Packing Group: III **IMO:** • Shipping Name: FLAMMABLE LIQUID, N.O.S. 5 • Hazard Class: 3 • UN Number: 1993 • Packing Group: III **RID/ADR:** • Shipping Name: FLAMMABLE LIQUID, N.O.S. • Hazard Class: 3 • UN Number: 1993 • Packing group: III

For more information, check the SAFETY DATA SHEET or get contact with us.