PDI

PATIL DYESTUFF INDUSTRIES

Mfg. Organic Titanates & Chelates

OUR SISTER CONCERNS. **"SKYLINE POLYCATS PRIVATE LIMITED"**

www.patildyestuff.com

About Us

The company is **established** in the year **1990.** Thereafter to meet the market need of quality Titanate products the company has diversified its manufacturing activities in the field of Titanates in the year **2013.**

Organics Titanates, Product manufactured by Patil Dyestuff Industries are characterized by their unique process & formulae. Which are established over **10 years** of experience in the field of manufacturing & and **28 years** in developing products in the company's state of art R&D and QC facilities'.

Patil Dyestuff Industries has shown growth over for **10 Years**, with the support of skilled & experienced professionals operating from 2 offices & 2 manufacturing locations spread within India.

Patil Dyestuff Industries has started export to the Korean market, And Products are under evaluation in Europe as well in the US.

With the assurance of quality product consistently from state of art testing and analytical Equipment & manufacturing process, Patil Dyestuff Industries will emerge as established quality Product supplier worldwide.

M/s Patil Dyestuff Industries company with its Principle place of business being at C-1B, 67/605, 100 Shed Area, G.I.D.C., Vapi- 396195.

The company is formed by a TEAM of young and experienced professionals Who over the past **35 years** have gained experience and Technically Pioneered, Researched and Developed many of the Grades of Titanates, Phenolic Resins, Polyester Resins, in their earlier endeavours. The TEAM has successfully achieved business excellence and are totally dedicated towards the Manufacturing, Quality assurance of the above referred products. We will ensure that all the product manufactured at our unit would lead to total Customer Satisfaction.

Company has installed production capacity of **500 tons** per months to manufacture all types of Titanates and chelates. The Aim of this company will always be to GROW, REPUTE and be PROFITABLE with this AIM we would lead ourselves to deliver products towards total customer satisfaction.

Certificates

ISO 9001:2015

SGS TIPT 1342029290 ROHS

SGS TIPT 1342029292 REACH

SGS TNBT 1342029293 ROHS

SGS TNBT 1342029294 REACH

UDYAM REGISTRATION

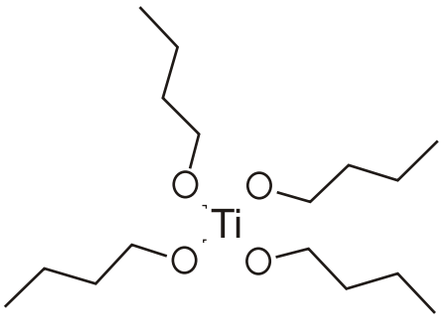
Product Range

Organic Titanates & Cheletes

SkyCat	Chemical Name	CAS No.
SkyCat TNBT	Tetra n-Butyl Titanate	5593-70-4
SkyCat TIPT	Tetra Isopropyl Titanate	546-68-9
SkyCat TEHT	Tetra 2-Ethylhexyl Titanate	1070-10-6
SkyCat PBT	Poly Butyl Titanate	162303-51-7
SkyCat BIPT	Isopropyl Butyl Titanate	68955-22-6
SkyCat TNPT	Tetra n-Propyl Titanate	3087-37-4
SkyCat TET	Tetra Ethyl Titanate	3087-36-3
SkyCat TTBT	Tetra t-Butyl Titanate	3087-39-6
SkyCat TIC 30	Butyl Titanium Phosphate	109037-78-7
SkyCat TEAT	Triethanolamine Titanate	36673-16-2

Tetra n-Butyl Titanate

Structure



Formula $C_{16}H_{36}O_4Ti$

CAS No. 5593-70-4

EC No. 227-006-8

Synonyms

Tetrabutyl titanate; Titanium butoxide; Butyl titanate; Tetra-n-butyl Titanate; Titanium n-Butoxide; 1-Butanol, titanium(4+) salt; Titanium(IV) n-butoxide; TNBT; Titanium tetrabutoxide; Tetrabutoxytitanium; Titanium Tetrabutanolate.

Tetra-n-butyl titanate belongs to the product group of organic titanates, which are known to be highly reactive organics that can be used in a broad range of processes and applications. It is a colorless, slighty yellowish liquid that is very sensitive to moisture.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

Under proper storage conditions the shelf life is 12 months.

Technical Data Sheet

S.No.	Test	Methods	Unit	Specification
1.	Appearance	Visual	-	Clear Liquid, colorless to pale yellow
2.	Specific Gravity @ 25 deg°C	ASTM D-891	g/cm3	0.991 – 1.00
3.	Color	APHA	APHA	100 max.
4.	% of TiO2	QP/TM/PS/13	%	23.0 – 24.0%
5.	Molecular Weight	-	g/mole	340
6.	Chloride Content	QP/PM/PS/16	ppm	100 ppm max
7.	Viscosity @ 25°C	QP/PM/PS/18	cSt	60 - 70
8.	Pour Point	-	°C	< -50
9.	Refractive Index @ 25°C	QP/TM/PS/05	nD	1.490
10.	Flash Point	-	°C	40
11.	Boiling Point @ 760mm	-	°C	312
12.	% Ti	QP/PM/PS/13	%	13.85 – 14.30%
13.	Solubility in Solvents	-	-	Miscible in many organic solvents
14.	Solubility in water	-	-	Rapidly hydrolyzed by water

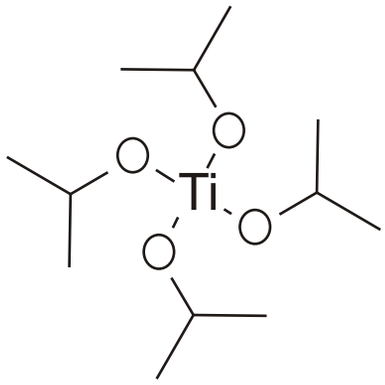
Tetra Isopropyl Titanate

Formula $C_{12}H_{28}O_4Ti$

CAS No. 546-68-9

EC No. 208-909-6

Structure



Synonyms

Titanium (IV) isopropoxide; Tetraisopropyl Orthotitanate; Isopropyl Titanate; 2-Propanol, titanium(4+) salt; Tetraisopropyl titanate; Titanium tetraisopropoxide; Tetraisopropoxy titanium.

