Tyzor® TPT

Organic Titanate

DESCRIPTION

Tyzor® TPT (tetra-isopropyl titanate) is a 100% active, highly reactive organic alkoxy titanate. It is a clear, colorless to yellowish liquid that is very sensitive to moisture. With a freezing point of approximately 19°C (66ºF), Tyzor® TPT may crystallize at low temperatures. If crystallization occurs, the product can be readily re-dissolved by warming and agitation.

FUNCTIONALITY

Tyzor® TPT acts as a Lewis acid catalyst in processes such as esterification, transesterification, condensation and addition. It can also be used to effect adhesion promotion and cross-linking of polymers, or to form polymeric titanium dioxide layers used as a binder or coating.
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APPLICATIONS

Reaction Catalyst	Tyzor® TPT 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. The benefits include: elimination of by-products; increased yield; easy work-up; low catalyst concentration; and low toxicity.
Coatings	Glass, metals, fillers, and pigments can be treated with Tyzor® TPT to give increased surface hardness, adhesion promotion, scratch resistance, coloring effects, heat and light reflection, iridescence, and corrosion resistance.
Paint Additive	Tyzor® TPT can be used as an additive in paints to cross-link –OH or -COOH functional polymers or binders, promote adhesion, or act as a binder itself.
TiO_2 Pigment and Films	Micro- or nano-scale TiO_2 pigments can be formed from Tyzor® TPT. It can also be used to create a polymeric TiO_2 film on surfaces via pyrolytic or hydrolytic (e.g. sol-gel) processes.

HOW TO USE

Tyzor® TPT is usually formulated with the other ingredients in catalysis, cross-linking, or paint applications. The titanate is often added as the last ingredient to prevent undesired pre-reactions with water or other components. For adhesion promotion or surface modification applications, Tyzor® TPT may also be applied as a primer from dilute solution.

In coating applications, thin, polymeric TiO_2 layers may be formed via thermal or hydrolytic processes.

In sol-gel applications, total or partial hydrolysis of Tyzor® TPT, typically in combination with other metal alkoxides, affords metal oxide systems for use as binder or coating.

TYPICAL PROPERTIES	PROPERTY	TYPICAL VALUE
	TiO2 Content	ca. 28.1 %
	Active Content	ca. 100 %
	Color	Colorless to Pale Yellow
	Molecular Weight	284 g/mol
	Density (20°C)	ca. 0.95 g/ml
	Viscosity (20°C)	ca. 3.5 mPa*s
	Freezing Point	ca. 19 °C
	Boiling Point (@10 mmHg)	ca. 232 °C
	Flash Point**	ca. 56 °C
	Solubility in Solvents	Miscible in most organic solvent
	Solubility in Water	Decomposes quickly

GLOBAL REGISTRATION INFORMATION Please refer to "Tyzor Global Registration Information" Bulletin

SAFETY and HANDLING For specific safety, handling and toxicity information, please refer to the current Material Safety Data Sheet.

TYPICAL SHELF LIFE 2 years

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