



# Integrated Chemical Specialties

- a division of Integrated Traffic Systems USA



**Ti-ORG™**  
Organic Titante

bringing **solutions**  to **complex** chemistry

## Titanates

Titanates are organic compounds that contain titanium dioxide group.

Potassium titanates are used in applications instead of asbestos because they can be very fibrous depending on chemical process during their production. They are an alternative fiber-like material to replace asbestos; they have good wear and tear stability, act as noise buffer and

have a high melting point of around 1300°C. Zirconium titanates have a variety of applications ranging from use in wireless communication to effective acid-base bifunctional catalyst and as temperature pigments in chemical industry.  $ZrO_2$  and  $TiO_2$  based oxides can also be used in thin film and optics applications as well as for composites and sensor production. They can be used in the microwave frequency region as a temperature-stable low loss di-electric material.

## Classic Applications

Oil & Gas



Constructions



Paints & Coatings



Aviation



*Your Preferred Supplier Of High-Quality Chemicals*

Industry	Application
Construction	Internal walls as replacement for asbestos in sheet-rock
Pigments	Additive
Coatings	Additive

## Usage

TI-ORG™ is usually formulated with other ingredients in catalysis, cross linking or paint applications.

It is often added last to avoid undesired pre-reactions with water or other components. Time required for cross-linking or gel formation depends on formulation ingredients, temperature, pH, titanate concentration and other factors.

## Introduction

TI-ORG™ is a tri-ethanolamine titanium complex with 80% active ingredient in alcohol solvent.

TI-ORG™ reacts with water by hydrolysis to form a reactive hydroxy titanium chelate that is stable in water for extended periods. The original or hydrated chelate bonds with

organic - OH or - COOH group to form strong gels by cross-linking many polymeric materials and carbohydrates such as cellulose, starch and guar. TI-ORG™ reacts similarly as an adhesion promoter on functionalized surfaces, and also acts as a Lewis acid catalyst in processes such as esterification, transesterification, condensation and addition.

## Application

### Reaction Catalysts

TI-ORG™ acts 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. Benefits include moderate reaction rates, high yield, easy work-up, low toxicity and low catalyst concentration.

### Oil Well Fracturing Fluids

TI-ORG™ is an effective cross-linker that forms high-viscosity aqueous gels in dispersions of guar and its derivatives used in oil and gas well fracturing applications.

### Thixotropic Paints

TI-ORG™ is an effective cross-linking agent for carbohydrate-coated latex particles in highly viscous thixotropic paints.

### Waterborne Paints

TI-ORG™ is an effective cross-linking agent for the pigments and binders in acrylics and other waterborne paints.

TEST	UNIT	SPECIFICATIONS
TiO <sub>2</sub> wt.	wt. % approx	13.69
Ti	wt. %	Min 94.0%
Active content	wt. % approx	80
Color	–	Light Yellow
Molecularweight	g/mol	327
Specific gravity @25°C (77°F)	approx	1.06
Viscosity @25°C (77°F)	mPa•s, approx	350
Pourpoint	°C (°F)	-47 (-52.6)
Boilingpoint @3mm Hg	°C (°F)	85 (185)
Flashpoint	°C (°F) approx	16 (60.8)
Solvent	–	Alcohol

### Packaging

Regulated for transportation by USDOT

### Safety & Handling

Please refer to the current Material Safety Data Sheet for detailed safety, handling and toxicity information.

### Typical Shelf Life

2 years



# ABOUT



## Integrated Chemical Specialties

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Integrated Chemical Specialties comprises a competent team of professionals who strive hard to ensure the highest level of quality and service in our business. It is our goal to deliver every product meeting the quality and consistency that our customers expect, irrespective of its origin. Our specialty chemicals are used in a variety of applications and industries. We offer customized solutions through formulated products and excellent technical support.

We consider ourselves a versatile and customer centric company that works closely with its customers to provide them the products they need. Our dedication and motivation have made us who we are today, as that also shapes our future.

At Integrated Chemical Specialties, we believe building solid partnerships with our customer is critical to our success. We as a company endeavor to follow the right path, which will allow us to continue meeting new challenges and exceeding expectations.

## YOUR SAFETY OUR CONCERN

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