

**Safety Data Sheet**

**Conforms to OSHA Hazard Communication Standard (HCS)**  
**29CFR 1910.1200**

Printing date 02/22/2016


Version number 3

Reviewed on 02/22/2016

## 1 Identification of the Substances/Preparation and of the Company/Undertaking

- **Product identifier**
- **Product name:** TYZOR® TOT
- **Relevant identified uses of the substance or mixture and uses advised against**  
 Industrial use as formulation of adhesive , sealants; Lubricant additives ; Coatings and paints, thinners, paint removers; Esterification and transesterification processes; Fuels; Polymer preparations and compounds
- **Application of the substance / the mixture**  
 Catalyst; Cross-linking agent; Adhesion promoter; Surface modifier.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 Dorf Ketal Specialty Catalysts LLC  
 11200 Westheimer Road  
 Suite 400  
 Houston, Texas 77042  
 Phone= +1 713 343 2377  
 Fax= +1 832 649 7615  
 Email: ehss@dorketal.com
- **Emergency telephone number:**  
 For Chemical Emergency ONLY (spill, leak, fire, exposure or accident) call Chemtrec at +1 (703) 527 3887 or Chemtrec India at 000-800-100-7141. DORF KETAL Emergency Control Room +91 22-65271001.

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
 Flam. Liq. 4 H227 Combustible liquid.  
 Skin Irrit. 2 H315 Causes skin irritation.  
 Eye Irrit. 2A H319 Causes serious eye irritation.  
 STOT SE 3 H335 May cause respiratory irritation.
- **OSHA/HCS status**  
 This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- **Label elements**
- **Hazard pictograms**  
  
 GHS07
- **Signal word** Warning
- **Hazard-determining components of labeling:**  
 titanium tetrakis (2-ethylhexanolate)
- **Hazard statements**  
 Combustible liquid.  
 Causes skin irritation.  
 Causes serious eye irritation.  
 May cause respiratory irritation.

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- **Precautionary statements**

Wear protective gloves/protective clothing/eye protection/face protection.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER/doctor

Take off contaminated clothing.

IF ON SKIN: Wash with plenty of water.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 2

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 2

Fire = 2

Reactivity = 0

- **Other hazards**

The criteria for PBT and vPvB is not met and this product is not hazardous to the ozone layer.

- **% of unknown toxicity:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization:** Substance

- **Dangerous components:**

1070-10-6	titanium tetrakis (2-ethylhexanolate)	> 97.0%
	Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	

### 4 First-aid measures

- **Description of first aid measures**

- **General information:**

Take affected persons out into the fresh air.

Do not leave affected persons unattended.

- **Inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

- **Skin Contact:**

Immediately rinse with water.

If skin irritation continues, consult a doctor.

Remove contaminated clothing and shoes.

Wash clothing before reuse.

Clean shoes thoroughly before reuse.

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- **Eye Contact:**

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.  
Check for and remove any contact lenses.  
Rinse opened eye for several minutes under running water. Then consult a doctor.

- **Ingestion:**

Rinse out mouth and then drink plenty of water.  
Do not induce vomiting.  
If symptoms occur seek medical attention.

- **Most important symptoms and effects, both acute and delayed**

Causes serious eye irritation  
Skin irritation. Pain or irritation, redness, blistering may occur.  
May be irritating to respiratory system. Respiratory tract irritation, coughing.

- **Indication of any immediate medical attention and special treatment needed**

Show this safety data sheet to the doctor in attendance. Treat symptomatically.

## 5 Fire-fighting measures

- **Extinguishing media** In case of fire use the following suitable extinguishing agent.

- **Suitable extinguishing agents:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Advice for firefighters**

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- **Protective equipment:**

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation  
Wear protective clothing.  
Keep away from ignition sources  
Use respiratory protective device against the effects of fumes/dust/aerosol.  
Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:** Do not allow product to reach sewage system or any water course.

- **Methods and material for containment and cleaning up:**

Stop leak if without risk.  
Move containers from spill area.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Ensure adequate ventilation.