Tetra Isopropyl Titanate (TIPT) belongs to the product group of organic titanates, which are known to be highly reactive organics that can be used in a broad range of processes and applications. It is a colorless, slighty yellowish liquid that is very sensitive to moisture.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

Under proper storage conditions, the shelf life is 12 months.

Technical Data Sheet

Sr. No.	Test	Unit	Value
1.	Appearance	-	Colorless to Pale Yellow Liquid
2.	Molecular Weight	-	284
3.	Color, APHA	APHA	100 Max.
4.	Titanium Content	%	16.6 - 17.2
5.	Chloride Content	ppm	100 Max
6.	Specific Gravity	-	0.950 - 0.970
7.	Freezing Point	°C	16.0 - 19.0
8.	Solubility in Solvents	-	Miscible in most Organic Solvents
9.	Solubility in Water	-	Rapidly hydrolysed by water
10.	TiO2 Content	%	28 – 28.5%
11.	CAS No	-	546-68-9

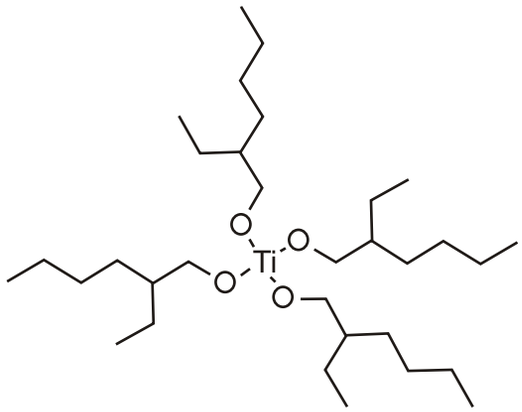
Tetra-2-Ethylhexyl Titanate

Formula $C_{32}H_{68}O_4Ti$

CAS No. 1070-10-6

EC No. 213-969-1

Structure



Synonyms

Titanium ethylhexoxide; Titanium (IV) 2-ethylhexoxide; Titanium(IV) 2-ethylhexyloxide

Tetra-2-ethylhexyl titanate (T2EHT)belongs to the product group of organic titanates. These are known to be highly reactive organics that can be used in a broad range of processes and applications. It is a colorless and slightly yellowish liquid that is very sensitive to moisture.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

Under proper storage conditions the shelf life is 12 months.

Technical Data Sheet

Sr. No.	Test	Unit	Value
1.	Appearance	-	Clear liquid
2.	Color, Gardner	Gardner	100 Max.
3.	Molecular Weight	g/mole	565
4.	Titanium Content	%	8.30 – 8.90
5.	TiO_2 Content	%	13.85 – 14.85
6.	Brookfield Viscosity @ 25°C	cSt	125-165
7.	Specific Gravity @ 25°C	-	0.930 – 0.940
8.	Chloride Content	ppm	100 Max.
9.	Solubility in Solvents	-	Miscible in Butanol, n-Hexane
10.	Solubility in Water	-	Rapidly hydrolysed by water
11.	CAS No.	-	1070-10-6

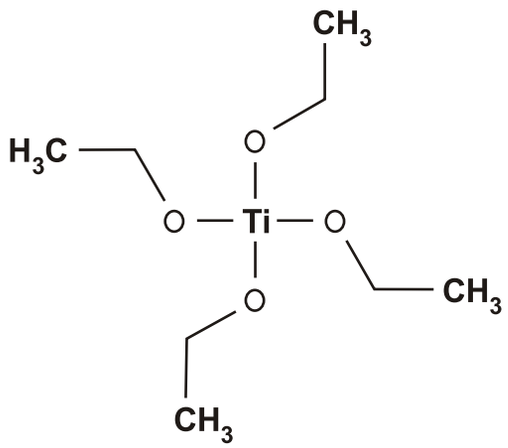
Poly Butyl Titanate

Formula

CAS No. 162303-51-7

EC No. 500-687-1

Structure



Synonyms

Poly(n-butyltitanate) Tilcom\(rgPBT Vertec\(rgPBT Polytitanium(IV) n-butoxideü, 98% Poly(n-butyl titanate)~Titanium(IV) butoxide, polymer Poly[titanium(IV) butoxide] 98% POLY [TITANIUM(IV) N-BUTOXIDE] POLY(DIBUTYLTITANATE).

