



# om TITANATES



## Strong-ti Organic titanates are used in various applications

- As a cross linking agent to improve the mechanical properties in Wire Enamels.
- Catalyst for esterification, transesterification & polymerization reaction.
- Improve adhesion and conductivity properties of electronics.
- Adhesion promoter for PRINTING INKS and various coatings.
- Reduce fragility of glass & improve scratch resistance.
- Used in plasticizers as a catalyst.

## Product Details

### Esters and Esterification

Strong-ti 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. With titanates, esterification is conducted at 220°C efficiently and catalyst is easily removed by water washing out. In a trans-esterification reaction, a preformed ester exchanges alkoxy group with another. 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 trans-esterification reactions.

### Advantages of Titanates

Strong-ti Titanates are neutral compounds and it is this neutrality that gives titanates many of their advantages over acidic and basic catalysts. Acids 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 therefore 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.

### Application Field

Strong-ti Titanates are the most successful brand in plasticizer industries, but not limited to these. The ranges are also widely used in fatty ester, polyester polyol, polyester including PET and PBT, and polyolefin industries around the world.

### Inks for Flexible Packaging

The power of graphical messages is more than people could think of when people standing in front of the shelves in the supermarkets or convenient stores. The packaged foods and PET bottle soft drinks are within reaching distance in everyone's daily life. What people do not know is that titanates help the colorful printing inks attached firmly on the plain OPP films. Think about what if no titanates, normally NC/PU or NC/PA inks will easily fall out from the substrates, not even to say the frozen food or cold drinks in the fridge which sustained at low temperature. Look into the mechanism, alcohol will be evaporated during the heating process, titanium chelate will help linkage to substrate and resin.

### Advantages of Titanates

NC/PU or NC/PA film forming resins normally provide acceptable film strength after solvent evaporated. titanates will upgrade the solvent resistance or heat resistance to next level, therefore, graphical print can last during long term frozen environment. The substrate has to be corona treated till 38 dyne or above readily for printing. Strong-ti-OT-130 is a titanium phosphate ester complex listed on Swiss Ordinance for food contact printing inks. The unique performance combining titanate and phosphate ester properties brings the flexible printing industries more possibilities to promote their products. Though most of the people do not really know, Strong-ti-OT-130 is so reachable around.

### Application Field

Strong-ti-OT-130 is the most successful item in printing ink industries, but not limited to this. Strong-ti-OT-165 & Strong-ti-OT-175 are widely used in non food packaging field of applications, such as money inks.



## Emulsion Paints Crosslinking

Instead of all the industrial applications, titanates are also suitable for consumer market, such as decorative paints. The thixotropic property of Strong-ti-OT ranges provides unique gelling strength of the emulsion paints, therefore, everyone can re-paint his or her house easily with superior covering power. The ideal brushing experience contributed by Strong-ti-OT ranges makes it possible keeping smooth leveling during painting without sagging or splashing. Such extreme non-Newtonian flow of the paint is probably all D-I-Yers looking for, which exclusively offered by Strong-ti-OT ranges. Even more, Strong-ti-OT-400 is a non-VOC version among the whole ranges.

| Product Name          | Identification                                 | Suitability                                                              | Benefits                                                                                                                  |
|-----------------------|------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Strong-ti-TnBT        | Tetra n-Butyl Titanate                         | Plasticizer, Alpha olefin, Polyolefin, Ziegler alcohol Polycondensation. | High Ti-content & reactivity.<br>Higher efficiency<br>Lower freezing point                                                |
| Strong-ti-TIPT        | Tetra iso-propyl Titanates                     | Plasticizer, Alpha olefin, Polyolefin, Ziegler alcohol Polycondensation. | High Ti-content & reactivity.<br>Higher efficiency                                                                        |
| Strong-ti-TEHT        | Tetra 2-Ethylhexyl Titanate                    | Plasticizer<br>Methacrylic ester                                         | Reduced moisture sensitivity.<br>Alcohol matched to End product.                                                          |
| Strong-ti-OT-130      | Titanium Phosphate Complex                     | Flexible packing film<br>NC/PA & NC/PU inks<br>Flexographic, Gravure     | Improve Pigment dispersion<br>Improved gloss of cured ink                                                                 |
| Strong-ti-OT-165, 175 | Titanium Acetyl Acetate                        | NC/PA & NC/PU inks<br>Flexible packing film<br>Flexographic, Gravure     | Strong adhesion improvement<br>non food contact applications                                                              |
| Strong-ti-OT-140      | Titanium Phosphate Complex (Iso propanol Base) | Flexible packing film<br>NC/PA & NC/PU inks<br>Flexographic, Gravure     | Improve Pigment dispersion<br>Improved gloss of cured ink                                                                 |
| Strong-ti-OT-100      | Alkanolamine Titanate                          | water based decorative Paints<br>Colloid stabilized gloss, Silk and Matt | Rapid structuring<br>Broad binder system compatibility<br>No reformulation cost                                           |
| Strong-ti-OT-200      | Alkanolamine Titanate                          | water based decorative Paints<br>Colloid stabilized gloss, Silk and Matt | High level structure development<br>Enhanced shear resistance<br>Easier controllable processing<br>No Reformulation cost. |
| Strong-ti-OT-300/400  | Alkanolamine Titanate                          | water based decorative Paints<br>Colloid stabilized gloss, Silk and Matt | Delayed structuring<br>Reduction of production costs through easy processing                                              |

