

## SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

### CL-11 CROSSLINKER

Revision Date: 16-Sep-2015

Revision Number: 22

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### 1.1. Product Identifier

**Product Name** CL-11 CROSSLINKER  
**Internal ID Code** HM000333

##### 1.2. Relevant identified uses of the substance or mixture and uses advised against

|                           |                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Recommended Use</b>    | Crosslinker                                                                                                                                                                                                                                                                                                                                                 |
| <b>Sector of use</b>      | SU2 - Mining, (including offshore industries)                                                                                                                                                                                                                                                                                                               |
| <b>Product category</b>   | PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific                                                                                                                                                                                                                                                   |
| <b>Process categories</b> | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |

##### 1.3. Details of the supplier of the safety data sheet

Halliburton Energy Services  
 Halliburton House, Howemoss Place  
 Kirkhill Industrial Estate  
 Dyce  
 Aberdeen, AB21 0GN  
 United Kingdom

[www.halliburton.com](http://www.halliburton.com)

For further information, please contact

**E-Mail address:** [fdunexchem@halliburton.com](mailto:fdunexchem@halliburton.com)

##### 1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

| Emergency telephone - §45 - (EC)1272/2008 |                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Europe</b>                             | <b>112</b>                                                                                                                                    |
| <b>Croatia</b>                            | Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health) |
| <b>Cyprus</b>                             | +210 7793777                                                                                                                                  |
| <b>Denmark</b>                            | Poison Control Hotline (DK): +45 82 12 12 12                                                                                                  |
| <b>France</b>                             | ORFILA (FR): + 01 45 42 59 59                                                                                                                 |
| <b>Germany</b>                            | Poison Center Berlin (DE): +49 030 30686 790                                                                                                  |
| <b>Italy</b>                              | Poison Center, Milan (IT): +39 02 6610 1029                                                                                                   |
| <b>Netherlands</b>                        | National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)                       |
| <b>Norway</b>                             | Poisons Information (NO): + 47 22 591300                                                                                                      |
| <b>Poland</b>                             | Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97                                                        |
| <b>Romania</b>                            | +40 21 318 36 06                                                                                                                              |
| <b>Spain</b>                              | Poison Information Service (ES): +34 91 562 04 20                                                                                             |
| <b>United Kingdom</b>                     | NHS Direct (UK): +44 0845 46 47                                                                                                               |

#### SECTION 2: Hazards Identification

**2.1. Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

|                                                    |                            |
|----------------------------------------------------|----------------------------|
| Skin Corrosion / irritation                        | Category 2 - (H315)        |
| Serious Eye Damage / Eye Irritation                | Category 2 - (H319)        |
| Specific Target Organ Toxicity - (Single Exposure) | Category 3 - (H335 + H336) |
| Flammable liquids.                                 | Category 2 - (H225)        |

**2.2. Label Elements****Hazard Pictograms****Signal Word****Danger****Hazard Statements**

H225 - Highly flammable liquid and vapor

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness

**Precautionary Statements - EU (§28, 1272/2008)**

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P280 - Wear protective gloves/eye protection/face protection

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P312 - Call a POISON CENTER or doctor/physician if you feel unwell

**Contains****Substances**

Organic titanium complexes

Isopropanol

**CAS Number**

Proprietary

67-63-0

**2.3. Other Hazards**

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**SECTION 3: Composition/information on Ingredients****3.2. Mixtures**

Mixture

| Substances                 | EINECS     | CAS Number  | PERCENT (w/w) | EU - CLP Substance Classification                                | REACH No.         |
|----------------------------|------------|-------------|---------------|------------------------------------------------------------------|-------------------|
| Organic titanium complexes | Not Listed | Proprietary | 60 - 100%     | Skin Irrit. 2 (H315)<br>Eye Irrit. 2A (H319)<br>STOT SE 3 (H335) | No data available |
| Isopropanol                | 200-661-7  | 67-63-0     | 10 - 30%      | Eye Irrit. 2 (H319)<br>STOT SE 3 (H336)<br>Flam. Liq. 2 (H225)   | 01-2119457558-25  |