PBT is a titanium alkoxide, Poly Butyl Titanate. PBT is a highly reactive catalyst & can be used in direct & transesterification reactions.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

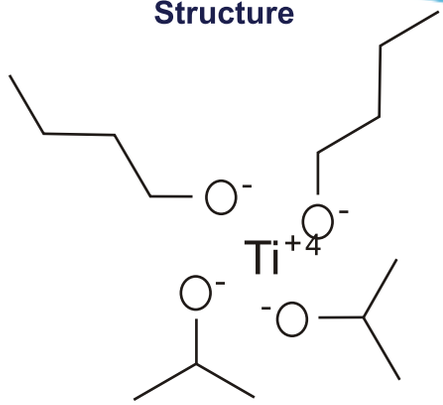
Under proper storage conditions, the shelf life is 12 months

Technical Data Sheet

Sr. No.	Test	Unit	Value
1.	Appearance	-	Yellow liquid
2.	Titanium Content	%	20.4
3.	Specific Gravity	g/m	1.12
4.	Flash Point	°C	45
5.	Chloride Content	°C	-25

Isopropyl Butyl Titanate

Structure



Formula $C_7H_{16}O_3Ti$

CAS No. 68955-22-6

EC No. 273-260-8

Synonyms

titanium, bualc.iso-pralc.complexes | titanium(iv) butoxy isopropoxy complexes, vertec(r) bip | titanium (iv) butoxy isopropoxy complexes | titamix 80/20 (tipt/tnbt) | titanium(iv)n-butoxide/isopropoxide=n-butoxy/isopropoxytitanium(iv) | n-butyl/isopropylorthotitanate | barium ethoxide, 10% w/v in ethanol, 99.5% (metals basis) | butyl isopropyl titanate | vertec(tm) bip | titanium(iv) n-butoxide/isopropoxide.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

About 12 months if stored at temperature between 0 to +40°C in original sealed containers, in dry place

Specification of BIPT (Tetra N-Butyl Iso-Propyl Titanate)

TYPE

BIPT, Tetra N-Butyl Iso-Propyl Titanate is a highly reactive Organic Titanate. It is soluble in many organic solvents and is supplied with hundred percent active content. It is extremely sensitive to moisture. BIPT contains 80% Tetra Iso-Propyl Titanate and 20% Tetra N-Butyl Titanate. It has been developed to achieve a melting point much lower than IPTM.

USAGE

BIPT is widely used as a catalyst for reactions such as Esterification, Trans - Esterification and Olefin Polymerisation. It is recommended as a cross linking agent for wire enamels, surface coatings and printing inks. It is also used as a surface modifier, adhesion promoter, wax and oil additives and in the manufacture of scratch resistant glass.

PROPERTIES

PROPERTIES	UNIT	SPECIFICATIONS
Colour and appearance	-	Yellow liquid
Titanium in product as TiO2 Specific gravity at 25/25°C	% -	26.75 Min. 0.960 – 0.990
Effect of water	-	Extremely rapid hydrolysis
Compatibility with solvents	-	Butanol, Hexane, Benzene, Toluene

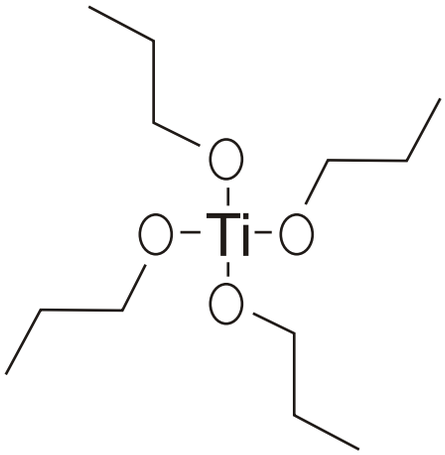
Tetra n-Propyl Titanate

Formula $(C_3H_7O)_4Ti$

CAS No. 3087-37-4

EC No. 221-411-3

Structure



Synonyms

1-Propanol, titanium (4) salt; Tetrapropyl orthotitanate; Tetrapropyl titanate; Titanium propoxide; Titanium (IV) propoxide Titanium (IV) n-propoxide; Titanium n-propoxide; Titanium tetrapropanolate; TNPT; 1-Propanol, titanium(4+) salt (4:1)

PBT is a titanium alkoxide, Poly Butyl Titanate. PBT is a highly reactive catalyst & can be used in direct & transesterification reactions.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

About 12 months if stored at temperature between 0 to +40°C in original sealed containers, in dry place

PROPERTIES

Sr. No.	Test	Unit	Value
1.	Appearance	-	Pale Yellow liquid
2.	Titanium Content	%	14.0
3.	Density	g/ml	0.90
4.	Flash Point	°C	42
5.	Melt / Pour Point	°C	-<0

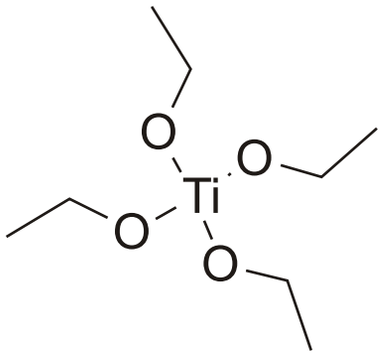
Tetra Ethyl Titanate

Formula $C_{10}H_{20}O_4Ti$

CAS No. 3087-36-3

EC No. 221-410-8

Structure



Synonyms

Ethanolate; titanium(4+); Ethanol, titanium(4+) salt; Ethyl titanate; Tetraethyl titanate; Titanium(4+) ethanolate.

Tetra-ethyltitanate belongs to the product group of organic titanates, which are known to be highly reactive organics that can be used in a broad range of processes and applications. It is a colorless, slighty yellowish liquid that is very sensitive to moisture.

Applications

- Catalyst to produce plasticizers, polyesters and methacrylic esters
- Adhesion promoter
- Cross-linking for polymers
- Coatings
- Surface modification (metal, glass)

Shelf Life

Under proper storage conditions, the shelf life is 12 months

Specification of TET (Tetra Ethyl Titanate)

TYPE

TET is a highly reactive Organic Titanate. It is soluble in many organic solvents and is supplied with hundred percent active content. It is sensitive to moisture.

USAGE

TET is widely used as a catalyst for reactions such as Esterification, Trans - Esterification and Olefin Polymerisation. Its recommended as a cross linking agent for surface coatings and printing inks. It is also used as a surface modifier, adhesion promoter, and in the manufacture of scratch resistant glass.