## Strong-ti Organic Titanates

|                           | Chemical Name               | CASNo.      |
|---------------------------|-----------------------------|-------------|
| Strong-ti-TNBT/OT-S10     | Tetra n-Butyl Titanate      | 5593-70-4   |
| Strong-ti-TIPT / TPT      | Tetra Isopropyl Titanate    | 546-68-9    |
| Strong-ti-TEHT            | Tetra 2-Ethylhexyl Titanate | 1070-10-6   |
| Strong-ti-PBT             | Poly Butyl Titanate         | 162303-51-7 |
| Strong-ti-BIPT / TPT 15 B | Isopropyl Butyl Titanate    | 68955-22-6  |
| Strong-ti-TNPT            | Tetra n-Propyl Titanate     | 3087-37-4   |
| Strong-ti-TET             | Tetra Ethyl Titanate        | 3087-36-3   |
| Strong-ti-OT-S8           | Tetra t-Butyl Titanate      | 3087-39-6   |
| Strong-ti-TTBT            | Titanium T-Butanolate       | 3087-39-6   |

## Strong-ti Titanium Chelates

|                        |                                               |              |
|------------------------|-----------------------------------------------|--------------|
| Strong-ti-OT 165       | Titanium Acetyl Acetonate                     | 17927-72-9   |
| Strong-ti-OT 175       | Titanium Acetyl Acetonate                     |              |
| Strong-ti-OT EHTAA     | Titanium Acetyl Acetonate                     |              |
| Strong-ti-OT 501       | Titanium Acetyl Acetonate Complex             | 68586-02-7   |
| Strong-ti-OT 130       | Butyl Titanium Phosphate                      | 109037-78-7  |
| Strong-ti-OT 140       | Butyl Titanium Phosphate(IPA Base)            | 109037-78-7  |
| Strong-ti-TEAT         | Tri-ethanolamine Titanate                     | 36673-16-2   |
| Strong-ti-OT S2        | Di-iso-propoxytitanium bis ethyl acetoacetate | 27858-32-8   |
| Strong-ti-OT S4        | Di-iso-ethoxytitanium bis ethyl acetoacetate  | 27858-32-8   |
| Strong-ti-OT S6/OT S6L | Di-iso-butoxytitanium bis ethyl acetoacetate  | 83877-91-2   |
| Strong-ti-OT-100       | Alkonolamine Titanate Complex                 | 68784-47-4   |
| Strong-ti-OT-200       | Alkonolamine Titanate Complex                 | 68784-48-5   |
| Strong-ti-OT-300       | Alkonolamine Titanate Complex                 | NA           |
| Strong-ti-OT-400       | Alkonolamine Titanate Complex                 | 1072830-14-8 |

## Our wide range of products includes

Butyl titanate, Iso propyl titanate, BiPT titanate, TPT 20B titanate, Titanium phosphate complex, Titanium acetylacetonate, Tetra n-propyl titanate, Tetra 2-Ethylhexyl titanate, Poly butyl titanate, Alkanolamine titanate, Di-Propoxyl titanium chelate, Di-iso-butoxy titanium bis ethyl acetoacetate

**AN ISO 9001:2015 COMPANY**

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