**For the full text of the H-phrases mentioned in this Section, see Section 16**

|         |                       |
|---------|-----------------------|
| ACN No. | 18-0000000342-86-0000 |
|---------|-----------------------|

## SECTION 4: First aid measures

### **4.1. Description of first aid measures**

|                   |                                                                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b> | If inhaled, move victim to fresh air and seek medical attention.                                                                                                                |
| <b>Eyes</b>       | In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.             |
| <b>Skin</b>       | In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse. |
| <b>Ingestion</b>  | Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.                                                                                              |

### **4.2. Most Important symptoms and effects, both acute and delayed**

Causes eye irritation. Causes skin irritation. May cause respiratory irritation. May cause headache, dizziness, and other central nervous system effects.

### **4.3. Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically

## SECTION 5: Firefighting Measures

### **5.1. Extinguishing media**

#### **Suitable Extinguishing Media**

Water fog, carbon dioxide, foam, dry chemical.

#### **Extinguishing media which must not be used for safety reasons**

None known.

### **5.2. Special hazards arising from the substance or mixture**

#### **Special Exposure Hazards**

May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

### **5.3. Advice for firefighters**

#### **Special Protective Equipment for Fire-Fighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## SECTION 6: Accidental release measures

### **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition. Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.

See Section 8 for additional information

### **6.2. Environmental precautions**

Prevent from entering sewers, waterways, or low areas.

### **6.3. Methods and material for containment and cleaning up**

Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

### **6.4. Reference to other sections**

See Section 8 and 13 for additional information.

## SECTION 7: Handling and Storage

### **7.1. Precautions for Safe Handling**

Remove sources of ignition. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another. Use appropriate protective equipment.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a well ventilated area. Store in a cool, dry location. Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Product has a shelf life of 24 months.

**7.3. Specific End Use(s)****Exposure Scenario**

No information available

**Other Guidelines**

No information available

## SECTION 8: Exposure Controls/Personal Protection

**8.1. Control parameters****Exposure Limits**

| Substances                 | CAS Number  | EU             | UK                                                                                          | Netherlands    | France                                       |
|----------------------------|-------------|----------------|---------------------------------------------------------------------------------------------|----------------|----------------------------------------------|
| Organic titanium complexes | Proprietary | Not applicable | Not applicable                                                                              | Not applicable | Not applicable                               |
| Isopropanol                | 67-63-0     | Not applicable | TWA: 400 ppm<br>TWA: 999 mg/m <sup>3</sup><br>STEL: 500 ppm<br>STEL: 1250 mg/m <sup>3</sup> | Not applicable | STEL: 400 ppm<br>STEL: 980 mg/m <sup>3</sup> |

| Substances                 | CAS Number  | Germany                                    | Spain                                                                                                           | Portugal                      | Finland                                                                                    |
|----------------------------|-------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------|
| Organic titanium complexes | Proprietary | Not applicable                             | Not applicable                                                                                                  | Not applicable                | Not applicable                                                                             |
| Isopropanol                | 67-63-0     | TWA: 200 ppm<br>TWA: 500 mg/m <sup>3</sup> | TWA: 200 ppm<br>TWA: 500 mg/m <sup>3</sup><br>400 ppm STEL<br>[VLA-EC]; 1000 mg/m <sup>3</sup> STEL<br>[VLA-EC] | TWA: 200 ppm<br>STEL: 400 ppm | TWA: 200 ppm<br>TWA: 500 mg/m <sup>3</sup><br>STEL: 250 ppm<br>STEL: 620 mg/m <sup>3</sup> |