PROPERTIES

PROPERTIES	UNIT	SPECIFICATIONS
Colour and appearance	-	Colourless to pale yellow clear liquid
Titanium in product as TiO_2 Specific gravity at 25/25°C	% -	33.0 – 35.0 1.10 – 1.12
Effect of water	-	Extremely rapid hydrolysis
Compatibility with solvents	-	Butanol, Hexane, Benzene, Toluene

Tetra t-Butyl Titanate

Formula $Ti(OC(CH_3)_3)_4$

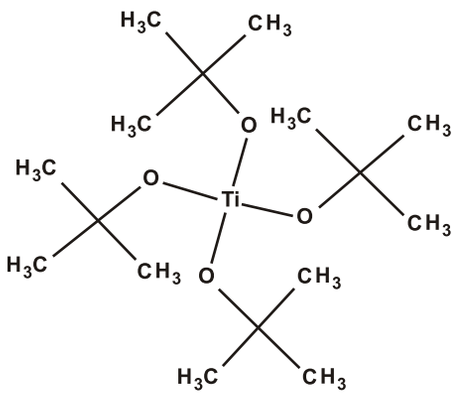
CAS No. 3087-39-6

EC No. 221-412-9

Synonyms

Tetra-tert-butyl orthotitanate, tert-Butyl titanate(IV), Orthotitanic acid tetra-tert-butyl ester, Titanium tetra-tert-butylate, Titanic acid tetra-tert-butyl ester.

Structure



Shelf Life

Under proper storage conditions, the shelf life is 12 months

PROPERTIES

Sr. No.	Test	Unit	Value
1.	Appearance	-	Pale Yellow liquid
2.	Titanium Content	%	14.0
3.	Density	g/ml	0.90
4.	Flash Point	°C	42
5.	Melt / Pour Point	°C	-<0

Butyl Titanium Phosphate

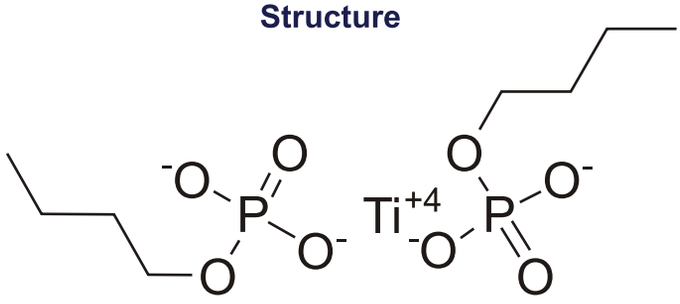
Formula $C_8H_{18}O_8P_2Ti$

CAS No. 109037-78-7

Synonyms

Titanium Butyl Phosphate
SCHEMBL165807

Structure



Shelf Life

About 12 months if stored at temperature between 0 to 40°C in original sealed containers, in dry place

Specification of Titanium Phosphate Complex

TYPE

TIC 30 is Titanium Phosphate Complex is a pale yellow clear solution of Titanium chelates in alcohol

USAGE

Titanium Phosphate Complex is light colour, low odour adhesion promoter used in printing industry applications. It enhances crosslinking of the polymeric binder present in the printing ink.

Properties

PROPERTIES	UNIT	SPECIFICATIONS
Colour and appearance	-	Colourless to pale yellow clear liquid
Titanium in product as TiO_2 Specific gravity at 25/25°C Viscosity at 25°C	% - cPs	14.00 - 14.80 0.995 - 1.015 1 4 – 2 6
Effect of water	-	Extremely rapid hydrolysis
Compatibility with solvents	-	Butanol, Hexane, Benzene, Toluene

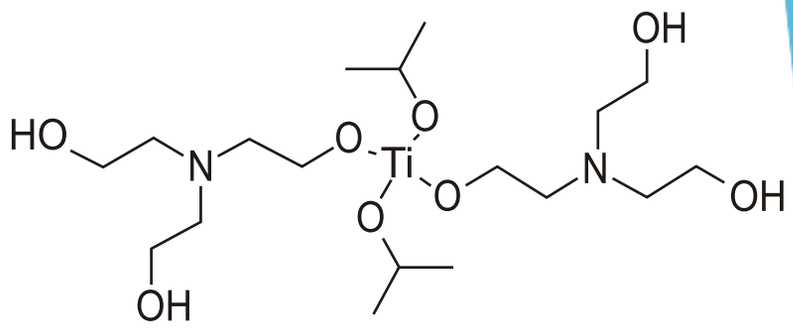
Triethanolamine Titanate

Formula $C_6H_{13}NO_4Ti$

CAS No. 36673-16-2

EC No. 240-015-1

Structure



Synonyms

tris(hydroxyethyl)amine titanate | triethanolamine titanate | titanium 2,2',2''-nitrilotrisethanolate | trihydroxytriethylamine titanate | 1-titana(iv)-2,8,9-trioxa-5-azabicyclo[3.3.3]undecan-1-ol | triethylolamine titanate | 2',2''-nitrilotris[ethanolato]](3-)-n,o,o',o'']-hydroxy[[(betab-titaniu | titanium, hydroxy[[2,2',2''-nitrilotris[ethanolato]](3-)-n,o,o',o'']-, (tb-5-23)- | 2,2',2''-nitrilotriethanol titanate | 2,2',2''-nitrilotrisethanol titanate

Shelf Life

About 12 months if stored at temperature between 0 to + 30°C in original sealed containers, in dry place.

Specification of Titanium (IV) (Triethanolamineaminato) Isopropoxide

TYPE

TEAT is a reactive Organic titanium chelate. It is soluble in many organic solvents.It is miscible with water. TEAT is supplied with 20 % free Isopropyl alcohol.