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## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
  - Put on appropriate personal protective equipment .
  - Do not ingest.
  - Avoid contact with eyes, skin and clothing.
  - Ensure good ventilation/exhaustion at the workplace.
  - Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:**
  - Store away from oxidizing agents.
  - Store away from foodstuffs.
- **Further information about storage conditions:**
  - Moisture-sensitive material. Once opened, container should be kept under nitrogen blanketing to prevent decomposition.
  - Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not Established.
- **Exposure controls**
- **Appropriate engineering controls:**
  - If there are no applicable exposure limit requirement or guidelines, general ventilation should be sufficient for most operations.
  - Local exhaust ventilation may be necessary for some operations.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Immediately remove all soiled and contaminated clothing.
  - Wash hands before breaks and at the end of work.
  - Avoid contact with the eyes and skin.
  - Do not inhale gases / fumes / aerosols.
- **Breathing equipment:**
  - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
  - Appropriate respiratory protection (assigned protection factor of 10 or 20) should be used to keep the exposure via inhalation at acceptable level.

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- **Protection of hands:**



Protective gloves

- **Material of gloves**

Gloves: EN374. Gloves should be worn when there is potential for dermal exposure. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.



Tightly sealed goggles

- **Body protection:**

Protective work clothing  
Safety Shoes

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

**Form:**

Liquid

**Color:**

Colourless to light yellow

- **Odor:**

Alcohol-like

- **Odor threshold:**

No data available.

- **pH-value:**

No data available

- **Melting point/Freezing Point :**

&lt; 75 °C (&lt; 167 °F) (OECD 102)

- **Boiling point/Boiling range:**

Substance decomposes before boiling (OECD 103). 184.6 °C at 101.3 kPa (BP of main degradation product, 2 ethylhexanol, used for CSA)

- **Flash point:**

&gt; 62 °C (&gt; 144 °F) (ASTM D-93)

- **Flammability (solid, gaseous):**

Not applicable.

- **Decomposition temperature:**

No data available.

- **Explosion limits:**

**Lower:**

Not applicable ( substance is non explosive)

**Upper:**

not applicable (Substance non-explosive)

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· <b>Oxidizing properties</b>	No
· <b>Vapor pressure:</b>	Substance decomposes during vapour pressure testing (OECD 104). 1 hPa at 20 °C (read across data of 2-ethylhexanol)
· <b>Relative density at 25 °C (77 °F)</b>	0.935 g/cm <sup>3</sup> (7.803 lbs/gal) (ASTM D 891)
· <b>Vapor density</b>	No data available
· <b>Evaporation rate</b>	No data available
· <b>Solubility(water):</b>	Testing is not technically feasible as substance is hydrolytically unstable. 880 mg/L at 25 °C (water solubility of degradation product 2-ethylhexanol)
· <b>Partition coefficient (n-octanol/water):</b>	Hydrolytically unstable, Log Kow (Pow): 2.9 at 25 °C for hydrolysing product 2 ethylhexanol released in water
· <b>Viscosity:</b>	
<b>Dynamic at 25 °C (77 °F):</b>	128 mPas (DKTM-112.1)
<b>Kinematic:</b>	No data available.

## 10 Stability and reactivity

### · **Reactivity**

Under normal conditions of storage and use, hazardous reactions will not occur.

Water reactive, complete hydrolysis will take place with no significant reaction products other 2-ethylhexanol and hydrated titanium dioxide when comes in contact with water or moisture.

· **Chemical stability** The product is stable under storage at normal ambient temperature.

### · **Possibility of hazardous reactions**

Under normal conditions of storage and use, hazardous reactions are not known.

### · **Conditions to avoid**

Avoid all possible sources of ignition (spark or flame).

Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

### · **Incompatible materials:**

Hydrolyzes in water to form 2-ethylhexanol and titanium dioxide.

Oxidizing materials

### · **Hazardous decomposition products:**

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 Toxicological information

### · **Information on toxicological effects**

### · **Acute toxicity:**

### · **LD/LC50 values that are relevant for classification:**

#### 1070-10-6 titanium tetrakis (2-ethylhexanolate)

Oral	LD50	3290 mg/kg bw (Rat)
Dermal	LD50	3000 mg/kg bw (Rat)

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Inhalative	LC50	No adverse effect observed (-)
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- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritating effect.