| Substances                 | CAS Number  | Austria                                                                                     | Ireland                     | Switzerland                                                                                 | Norway                                                                                        |
|----------------------------|-------------|---------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Organic titanium complexes | Proprietary | Not applicable                                                                              | Not applicable              | Not applicable                                                                              | Not applicable                                                                                |
| Isopropanol                | 67-63-0     | TWA: 200 ppm<br>TWA: 500 mg/m <sup>3</sup><br>STEL: 800 ppm<br>STEL: 2000 mg/m <sup>3</sup> | 200 ppm TWA<br>400 ppm STEL | TWA: 200 ppm<br>TWA: 500 mg/m <sup>3</sup><br>STEL: 400 ppm<br>STEL: 1000 mg/m <sup>3</sup> | TWA: 100 ppm<br>TWA: 245 mg/m <sup>3</sup><br>STEL: 150 ppm<br>STEL: 306.25 mg/m <sup>3</sup> |

| Substances                 | CAS Number  | Italy          | Poland                                                     | Hungary                                                    | Czech Republic             |
|----------------------------|-------------|----------------|------------------------------------------------------------|------------------------------------------------------------|----------------------------|
| Organic titanium complexes | Proprietary | Not applicable | TWA: 10 mg/m <sup>3</sup><br>STEL: 30 mg/m <sup>3</sup>    | Not applicable                                             | Not applicable             |
| Isopropanol                | 67-63-0     | Not applicable | TWA: 900 mg/m <sup>3</sup><br>STEL: 1200 mg/m <sup>3</sup> | TWA: 500 mg/m <sup>3</sup><br>STEL: 2000 mg/m <sup>3</sup> | TWA: 500 mg/m <sup>3</sup> |

| Substances                 | CAS Number  | Denmark                                    | Romania                                                                                   | Croatia                                                                                     | Cyprus         |
|----------------------------|-------------|--------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------|
| Organic titanium complexes | Proprietary | Not applicable                             | Not applicable                                                                            | Not applicable                                                                              | Not applicable |
| Isopropanol                | 67-63-0     | TWA: 200 ppm<br>TWA: 490 mg/m <sup>3</sup> | TWA: 81 ppm<br>TWA: 200 mg/m <sup>3</sup><br>STEL: 203 ppm<br>STEL: 500 mg/m <sup>3</sup> | TWA: 400 ppm<br>TWA: 999 mg/m <sup>3</sup><br>STEL: 500 ppm<br>STEL: 1250 mg/m <sup>3</sup> | Not applicable |

**Derived No Effect Level (DNEL)**

No information available.

**Worker**

| Substances  | Long-term exposure - systemic effects, Inhalation | Acute / short term exposure - systemic effects, Inhalation | Long-term exposure - local effects, Inhalation | Acute / short term exposure - local effects, Inhalation | Long-term exposure - systemic effects, Dermal | Acute / short term exposure - systemic effects, Dermal | Long-term exposure - local effects, Dermal | Acute / short term exposure - local effects, Dermal | Hazards for the eyes - local effects |
|-------------|---------------------------------------------------|------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------|--------------------------------------------|-----------------------------------------------------|--------------------------------------|
| Isopropanol | 500 mg/m <sup>3</sup>                             | Not available                                              | Not available                                  | Not available                                           | 888 mg/kg bw/day                              | Not available                                          | Not available                              | Not available                                       | Not available                        |

**General Population**

| Substances  | Long-term exposure - systemic effects, Inhalation | Acute / short term exposure - systemic effects, Inhalation | Long-term exposure - local effects, Inhalation | Acute / short term exposure - local effects, Inhalation | Long-term exposure - systemic effects, Dermal | Acute / short term exposure - systemic effects, Dermal | Long-term exposure - local effects, Dermal | Acute / short term exposure - local effects, Dermal | Long-term exposure - systemic effects, Oral | Acute / short term exposure - local effects, Oral | Hazards for the eyes - local effects |
|-------------|---------------------------------------------------|------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------|--------------------------------------------|-----------------------------------------------------|---------------------------------------------|---------------------------------------------------|--------------------------------------|
| Isopropanol | 89 mg/m <sup>3</sup>                              | Not available                                              | Not available                                  | Not available                                           | 319 mg/kg bw/day                              | Not available                                          | Not available                              | Not available                                       | 26 mg/kg bw/day                             | Not available                                     | Not available                        |

**Predicted No Effect Concentration (PNEC)**

No information available.