USAGE

TEAT is widely used as catalyst for reactions such as Esterification, Transesterification . Its recommended as a cross linking agent in aqueous and nonaqueous system.

PROPERTIES

PROPERTIES	UNIT	SPECIFICATIONS
Colour & Appearance	-	Yellow Clear Liquid
Titanium in product as TiO_2	%	33.0 – 35.0
Specific gravity at 25 / 25°C	-	1.10 – 1.12
Effect of water	-	Extremely rapid hydrolysis
Compatibility with solvents	-	Butanol, Hexane, Benzene, Toluene

Several Flexible, High-Quality Options for Increasing the Performance of Your Goods

When it comes to creating and providing organic titanates and chelates, **PATIL DYESTUFF INDUSTRIES** is both a pioneer in the field and a world champion.

PATIL DYESTUFF INDUSTRIES has been providing AsepTic (SkyCat) compounds that are innovative and of the highest quality for more than 29 years to satisfy the changing demands of a variety of commercial sectors.

AcepTic (SkyCat) is available in more than 09 types from **PATIL DYESTUFF INDUSTRIES**, including a number of specialised materials.

*Wide Range of Products

Organic titanates and chelates from **PATIL DYESTUFF INDUSTRIES** offer better characteristics and versatility in carrying out a range of tasks in a wide range of commercial markets and uses.

With little effect on the climate, they offer notable advances in product efficiency and manufacturing conditions.

The wide variety of organic titanate and chelates goods available from **PATIL DYESTUFF INDUSTRIES**, from highly.

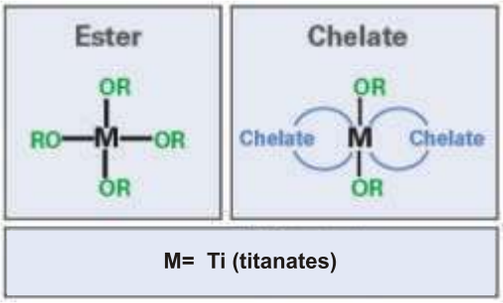
Esters and Esterification

PUREti titanates are understood as Lewis acids suitable for esterification, trans-esterification and polyesterification catalyst usage.

Direct esterification is the reaction between a carboxylic acid and an alcohol to produce an ester plus water as showing below equation. With Ti-PURE titanates, esterification is conducted at 220 ℃ efficiently and catalyst is easily removed by water washing out.

Esterification

Transesterification



In a trans-esterification reaction, a preformed ester exchanges alkoxy group with another alcohol to produce a new ester

Polyesterification is an extension of either or both of the above reactions. Polyesters are produced by the interaction of a dibasic acid or its lower alkyl ester with a glycol or polyol, i.e. by direct or transesterification reactions.

Using the same raw material as PATIL DYESTUFF INDUSTRIES'S AsepTic (SkyCat) titanium dioxide, titanium tetrachloride is used in the manufacturing of SkyCat goods to link them back to the titanium-bearing ore.

Customers of PATIL DYESTUFF INDUSTRIES are guaranteed a steady supply thanks to this integrated supply chain, which runs from the quarry to the manufacturing facility to the consumer.

Customers of PATIL DYESTUFF INDUSTRIES can rely on the availability of their products around the globe and prompt dispatch thanks to the company's high manufacturing capacity, extensive global distribution network, and flexible supply chain management.

Four Key Functions

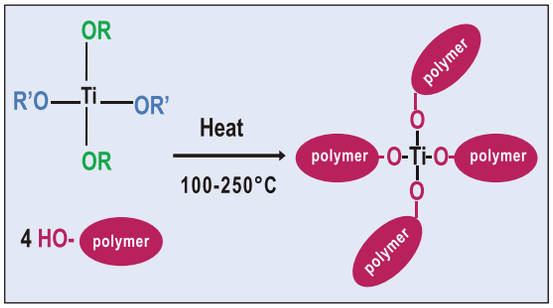
PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates perform four important functions that are key to their versatility: catalysis, cross-linking, surface modification and adhesion promotion.

Catalyst

PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates are efficient catalysts for a variety of reactions, including: esterification, transesterification, condensation and addition.

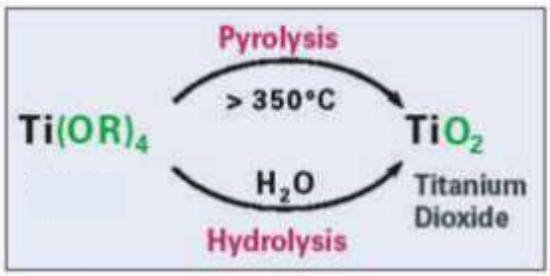
Cross-Linking Agent

PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates can be used as cross-linking agents to improve the product properties of paints, inks, sealants, polymers and other coatings. They can also be used to improve processing in fracturing fluids used in down-hole oil and gas production applications.



Surface Modifier

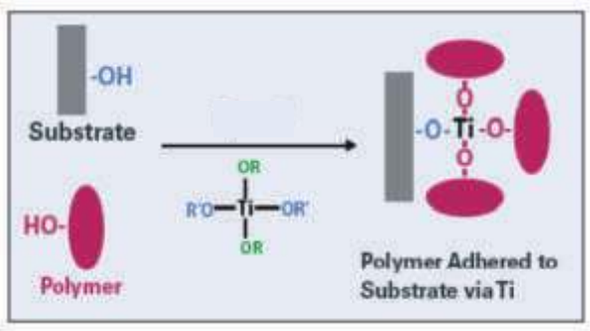
PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates can be used to modify the surface of both inorganic and organic materials. This occurs when the PATIL DYESTUFF INDUSTRIES'S products are applied alone or in combination with other materials in hydrolytic (sol-gel) or pyrolytic processes to form the corresponding metal oxides as a continuous layer.



PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates can also be used as the source for TiO2 or nano-sized metal oxides.

Adhesion Promoter

PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates can promote the adhesion of paints, coatings, printing inks, sealants, adhesives, etc. to various substrates, including: metals, plastics (pretreated), glass and more. They do this by forming a bridge between two different substances (such as inorganic or organic materials and polymers) at their interface.



Wire Enamel Crosslinking

The most popular bonding agent for wire enamel uses worldwide is SkyCat TNBT. As long as engines are in use, this age-old technology will continue to be vital to the consumer electronics sector. Even if new technology is brought to this field, SkyCat titanates will continue to perform in a way that is exceptional for any difficulties that arise.

Anti-Corrosive Coatings Crosslinking

The better passivation performance of SkyCat titanates clears the way for industries to fully phase out toxic corrosion inhibitors like Cr (VI) or Cr(III) compounds, despite the fact that not many formulators are adept at using them for coating applications. The hybrid titanium-rich micro-segregations produced by the baking method used for fastener coatings will be evenly distributed on the coating surface, and since the Ti-O bonding strength is much greater than any organic bond, the 1,000-hour salt spray test is feasible.

Industrial applicators effectively apply SkyCat titanates to coils for interim protection in addition to well-known zinc-rich primer or sealer applications.

Steel makers can transport their products over long distances without concern for corrosion thanks to the water-based thin coating layer.

Fraccing Fluids Crosslinking

The energy industry is being altered by booming shale gas production. SkyCat plays a crucial part in maintaining the deep drilling temperature beneath by using the most recent hydraulic fracturing technology. Organic titanates and chelates are expected to be better performing, environmentally favourable chemicals that can be used for drilling petrochemicals.

SkyCat titanates are equally important for offshore drilling equipment.

Emulsion Paints Crosslinking

SkyCat titanates are appropriate for consumption markets, such as decorative paints, in addition to all industrial uses. All people can easily repaint their homes with excellent coverage power thanks to the thixotropic property of the SkyCat TX ranges. This property gives emulsion paints a distinctive gelling strength. The SkyCat TX ranges' optimal brushing experience makes it possible to maintain levelling that is seamless during painting without drooping or spilling. All DIYers likely seek the intense non-Newtonian flow of paint that SkyCat TX ranges offers solely. Additionally, SkyCat TX400 is a non-VOC variant across the board.

Diverse Applications

PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates are available in more than 09 grades, including specialty compounds, to meet a wide variety of customer needs in diverse applications such as:

Esterification (e.g., Plasticizer)

Transesterification (e.g., acrylates and bio-fuels)

Polyester

Olefin Polymerization

Printing Inks

Oil Field Fracturing

Corrosion Protection

Silicone Sealants

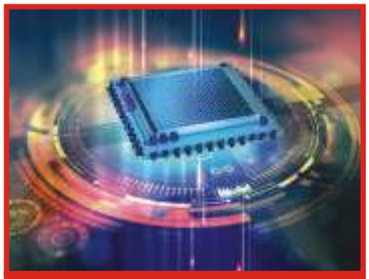
Industrial Paints

Adhesives

Glass Coating (Flat Glass, Hollow Glass, Fiberglass)

Inorganic Binders

Ceramics



Nano-Technology

In many of these applications, PATIL DYESTUFF INDUSTRIES Organic titanates and Chelates are the preferred products due to their ease of use; high efficiency; versatility; uniqueness of effect; cost effectiveness; low toxicity; and freedom from undesirable side effects.

Multitude of Benefits

Depending on the application and end use, there are a multitude of benefits that can be achieved by using AsepTic (SkyCat) organic titanates and zirconates. Overall, AsepTic (SkyCat) provides: controlled reactivity, good compatibility and stability, and low toxicity (replacement of tin, antimony and chromium VI compounds). As a Lewis acid catalyst, AsepTic (SkyCat) features:

- Mild Reaction Conditions
- High Yield
- Low Catalyst Concentration
- Limited Formation of By-Products
- Easy Work-Up
- High-Quality End Products

Advantages of Titanates

Titanates are neutral compounds and it is this neutrality that gives titanates many of their advantages over acidic and basic catalysts. Acids and bases cause side reactions and degradation of the reactants.This leads to poor color and contamination of both the product ester and any excess reactant. Titanates minimize these side reactions. It is, there fore,possible to use larger excesses of reactant alcohols, which can be recycled without intermediate purification. This, in turn, leads to higher conversions and yields of purer products. Effluent treatment is minimized or eliminated.

Other Metallo-organic catalysts are available, for example, certain derivatives of tin, magnesium, and aluminum. However, it is usually found that these are either more prone than titanates to cause side reactions or are less cost-effective.

As a cross-linking agent, AsepTic (SkyCat) enables:

- Accelerated curing rates for sealants, inks and coatings
- Improved mechanical properties
- Gel formation in solvent and waterborne carbohydrate systems, such as printing inks, oil well fracturing fluids and thixotropic dispersion paints
- Thermal stability
- Water scavenger capabilities

As an adhesion promoter, AsepTic (SkyCat) offers:

- Improved adhesion to substrates
- Increased resistance to water and chemicals
- Enhanced mechanical properties
- Adhesion to low-reactive substrates

As a Surface Modifier, AsepTic (SkyCat) delivers:

- Corrosion protection
- Scratch resistance
- Thermal resistance
- Chemical resistance
- Light/heat reflection
- Decorative/optical effects
- Source for nano-scaled TiO2

Lubricant Additive

Even though today's cars aren't just powered by gas, the lube oil sectors are still working to improve anti-wear performance. One of the most hopeful new advancements, both scientifically and economically speaking, is titanium-based technology. Alternative metallic compounds, like molybdenum or zinc, are also being used. By creating a nanoscale oil layer on the engine metal and lowering the quantity of ZDDP in the formulation, the most recent study further supports the better anti-wear performance of such titanium compounds.

to Work for You

The broad range of **AsepTic (SkyCat)** Organic titanates and Chelates allows you to select the optimum grade to meet your specific needs, enabling you to produce superior quality products for a wide variety of applications and market segments.

