

# MATERIAL SAFETY DATA SHEETS

( This MSDS is prepared pursuant to the provision of Article 41 of the Industrial Safety and Health Law )

Revision : 3 (Last Revision Data : 2017.01.09)

Product Name : DS447

MSDS No. : RC-0038

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

1.1 Product Name : DS447

1.2 Chemical Classification : Silicone Sealant

1.3 Recommended Product Usage and Limited Use : Sealant and adhesive

1.4 Company Details:

1) Manufacturer/Supplier : Dong Yang Silicone Co.,Ltd

2) Address : 34-3, Dogok-gil, Yangseong-myeon, Anseong-si, Gyeonggi-do, Korea

3) Telephone Number : Tel) 031-671-3571 Fax) 031-671-3574

## 2. HAZARD IDENTIFICATION

2.1 Hazard Classification : Serious eye damage/eye irritation: Category 2

2.2. Label Elements Including Precautionary Statements :

Symbol :



Signal Word : Warning

Hazard Risk Statement : Causes serious eye irritation

Precautionary Statement :

Prevention : Wash hands thoroughly after handling.  
Wear suitable protective clothing and gloves.  
Avoid contact with skin and eyes.  
Use only outdoors or in a well-ventilated area.

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists, get medical advice/attention.  
IF ON SKIN: Wash with plenty of soap and water.

Storage : Not applicable.

Disposal : Not applicable.

2.3 Other Hazard. Risk which are not included in the classification criteria: None known.



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MSDS No. : RC-0038

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Common Name or Synonym	CAS No.	%(w/w)	GHS Classification
Methyl tri(methylethyl ketoxime)silane	-	22984-54-9	1 ~ <5	Flammable liquid: Category 4 Acute toxicity (Oral): Category 5 Serious eye damage/eye irritation: Category 2A Skin sensitization: Category 1 Specific target organ toxicity - repeated exposure (Oral): Category 2 (blood)
Methylethylketoxime	-	96-29-7	0.1 ~ <1	Flammable liquid: Category 4 Acute toxicity (Oral): Category 5 Acute toxicity (Dermal): Category 4 Serious eye damage/eye irritation: Category 1 Skin sensitization: Category 1 Carcinogenicity (Inhalation - vapour): Category 2

Other ingredients not listed in this section are non-hazardous or business confidential.

## 4. FIRST AID MEASURES

**4.1 If in Eyes:** Immediately flush with water for 15 minutes. Get medical attention.

**4.2 If on Skin:** Wash off with soap and water.

**4.3 If Inhaled:** Remove to fresh air. Get medical attention if ill effects persist.

**4.4 If Ingested:** Get medical attention.

**4.5 Other Note to physicians:** Treat according to person's condition and specifics of exposure.

Treat symptomatically. For further information, the Medical Practitioner should refer to the phone number in Section 1.

## 5. FIRE-FIGHTING MEASURES

**5.1 Suitable (and Unsuitable) Extinguishing Media:**

**Suitable :** On large fires use dry chemical or foam. On small fires use CO2 or dry chemical.

Water can be used to cool fire exposed containers.



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Product Name : DS447

MSDS No. : RC-0038

**Unsuitable** : Water. Do not allow extinguishing medium to contact container contents.

**5.2 Specific Hazards Arising from the Chemical (e.g.nature of any Hazardous Combustion Products) :**

Carbon oxides and traces of incompletely burned carbon compounds. Metal oxides. Silicon dioxide. Formaldehyde. Nitrogen oxides. Quartz.

**5.3 Special Protective Equipment and Precautions for Fire-Fighters :** Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool. Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals.

## 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal Precautions and Protective Equipment :** Avoid skin and eye contact. Do not breathe vapour. Do not take internally.

**6.2 Environmental Precautions :** Do not allow large quantities to enter drains or surface waters.

**6.3 Methods for Cleaning up :** Observe all personal protective equipment recommendations described in this MSDS. If diked material can be pumped, store recovered material in appropriate container. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which laws and regulations are applicable.

## 7. HANDLING AND STORAGE

**7.1 Handling Precautions:** Use with adequate ventilation. Product evolves methyl ethyl ketoxime (MEKO) when exposed to water or humid air. Provide ventilation during use to control methyl ethyl ketoxime (MEKO) within exposure guidelines or use respiratory protection. Product evolves flammable methyl alcohol when exposed to water or humid air. Provide ventilation during use to control methyl alcohol exposures within exposure guidelines or use air-supplied or self-contained breathing apparatus. Avoid skin and eye contact. Do not breathe vapour. Do not take internally. Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

**7.2 Storage Conditions (including any incompatibilities) :**



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Product Name : DS447

MSDS No. : RC-0038

Use reasonable care and store away from oxidizing materials. Keep container closed and store away from water or moisture.

## 8. PREVENTIVE MEASURES/PERSONAL PROTECTIVE EQUIPMENT

### 8.1 Occupational Exposure Limit Values, Biological Limit Values:

#### Industrial Hygiene Standards:

Ingredients	CAS No.	Exposure Limits
Methyltri(methylethylketoxime)silane	22984-54-9	See ethyl methyl ketoxime comments.
Methylethylketoxime	96-29-7	Vendor guide: TWA 3 ppm, STEL 10 ppm.

Ethyl methyl ketoxime is formed upon contact with water or humid air. Provide adequate ventilation to control exposures

within the following exposure guidelines: Vendor guide TWA: 3 ppm, STEL: 10 ppm.

### 8.2 Engineering Controls:

**Local Ventilation:** Recommended.

**General Ventilation:** Recommended.

### 8.3 Personal Protective Equipment:

#### Routine Handling :

**Respiratory protection:** Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. IH personnel can assist in judging the adequacy of existing engineering controls.