- **Respiratory/ Skin sensitization:** No sensitizing effects known.

- **Germ cell mutagenicity:** Substance is not classified for germ cell mutagenicity.

- **Carcinogenicity:** Substance has not been classified for carcinogenicity

- **Reproductive toxicity:** Substance is not classified for reproductive toxicity.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

- **Single dose toxicity:** May cause respiratory irritation.

- **Repeated Dose toxicity**

Substance has not been classified for specific target organ toxicity- repeated exposure.

- **Aspiration hazard** Substance is not classified for aspiration hazard.

- **Other relevant information:** No data available

## 12 Ecological information

- **Toxicity**

Substance is not classified as dangerous to aquatic organisms. Because this substance hydrolysis rapidly the intrinsic ecotoxicological properties are related to the most critical decomposition product 2-ethylhexanol.

- **Aquatic toxicity:**

**1070-10-6 titanium tetrakis (2-ethylhexanolate)**

EC50 (72h)	16.6 mg/l (Algae)
LC50 (48h)	40 mg/L (Daphnia)
LC50 (96 h)	17.1 mg/l (Fish)

- **Persistence and degradability**

Readily degradable. Main organic decomposition product (2-ethylhexanol) is readily biodegradable; . No persistence potential.(OECD Guideline 111)

- **Bioaccumulative potential** No potential for bioaccumulation (OECD Guideline111)

- **Mobility in soil**

High mobility in soil based on high water solubility and estimated Koc 35.28 L/kg of degradation product 2-ethylhexanol.

- **Results of PBT and vPvB assessment** The substance is not a PBT or a vPvB

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· **Other adverse effects** No further relevant information available.

## 13 Disposal Information

· **Waste treatment methods**

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

\*

## 14 Transport information

· **UN-Number**

· **DOT**

NA1993

· **ADR, ADN, IMDG, IATA**

Not Regulated

· **UN proper shipping name**

· **DOT**

COMBUSTIBLE LIQUID, N.O.S (titanium tetrakis (2-ethylhexanolate))

· **ADR, ADN, IMDG, IATA**

Not Regulated

· **Transport hazard class(es)**

· **DOT**



· **Class**

3 Combustible liquids

· **Label**

3

· **ADR, ADN, IMDG, IATA**

· **Class**

Not Regulated

· **Packing group**

· **DOT**

III

· **ADR, IMDG, IATA**

Not Regulated

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· **Environmental hazards:**· **Marine pollutant:** No· **Special precautions for user** Not applicable.· **Transport in bulk according to Annex II of  
MARPOL73/78 and the IBC Code** Not applicable.· **Transport/Additional information:**

· **DOT** **Non-bulk: Not Regulated**  
Non-bulk: A maximum capacity of 450 L (119 gallons)

## 15 Regulatory information

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):** Substance is listed.· **Proposition 65**· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **Chemical safety assessment** Chemical safety assessment has been carried out.

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### 16 Other information

File name: TYZOR TOT\_SDS\_US\_en\_FEB-22-2016

Superseded SDS date: JUL-21-2014

Change History: DOT technical name and Non bulk information updated.

· **Note** Conforms to UNGHS Rev.3(2009)· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

APF = Assigned protection factor

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

IOELV: Indicative Occupational Exposure Limit Values

Flam. Liq. 4: Flammable liquids, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· **Disclaimer:**

The data and recommendations presented in this data sheet concerning the use of our product and the materials contain there in are believed to be accurate and are based on information which is considered reliable as of the date hereof. However, the customer should determine the suitability of much material for his purpose before adopting them on a commercial scale. Since the use our product by others is beyond our control, no guarantee, express or implied, is made and no responsibility assumed for the use of this material or the results to be obtained there from. Information on this document is furnished for the purpose of compliance with Government Health and Safety Regulations and shall not be used for any other purposes. Moreover, the recommendations contained in this Safety Data Sheet are not to be constructed as a license to operate under, or a recommendation to infringe, any existing patents, nor should they be confused with state, municipal or insurance requirements, or with national safety codes.