And, with warehouses in every region and an integrated global network of highly trained sales and technical service professionals available to assist you, it is easy and convenient to put **AsepTic (SkyCat)** to work in your application anywhere in the world.

PATIL DYESTUFF INDUSTRIES

OUR SISTER CONCERNS. **"SKYLINE POLYCATS PRIVATE LIMITED"**

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PATIL DYESTUFF INDUSTRIES

Mfg. Organic Titanates, Chelates, PVB & PU Resins

OUR SISTER CONCERNS. **"SKYLINE POLYCATS PRIVATE LIMITED"**

ADDITIONAL PRODUCT LIST

PU RESINS

GRADES	CHEMICAL NAME	CAS NO
SKYRES 230	POLYURETHANE RESINS	NA
SKYRES 270	POLYURETHANE RESINS	NA

PVB

GRADES	CHEMICAL NAME	CAS NO
SKYRES B 16	POLY VINYL BUTYRAL	68648-78-2
SKYRES B 20	POLY VINYL BUTYRAL	68648-78-3
SKYRES B 24	POLY VINYL BUTYRAL	68648-78-4
SKYRES B 36	POLY VINYL BUTYRAL	68648-78-5
SKYRES B 65	POLY VINYL BUTYRAL	68648-78-6
SKYRES B 75	POLY VINYL BUTYRAL	68648-78-7
SKYRES B 170	POLY VINYL BUTYRAL	68648-78-8

ORGANIC TITANATE & CHELATES

GRADES	CHEMICAL NAME	CAS NO
SKYCAT OGT	OCTYLENE GLYCOL TITANATE	NA
SKYCAT ETD	TETRA ETHYL TITANATE AMINE	NA
SKYCAT ET 20	TETRA ETHYL TITANATE	NA
SKYCAT PT 40	TITANIUM ETHYL ACETOACETATE MTMS	27858-32-8
SKYCAT TIC 35	BUTYL PHOSPHATE ESTER TITANIUM CHELATE	109037-78-7
SKYCAT TIC 40	BUTYL PHOSPHATE ESTER TITANIUM CHELATE	109037-78-7
SKYCAT TIC 45	BUTYL PHOSPHATE ESTER TITANIUM CHELATE	109037-78-7
SKYCAT TIC 50	BUTYL PHOSPHATE ESTER TITANIUM CHELATE	109037-78-7

WATER BASED PROMOTOR

GRADES	CHEMICAL NAME	CAS NO
SKYCAT TAA 105	TITANIUM ACETYLACETONATE COMPLEX	17927-72-89
SKYCAT TAA 70	TITANIUM ACETYLACETONATE COMPLEX	NA
SKYCAT EHTAA	2-ethylhexane-1-ol bis (2 ethylhexane-1-olato) bispentane-2-4 dionato O.O') titanium	17927-72-9
SKYCAT ALT	Diaammonium dihydroxy bis (citrate(2)-01, 02 titanate (2)	65404-06-5
SKYCAT EAIT	Di-iso- Propoxy titanium bis (ethyl 3 - oxibutanoate) isobutanol	27858-32-8
SKYCAT PT 95	bis (ETHYL ACETOACETATE) titanium Isobutoxide	83877-91-2
SKYCAT T 101	ALKONOLAMINE AMMONIUM LACTATE	68784-47-4
SKYCAT T 201	ALKONOLAMINE AMMONIUM LACTATE	68784-48-5
SKYCAT T 301	ALKONOLAMINE AMMONIUM LACTATE	NA
SKYCAT T 401	ALKONOLAMINE AMMONIUM LACTATE	1072830-14-8

PU RESINS

DESCRIPTION OF POLYURETHANE RESINS

Polyurethane (PU) resins are versatile polymeric materials formed by the reaction of polyols (hydroxyl-functional compounds) and isocyanates. They can be tailored into rigid, flexible, or elastomeric forms, making them useful for a wide range of applications.

PDI PROVIDES 2 GRADES OF PU RESINS

> SKYRES 230

> SKYRES 270

Key Properties of PU Resins

- High Mechanical Strength-Can be formulated for toughness and impact resistance.
- Excellent Adhesion Bonds well to various surfaces like metals, plastics and textiles.
- Chemical Resistance-Resists Oils, Solvents and Chemicals.
- Weather & UV Resistance-Can be stabilized for outdoor durability.
- Versatility-Can be formulated as thermoplastics, thermosets or elastomers.
- Flexibility & Toughness-Offers excellent elasticity while maintaining strength.

Applications of Polyurethane Resins

Coatings, Paints & Varnishes

Automotive and Industrial Coatings Provides durability, gloss and resistance.

