

## DESCRIPTION

Tyzor® TnBT (tetra-n-butyl titanate) is a highly reactive organic alkoxy titanate with 100% active content. It is a clear, colorless to pale yellow liquid that is very sensitive to moisture.

Tyzor® TnBT acts as a Lewis acid catalyst in processes such as esterification, transesterification, condensation and addition. It also can be used to promote adhesion and cross-linking of polymers, or to form polymeric titanium dioxide layers used as binders or coatings.

## APPLICATIONS

### REACTION CATALYST

Tyzor® TnBT is used as a Lewis acid catalyst for esterification, transesterification, condensation and addition reactions, or as a Ziegler-Natta catalyst for polymerizations. Typical reaction products include (meth)acrylic esters, polyester, plasticizer, various esters and polyurethanes. Benefits include elimination of byproducts, increased yield, easy work-up, low catalyst concentration and low toxicity.

### COATINGS

Glass, metals, fillers and pigments can be treated with Tyzor® TnBT to increase surface hardness, promote adhesion, improve resistance to heat, chemicals, corrosion and scratches, add iridescence or coloring effects or enhance light reflection.

### PAINTS

Tyzor® TnBT is useful as a binder and also can be used as an adhesion promoter or cross-linker for -OH functional polymers and other binders in paints.

### TiO<sub>2</sub> PIGMENT AND FILMS

Micro- or nano-scale TiO<sub>2</sub> pigments can be formed from Tyzor® TnBT, which also can also be used to create polymeric TiO<sub>2</sub> films on surfaces via pyrolytic or hydrolytic (e.g. sol-gel) processes.

## HOW TO USE

Tyzor® TnBT is typically formulated with the other ingredients in catalysis, crosslinking or paint applications, and it is often added last to prevent undesired pre-reactions. It also may be applied as a primer from dilute solution.

Total or partial hydrolysis of Tyzor® TnBT in sol-gel applications, typically in combination with other metal alkoxides, produces metal oxide systems for use as binders or coatings.

## TYPICAL PROPERTIES

PROPERTY	TYPICAL VALUE
TiO <sub>2</sub> , wt. %, approx.	23.5
Active content, %, approx.	100
Form	Liquid
Color	Colorless to pale yellow
Molecular weight, g/mol	340
Density @ 20 °C (68 °F), g/ml (lbs/gal), approx.	0.99 (8.26)
Freezing point, °C (°F), approx.	-70 (-94)
Boiling point @ 10mm Hg, °C (°F), approx.	183 (361.4)
Flash point, °C (°F), approx.	47 (116.6)
Solubility	Miscible in most organic solvents. Decomposes quickly in water.



Dorf Ketal Speciality Catalysts LLC  
11200 Westheimer Road – Suite 400  
Houston, Texas 77042  
USA

Tel: +1-713-343-2377  
E-mail: [tyzor@dorketal.com](mailto:tyzor@dorketal.com)  
[www.dorketal.com](http://www.dorketal.com)

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