| Substances  | Freshwater | Marine water | Intermittent release | Sewage treatment plant | Sediment (freshwater) | Sediment (marine water) | Air           | Soil             | Secondary poisoning |
|-------------|------------|--------------|----------------------|------------------------|-----------------------|-------------------------|---------------|------------------|---------------------|
| Isopropanol | 140.9 mg/L | 140.9 mg/L   | 140.9 mg/L           | 2251 mg/L              | 552 mg/kg sediment dw | 552 mg/kg sediment dw   | Not available | 28 mg/kg soil dw | 160 mg/kg food      |

**8.2. Exposure controls****Engineering Controls**

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

**Personal protective equipment**

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

**Respiratory Protection**

In high concentrations, supplied air respirator or a self-contained breathing apparatus. Organic vapor respirator.

**Hand Protection**

Impervious rubber gloves.

**Skin Protection**

Rubber apron.

**Eye Protection**

Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions**

Eyewash fountains and safety showers must be easily accessible.

**Environmental Exposure Controls** Do not allow material to contaminate ground water system

## SECTION 9: Physical and Chemical Properties

**9.1. Information on basic physical and chemical properties**

**Physical State:** Liquid

**Color:** Clear light yellow

**Odor:** Alcohol

**Odor Threshold:** No information available

PropertyValues

Remarks/ - Method

**pH:**

8

**Freezing Point/Range**

No data available

**Melting Point/Range**

No data available

**Boiling Point/Range**

85 °C / 185 °F

**Flash Point**

16 °C / 61 °F PMCC

**Flammability (solid, gas)**

No data available

upper flammability limit

No data available

lower flammability limit

No data available

**Evaporation rate**

No data available

**Vapor Pressure**

No data available

**Vapor Density**

No data available

**Specific Gravity**

1.06

**Water Solubility**

Miscible with water

**Solubility in other solvents**

No data available

**Partition coefficient: n-octanol/water**

No data available

**Autoignition Temperature**

No data available

**Decomposition Temperature**

No data available

**Viscosity**

No data available

**Explosive Properties**

No information available

**Oxidizing Properties**

No information available

**9.2. Other information**

**VOC Content (%)**

No data available

## SECTION 10: Stability and Reactivity

**10.1. Reactivity**

Not expected to be reactive.

**10.2. Chemical Stability**

Stable

**10.3. Possibility of Hazardous Reactions**

Will Not Occur

**10.4. Conditions to Avoid**

Keep away from heat, sparks and flame.

**10.5. Incompatible Materials**

Strong oxidizers.

#### 10.6. Hazardous Decomposition Products

Olefins. Amines. Flammable hydrocarbons. Carbon monoxide and carbon dioxide. Oxides of nitrogen.

## SECTION 11: Toxicological Information

### 11.1. Information on Toxicological Effects

#### Acute Toxicity

##### Inhalation

May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

##### Eye Contact

Causes eye irritation.

##### Skin Contact

Causes skin irritation.

##### Ingestion

Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

#### Chronic Effects/Carcinogenicity

Repeated overexposure may cause liver and kidney effects.

### Toxicology data for the components

| Substances                 | CAS Number  | LD50 Oral                                                  | LD50 Dermal                                                        | LC50 Inhalation                              |
|----------------------------|-------------|------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------|
| Organic titanium complexes | Proprietary | 3488 mg/kg                                                 | No data available                                                  | No data available                            |
| Isopropanol                | 67-63-0     | 4396 mg/kg (Rat)<br>5840 mg/kg (Rat)<br>3600 mg/kg (Mouse) | 12,800 mg/kg (Rat)<br>12,870 mg/kg (Rabbit)<br>6280 mg/kg (Rabbit) | 72.6 mg/L (Rat) 4h<br>> 10,000 mg/L (Rat) 6h |

| Substances                 | CAS Number | Skin corrosion/irritation           |
|----------------------------|------------|-------------------------------------|
| Organic titanium complexes |            | Causes moderate skin irritation.    |
| Isopropanol                | 67-63-0    | Non-irritating to the skin (Rabbit) |