Polyurethane Resins: Types, Advantages And Uses

POLY VINYL BUTYRAL

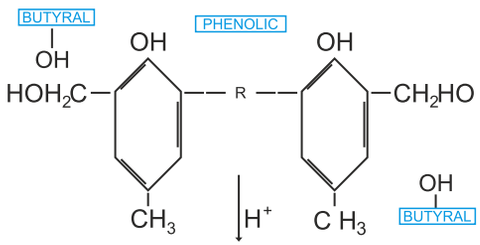
Polyvinyl Butyral (PVB) is a synthetic resin primarily used in applications requiring strong binding, optical clarity, adhesion to various surfaces, toughness & flexibility. It is produced through the reaction of polyvinyl alcohol (PVA) with butyraldehyde, forming a polymer with hydroxyl, acetal & acetate functional groups.

PDI Provides 7 Grades Of Polyvinyl Butyral

• SKYRES B 16 • SKYRES B 20 • SKYRES B 24 • SKYRES B 36 • SKYRES B 65 • SKYRES B 75 • SKYRES B 170

Description & Properties

Chemical Formula: (general structure)
Appearance: White to yellowish powder or granules
Solubility: Soluble in alcohols, esters, and ketones but insoluble in water
Thermal Stability: Good Stability up to 150°C
Adhesion: High adhesion to glass, metals, and plastics
Optical Clarity: Excellent transparency and light transmission
Elasticity: Soft and flexible
Chemical Resistance: Resistant to oils, greases, and many solvents



Applications of PVB

Automotive & Architectural Glass
- Used as an interlayer in laminated safety glass for windshields, building windows, and bulletproof glass.
- Provides impact resistance, UV filtering and soundproofing.

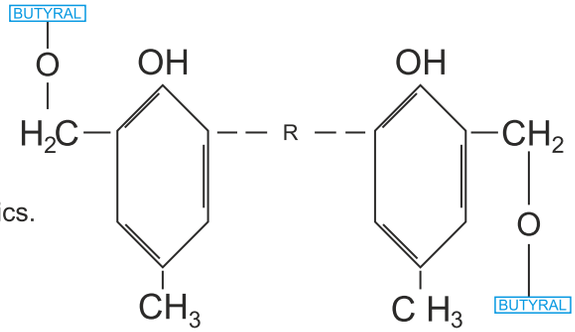
Solar Panels
- Enhances durability, adhesion and moisture resistance of solar cells.

Paints & Coatings
- Improves adhesion, toughness, and flexibility of coatings.
- Acts as a binder in primers and anticorrosion coatings.

Adhesives & Sealants
- Used in high-performance adhesives for bonding metals glass and plastics.

Printing Inks
- Provides excellent adhesion, glass and durability for ink formulations.

Electronics
- Used as an insulating film in printed circuit boards (PCBs).



Benefits of PVB

- ✔ **High Impact Resistance** - Enhances safety in glass applications.
- ✔ **Superior Adhesion** - Bonds well with glass, plastics and metals.
- ✔ **Excellent Optical Clarity** - Provides high transparency in laminated glass.
- ✔ **UV & Weather Resistance** - Protects surfaces from degradation.
- ✔ **Sound Insulation** - Reduces noise penetration.
- ✔ **Flexibility & Toughness** - Maintains elasticity under stress.

General Formulation of PVB-Based Products

A) Laminated Glass Interlayer Formulation
PVB Resin: 50-70%
Plasticizer (e.g., Triethylene Glycol Diheptanoate - TEGH): 25-40%
UV Stabilizers: 0.5-2%
Antioxidants: 0.1-0.5%
Pigments/Dyes (if colored film is needed): 0.1-5%

B) Paints & Coatings Formulation
PVB Resin: 10-30%
Solvent (e.g., Ethanol, Butanol, MEK): 40-60%
Plasticizer: 5-10%
Fillers & Additives (UV Stabilizers, anti-settling agents, etc.): 1-5%
Pigments: 10-20%

C) Adhesives Formulation
PVB Resin: 30-50%
Solvent (e.g., Ethanol, Acetone): 30-50%
Plasticizer: 10-20%
Adhesion Promoters: 1-5%

WATER BASED ADHESION PROMOTOR

Water-based promoters used in intermediate catalysts, cross-linking agents in silicon moisture cure systems, and non-aqueous systems generally serve multiple functions, including adhesion promoter and water scavenging. Below is a brief overview of key components and their roles:

PDI PROVIDES MORE THEN 9 WATER BASED PROMOTOR

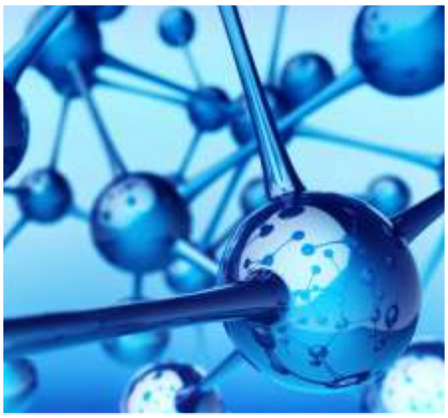
SKYCAT TAA 105	SKYCAT TAA 70	SKYCAT EHTAA	SKYCAT ALT	SKYCAT EAIT	SKYCAT PT 95
	SKYCAT T 101	SKYCAT T 201	SKYCAT T 301	SKYCAT T 401	

Functionality & Role :-

- **Intermediate Catalyst** - Enhances reaction kinetics in moisture cure silicone systems.
- **Cross-Linking Agent** - Facilitates polymerization, improving mechanical and thermal properties.
- **Adhesion Promoter** - Strengthens the bond between different substrates (e.g., metal, glass, plastics).
- **Water Scavenger -** Removes residual moisture to prevent premature curing or degradation.

Applications :-

- **Sealants & Adhesives** - Enhances durability in construction and automotive applications.
- **Paints & Coatings** - Improves adhesion to surfaces and protects against moisture-related failures.
- **Electronics & Industrial Uses** - Used in encapsulants and coatings for better insulation.



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