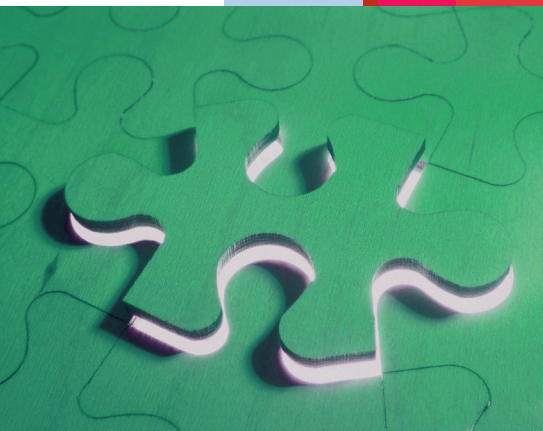


# DuPont™ Tyzor®

ORGANIC TITANATES

## Product Information for Tyzor® TE



### Description

DuPont™ Tyzor® TE is a triethanolamine titanium complex with 80% active ingredient in alcohol solvent. It is a clear, light yellow organic liquid.

### Typical Properties\* of Tyzor® TE

Property	Value	Unit
TiO <sub>2</sub> Content	ca. 13.7	%
Active Content	ca. 80	%
Color	Light Yellow	
Density (25°C)	ca. 1.06	g/mL
Viscosity (25°C)	ca. 350	mPa·s
Pour Point	-47	°C
Boiling Point	85	°C
Flash Point	ca. 16	°C
Solubility in Solvents	Miscible in most polar organic solvents	
Solubility in Water	Miscible	

\* This table gives typical properties. DuPont does not make any expressed or implied warranty that this product will continue to have these typical properties.

### Functionality

Tyzor® TE reacts with water by hydrolysis to form a reactive hydroxy titanium chelate. The chelate is stable in water for extended periods. The original or hydrated chelate can form complexes with organic -OH or -COOH groups. When reacted in this way with multifunctional polymers such as carbohydrates (e.g., cellulose, starch and guar gum), strong gels may be formed by cross-linking. Tyzor® TE also can act as an adhesion promoter to oxidized surfaces by a similar mechanism.

In addition, Tyzor® TE can act as a Lewis acid catalyst in processes such as esterification, transesterification, condensation and addition.



*The miracles of science™*

## Applications

### Reaction catalyst

DuPont™ Tyzor® TE can act as a Lewis acid catalyst for esterification, transesterification, condensation and addition reactions. It is especially well suited to direct esterification processes due to its excellent compatibility with the water by-product. The benefits of using Tyzor® TE include: moderate reaction rates; high yield; easy work-up; low toxicity; and low catalyst concentration.

### Oil well fracturing fluids

Tyzor® TE is an effective cross-linking agent for dispersions of guar and its derivatives to form high-viscosity aqueous gels used in oil well fracturing applications.

### Thixotropic paints

Tyzor® TE acts as an effective cross-linking agent of carbohydrate-coated latex particles for highly viscous thixotropic paints.

### Waterborne paints

Tyzor® TE is an effective cross-linking agent for the pigments and binders in waterborne paints, such as acrylic paints.

## Use

Tyzor® TE is usually formulated with 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. The time for cross-linking or gel formation depends on several factors, including: the formulation ingredients; temperature; pH; and titanate concentration.

### Put Tyzor® to Work for You

The broad range of Tyzor® organic titanates and zirconates 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 Tyzor® to work in your application anywhere in the world.

## Contact Information

For more information about the extensive line of DuPont™ Tyzor® organic titanates and zirconates, please contact:

### North America

Wilmington, Delaware  
Pricing and Orders: 800-441-9508  
Technical Support: 800-255-4596  
Fax: 302-992-2695

### South America

São Paulo, Brazil  
Phone: 55 11 4166-8337  
Fax: 55 11 4166-8849

### Europe, Middle East, Africa

Antwerp, Belgium  
Phone: +32 (3) 730-2282  
Fax: +32 (3) 730-2390

### Asia Pacific

Taipei, Taiwan  
Phone: 886-2-2514-4451

**Email: [tyzor@usa.dupont.com](mailto:tyzor@usa.dupont.com)**

**Web site: [www.tyzor.dupont.com](http://www.tyzor.dupont.com)**

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