| Substances                 | CAS Number | Eye damage/irritation                    |
|----------------------------|------------|------------------------------------------|
| Organic titanium complexes |            | Causes moderate eye irritation.          |
| Isopropanol                | 67-63-0    | Causes moderate eye irritation. (Rabbit) |

| Substances                 | CAS Number | Skin Sensitization                                             |
|----------------------------|------------|----------------------------------------------------------------|
| Organic titanium complexes |            | No information available                                       |
| Isopropanol                | 67-63-0    | Did not cause sensitization on laboratory animals (guinea pig) |

| Substances                 | CAS Number | Respiratory Sensitization |
|----------------------------|------------|---------------------------|
| Organic titanium complexes |            | No information available  |
| Isopropanol                | 67-63-0    | No information available  |

| Substances                 | CAS Number | Mutagenic Effects                                                                            |
|----------------------------|------------|----------------------------------------------------------------------------------------------|
| Organic titanium complexes |            | No information available                                                                     |
| Isopropanol                | 67-63-0    | In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. |

| Substances                 | CAS Number | Carcinogenic Effects                                    |
|----------------------------|------------|---------------------------------------------------------|
| Organic titanium complexes |            | No information available.                               |
| Isopropanol                | 67-63-0    | Did not show carcinogenic effects in animal experiments |

| Substances                 | CAS Number | Reproductive toxicity                                                                         |
|----------------------------|------------|-----------------------------------------------------------------------------------------------|
| Organic titanium complexes |            | No information available                                                                      |
| Isopropanol                | 67-63-0    | No significant toxicity observed in animal studies at concentration requiring classification. |

| Substances                 | CAS Number | STOT - single exposure                                                   |
|----------------------------|------------|--------------------------------------------------------------------------|
| Organic titanium complexes |            | May cause respiratory irritation.                                        |
| Isopropanol                | 67-63-0    | May cause headache, dizziness, and other central nervous system effects. |

| Substances | CAS | STOT - repeated exposure |
|------------|-----|--------------------------|
|------------|-----|--------------------------|

|                            | Number  |                                                                                                                    |
|----------------------------|---------|--------------------------------------------------------------------------------------------------------------------|
| Organic titanium complexes |         | No information available                                                                                           |
| Isopropanol                | 67-63-0 | No significant toxicity observed in animal studies at concentration requiring classification. (similar substances) |

| Substances                 | CAS Number | Aspiration hazard |
|----------------------------|------------|-------------------|
| Organic titanium complexes |            | Not applicable    |
| Isopropanol                | 67-63-0    | Not applicable    |

## SECTION 12: Ecological Information

### 12.1. Toxicity Ecotoxicity Effects

| Substances                 | CAS Number  | Toxicity to Algae                                                                                 | Toxicity to Fish                                                                        | Toxicity to Microorganisms              | Toxicity to Invertebrates                                                          |
|----------------------------|-------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------|
| Organic titanium complexes | Proprietary | No information available                                                                          | No information available                                                                | No information available                | No information available                                                           |
| Isopropanol                | 67-63-0     | EC50 (72h) > 1000 mg/L (Desmodesmus subspicatus)<br>EC50 (7d) 1800 mg/L (Scenedesmus quadricauda) | LC50 (96h) 9640 mg/L (Pimephales promelas)<br>LC50 (7d) 7060 mg/L (Poecilia reticulata) | TT (16h) 1050 mg/L (Pseudomonas putida) | EC50 (48h) 13,299 mg/L (Daphnia magna)<br>EC50 (24h) > 10,000 mg/L (Daphnia magna) |

### 12.2. Persistence and degradability

| Substances                 | CAS Number  | Persistence and Degradability    |
|----------------------------|-------------|----------------------------------|
| Organic titanium complexes | Proprietary | No information available         |
| Isopropanol                | 67-63-0     | Readily biodegradable (53% @ 5d) |

### 12.3. Bioaccumulative potential

| Substances                 | CAS Number  | Log Pow                  |
|----------------------------|-------------|--------------------------|
| Organic titanium complexes | Proprietary | No information available |
| Isopropanol                | 67-63-0     | 0.05                     |

