

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

\*

## 1 Identification

- **Product identifier**
- **Product name:** Tyzor-IAM
- **Application of the substance / the preparation** Catalysts / Cross-linking agent/ Adhesin promoters
- **Details of the supplier of the safety data sheet** Regulatory Department
- **Manufacturer/Supplier:**  
Dorf Ketal Specialty Catalysts LLC  
11200 Westheimer Road  
Suite 400  
Houston, Texas 77042  
Phone= +1 713 343 3477  
Fax= +1 832 649 7615  
Email: ehss@dorketal.com
- **Information department:** Regulatory Manager
- **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. 2      H225 Highly flammable liquid and vapour.  
Aquatic Chronic 2      H411 Toxic to aquatic life with long lasting effects.  
Eye Irrit. 2A      H319 Causes serious eye irritation.  
STOT SE 3      H336 May cause drowsiness or dizziness.
- **OSHA/HCS status**  
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02   GHS07   GHS09

- **Signal word** Danger
- **Hazard statements**  
Highly flammable liquid and vapour.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.  
Toxic to aquatic life with long lasting effects.

(Contd. on page 2)

USA

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 1)

**· Precautionary statements**

If medical advice is needed, have product container or label at hand.  
 Keep out of reach of children.  
 Read label before use.  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
 Use explosion-proof electrical/ventilating/lighting/equipment.  
 Wash thoroughly after handling.  
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

**· Classification system:****· NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 3

Reactivity = 0

**· HMIS-ratings (scale 0 - 4)**

Health = 2

Fire = 3

Reactivity = 0

## 3 Composition/information on ingredients

**· Chemical characterization: Substances****· Dangerous components:**

109037-78-7	Titanium, Bu phosphate Et alc. iso-Pr alc. Complexes	> 60%
	Flam. Liq. 2, H225; Aquatic Chronic 2, H411; Eye Irrit. 2A, H319; STOT SE 3, H336	

## 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.  
 In case of unconsciousness place patient stably in side position for transportation.

**· Skin Contact:**

Immediately rinse with water.

(Contd. on page 3)

USA

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 2)

Remove contaminated clothing and shoes.

Wash clothing before reuse.

Clean shoes thoroughly before reuse.

If skin irritation continues, consult a doctor.

- **Eye Contact:**

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

Remove contact lenses if worn, if possible.

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; immediately call for medical help.

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

Causes serious eye irritation

Dizziness

Headache

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

No further relevant information available.

\*

## 5 Fire-fighting measures

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

- **Suitable extinguishing agents:**

Alcohol resistant foam

Fire-extinguishing powder

Carbon dioxide

Sand

- **For safety reasons unsuitable extinguishing agents:** Water spray

- **Special hazards arising from the substance or mixture**

Flammable liquid and vapour.

In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide

Metal oxides

- **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.

USA

(Contd. on page 4)

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 3)

## 6 Accidental release measures

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

Wear protective clothing.

Keep away from ignition sources

Ensure adequate ventilation

Wear protective equipment. Keep unprotected persons away.

Use respiratory protective device against the effects of fumes/dust/aerosol.

- **Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

- **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.

## 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.

Avoid breathing vapour or mist.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**

- **Requirements to be met by storerooms and receptacles:**

Store in a cool location.

Avoid storage near extreme heat, ignition sources or open flame.

- **Further information about storage conditions:**

Keep under nitrogen blanket.

Keep receptacle tightly sealed.

- **Specific end use(s)** No further relevant information available.

USA

(Contd. on page 5)

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 4)

\*

## 8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not Established.
- **Additional information:** The lists that were valid during the creation were used as basis.
  
- **Exposure controls**
- **Appropriate engineering controls:**  
 Use local exhaust ventilation or other engineering control to maintain airborne levels below exposure limit requirement or guidelines.  
 Local exhaust ventilation may be necessary for some operations.  
 If there are no applicable exposure limit requirement or guidelines, general ventilation should be sufficient for most 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.  
 Do not inhale gases / fumes / aerosols.  
 Avoid contact with the eyes and skin.
- **Breathing equipment:**  
 Where there is potential for airborne exposures, wear NIOSH approved respiratory protection.  
 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.
- **Protection of hands:**  
 The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
 The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **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.

(Contd. on page 6)

USA

# Safety Data Sheet

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

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 5)

· **Eye protection:**

Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:****Form:**

Liquid

**Color:**

Colourless to light yellow

· **Odor:**

Sweetish

· **Odour threshold:**

No data available.

· **pH-value:**

No data available

· **Change in condition****Melting point/Freezing Point :**

&lt; -50 °C (&lt; -58 °F)

**Boiling point/Boiling range:**

80 °C (176 °F)

· **Flash point:**

12 °C (54 °F)

· **Decomposition temperature:**

No data available.

**Auto ignition temperture**

386 °C

· **Explosion limits:****Lower:**

No data available.

**Upper:**

No data available

· **Oxidizing properties**

No data available.

· **Vapor pressure:**

55 hPa at 25 °C

**Relative density at 25 °C (77 °F)**1 g/cm<sup>3</sup> (8.345 lbs/gal)· **Vapour density**

No data available

· **Evaporation rate**

No data available

· **Solubility****Water:**

Decomposes in contact with water.

· **Partition coefficient (n-octanol/water):** No data available· **Viscosity:****Dynamic:**

20 mPa/s at 25 °C

(Contd. on page 7)

USA

# Safety Data Sheet

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

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 6)

**Kinematic:**

No data available.

## 10 Stability and reactivity

- **Reactivity** Under normal conditions of storage and use, hazardous reactions will not occur.
- **Chemical stability** The product is stable.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions**  
Under normal conditions of storage and use, hazardous polymerisation will not occur.
- **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 alcohol and titanium dioxide.
- **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:**
- |        |       |                    |
|--------|-------|--------------------|
| Dermal | LD 50 | > 2000 mg/kg (rat) |
|--------|-------|--------------------|
- **Primary irritant effect:**
  - **on the skin:** No irritant effect.
  - **on the eye:** Irritating effect.
  - **Sensitization:** No sensitizing effects known.

## 12 Ecological information

- **Toxicity** This material is toxic to aquatic life with long lasting effects.
  - **Aquatic toxicity:**
- |                      |                    |
|----------------------|--------------------|
| Acute EC50 (48 hrs)  | >10 mg/l (daphnia) |
| Acute LC 50 (96 hrs) | >10 mg/l (Fish)    |
- **Persistence and degradability** No further relevant information available.
  - **Behavior in environmental systems:**
  - **Bioaccumulative potential** No further relevant information available.
  - **Mobility in soil** No further relevant information available.

(Contd. on page 8)

USA

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 7)

· **Ecotoxical effects:**· **Remark:** Toxic for fish· **Additional ecological information:**· **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

· **Results of PBT and vPvB assessment**· **PBT:** Not available· **vPvB:** Not available· **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

· **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.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

· **UN-Number**· **DOT, ADR, IMDG, IATA**

UN1993

· **UN proper shipping name**· **DOT**

Flammable liquids, n.o.s. (Titanium, Bu phosphate Et alc. iso-Pr alc. Complexes)

· **ADR**

1993 Flammable liquids, n.o.s. (Titanium, Bu phosphate Et alc. iso-Pr alc. Complexes), special provision 640D,  
ENVIRONMENTALLY HAZARDOUS

(Contd. on page 9)

USA



# Safety Data Sheet






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

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 8)

· <b>IMDG</b>	FLAMMABLE LIQUID, N.O.S. (Titanium, Bu phosphate Et alc. iso-Pr alc. Complexes)
· <b>IATA</b>	FLAMMABLE LIQUID, N.O.S.(Titanium, Bu phosphate Et alc. iso-Pr alc. Complexes)
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
 	
· <b>Class</b>	3 Flammable liquids.
· <b>Label</b>	3
· <b>ADR</b>	
 	
· <b>Class</b>	3 (F1) Flammable liquids.
· <b>Label</b>	3
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids.
· <b>Label</b>	3
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>Special precautions for user</b>	Warning: Flammable liquids
· <b>Danger code (Kemler):</b>	33
· <b>EMS Number:</b>	F-E, <u>S-E</u>

(Contd. on page 10)

USA

# Safety Data Sheet

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

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 9)

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **UN "Model Regulation":**

UN1993, Flammable liquids, n.o.s.(Titanium, Bu phosphate Et alc. iso-Pr alc. Complexes), special provision 640D,  
ENVIRONMENTALLY HAZARDOUS, 3, II

## 15 Regulatory information

· **Sara**

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

None of the ingredients are listed.

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

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

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

None of the ingredients are listed.

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

None of the ingredients are listed.

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

None of the ingredients are listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

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

None of the ingredients are listed.

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

None of the ingredients are listed.

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

None of the ingredients are listed.

(Contd. on page 11)

USA

# Safety Data Sheet

## Conforms to OSHA Hazard Communication Standard (HCS)

### 29CFR 1910.1200

Printing date 11/27/2013

Reviewed on 11/27/2013

**Product name:** Tyzor-IAM

(Contd. of page 10)

· **Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

## 16 Other information

File Name: Tyzor IAM SDS US en NOV-27-2013

· **Contact:** Regulatory Manager· **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

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

IOELV: Indicative Occupational Exposure Limit Values

· **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.

USA