### 12.4. Mobility in soil

| Substances                 | CAS Number  | Mobility                 |
|----------------------------|-------------|--------------------------|
| Organic titanium complexes | Proprietary | No information available |
| Isopropanol                | 67-63-0     | KOC = 1.5                |

### 12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

| Substances  | PBT and vPvB assessment |
|-------------|-------------------------|
| Isopropanol | Not PBT/vPvB            |

### 12.6. Other adverse effects

#### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

## SECTION 13: Disposal Considerations

### 13.1. Waste treatment methods

#### Disposal Method

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations.

#### Contaminated Packaging

Follow all applicable national or local regulations.

## SECTION 14: Transport Information

**IMDG/IMO**

**UN Number:** UN1219  
**UN Proper Shipping Name:** Isopropanol Solution  
**Transport Hazard Class(es):** 3  
**Packing Group:** II  
**Environmental Hazards:** Not applicable

**RID**

**UN Number:** UN1219  
**UN Proper Shipping Name:** Isopropanol Solution  
**Transport Hazard Class(es):** 3  
**Packing Group:** II  
**Environmental Hazards:** Not applicable

**ADR**

**UN Number:** UN1219  
**UN Proper Shipping Name:** Isopropanol Solution  
**Transport Hazard Class(es):** 3  
**Packing Group:** II  
**Environmental Hazards:** Not applicable

**IATA/ICAO**

**UN Number:** UN1219  
**UN Proper Shipping Name:** Isopropanol Solution  
**Transport Hazard Class(es):** 3  
**Packing Group:** II  
**Environmental Hazards:** Not applicable

**14.1. UN Number:** UN1219

**14.2. UN Proper Shipping Name:** Isopropanol Solution

**14.3. Transport Hazard Class(es):** 3

**14.4. Packing Group:** II

**14.5. Environmental Hazards:** Not applicable

**14.6. Special Precautions for User:** None

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable

**SECTION 15: Regulatory Information**
**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
**International Inventories**

|                               |                                                            |
|-------------------------------|------------------------------------------------------------|
| <b>EINECS Inventory</b>       | This product, and all its components, complies with EINECS |
| <b>US TSCA Inventory</b>      | All components listed on inventory or are exempt.          |
| <b>Canadian DSL Inventory</b> | All components listed on inventory or are exempt.          |

**Legend**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**Germany, Water Endangering Classes (WGK)** WGK 1: Low hazard to waters.

**15.2. Chemical Safety Assessment**

No information available

**SECTION 16: Other Information**

Full text of H-Statements referred to under sections 2 and 3

H225 - Highly flammable liquid and vapor  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
H336 - May cause drowsiness or dizziness

**Key or legend to abbreviations and acronyms**

bw – body weight  
CAS – Chemical Abstracts Service  
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures  
EC – European Commission  
EC10 – Effective Concentration 10%  
EC50 – Effective Concentration 50%  
EEC – European Economic Community  
ErC50 – Effective Concentration growth rate 50%  
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk  
LC50 – Lethal Concentration 50%  
LD50 – Lethal Dose 50%  
LL0 – Lethal Loading 0%  
LL50 – Lethal Loading 50%  
MARPOL – International Convention for the Prevention of Pollution from Ships  
mg/kg – milligram/kilogram  
mg/L – milligram/liter  
NIOSH – National Institute for Occupational Safety and Health  
NOEC – No Observed Effect Concentration  
NTP – National Toxicology Program  
OEL – Occupational Exposure Limit  
PBT – Persistent Bioaccumulative and Toxic  
PC – Chemical Product category  
PEL – Permissible Exposure Limit  
ppm – parts per million  
PROC – Process category  
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals  
STEL – Short Term Exposure Limit  
SU – Sector of Use category

**Key literature references and sources for data**

www.ChemADVISOR.com/  
OSHA

**Revision Date:** 16-Sep-2015

**Revision Note**

SDS sections updated: 1

**This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010**

**Disclaimer Statement**

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**End of Safety Data Sheet**