**Suitable Respirator :** Organic Vapor Type.

**Eye protection:** Use proper protection - safety glasses as a minimum.

**Hand protection:** Chemical protective gloves should be worn if sensitive skin is a problem or for prolonged contact.

**Skin protection:** Washing at mealtime and end of shift is adequate.

**Hygiene Measures:** Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

#### Spills :

**Respiratory protection :** Use self-contained breathing apparatus (SCBA) or other supplied-air respirator.



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Revision : 3 (Last Revision Data : 2017.01.09)

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**Eye protection** : Use full face respirator.

**Skin protection** : Washing at mealtime and end of shift is adequate.

**Precautionary Measures** : Avoid skin and eye contact. Do not breathe vapour. Do not take internally.  
Use reasonable care.

**Comments** : Product evolves methyl ethyl ketoxime (MEKO) when exposed to water or humid air. Provide ventilation during use to control methyl ethyl ketoxime (MEKO) within exposure guidelines or use respiratory protection. Product evolves flammable methyl alcohol when exposed to water or humid air. Provide ventilation during use to control methyl alcohol exposures within exposure guidelines or use air-supplied or self-contained breathing apparatus.

Note : These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance(physical state,colour etc) : Paste

9.2 Odour : Some odor.

9.3 Odour Threshold : Not determined.

9.4 pH : Not determined.

9.5 Melting Point/ Freezing Point : Not determined.

9.6 Initial Boiling Point and Boiling Range : Not determined.

9.7 Flash Point : > 100 °C (Seta Closed Cup)

9.8 Evaporation Rate : Not determined.

9.9 Flammability (solid, gas) : Not applicable.

9.10 Upper/ Lower Flammability or Explosive Limit :

Upper Limit : Not determined.

Lower Limit : Not determined.

9.11 Vapor Pressure @ 25°C : Not determined.

9.12 Solubility in Water : Not determined.

9.13 Vapour Density (air=1): Not determined.

9.14 Specific Gravity : 1.02

9.15 Octanol/water partition coefficient : Not determined.

9.16 Autoignition Temperature : Not determined.

9.17 Decomposition Temperature : Not determined.

9.18 Viscosity : Not determined.



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MSDS No. : RC-0038

**9.19 Molecular Weight** : Not determined.

The above information is not intended for use in preparing product specifications.

## 10. STABILITY AND REACTIVITY

**10.1 Chemical Stability and Possibility of Hazardous Reactions** : Stable.

Hazardous polymerization will not occur.

**10.2 Conditions to avoid** : None.

**10.3 Materials to avoid** : Can react with strong oxidising agents. Water, moisture or humid air can cause Hazardous vapors to form.

**10.4 Hazardous Decomposition Products** : Carbon oxides and traces of incompletely burned carbon compounds. Metal oxides. Silicon dioxide. Formaldehyde. Nitrogen oxides. Quartz.

## 11. TOXICOLOGICAL INFORMATION

**11.1 Information on the likely Routes of Exposure:**

**Respiratory** : Exposure is unexpected.

**Oral** : Exposure is expected.

**Eye, Skin** : Exposure is expected.

**11.2 Information on the Health Hazards**

• **Acute Toxicity** :

Component Name	Acute Toxicity
Methylethylketoxime	LD50: 2,326mg/kg – Oral Rat LD50: <1,800mg/kg – Dermal Rabbit

**Eyes:** Direct contact may cause severe irritation.

**Skin:** May produce an allergic reaction.

**Inhalation:** Irritates respiratory passages very slightly. Vapours evolved during curing may cause dizziness.

**Ingestion:** Low ingestion hazard in normal use.

**Chronic Toxicity:**

**Skin:** Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis.

**Inhalation:** Prolonged or repeated exposure by inhalation may injure internally.

**Ingestion:** Repeated ingestion or swallowing large amounts may injure internally.



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Product Name : DS447

MSDS No. : RC-0038

## Other Health Hazard Information :

During use of the material, small amounts of methylethylketoxime (MEKO) will be released. Long-term or repeated exposure to high concentrations of oxime-silanes may cause narcotic type effects on the nervous system, harmful effects on the blood (anemia) and irritate nasal passages, but these effects are reversible and not considered serious. Rodents exposed to chronic MEKO inhalation throughout their lifetimes showed significant increases in liver tumor rates.

**Skin Corrosion/ Irritation:** Please refer to Section 3.

**Serious Eye Damage / Irritation :** Please refer to Section 3.

**Respiratory Sensitization :** Please refer to Section 3.

**Skin Sensitization :** Please refer to Section 3.

- **Carcinogenicity:**

CAS No.	Chemical Name	% (w/w)	Remarks
96-29-7	Methylethylketoxime	0.1- <1	Annex I of EU Directive 67/548/EEC– Carc.Cat.3(Substances which cause concern for man owing to possible carcinogenic effects

- **Germ Cell Mutagenicity:** Please refer to Section 3.

- **Reproductive Toxicity:** Please refer to Section 3.

- **Specific Target Organ. Systemic Toxicity (Single Exposure):** Please refer to Section 3.

- **Specific Target Organ. Systemic Toxicity (Repeated Exposure):** Please refer to Section 3.

- **Aspiration Hazard:** Please refer to Section 3.

## 12. EFFECTS ON THE ENVIRONMENT

### 12.1 Ecotoxicity:

#### Environmental Effects

- **Acute :** No adverse effects on aquatic organisms are predicted.
- **Chronic :** No adverse effects on aquatic organisms are predicted.

### 12.2 Persistence and Degradability:

- **Environmental Fate and Distribution:** This product is a solid and does not contain significant concentrations of water soluble constituents that may be leached from the product. It is therefore not likely to present a danger to terrestrial organisms.
- **Water :** Solid material, insoluble in water.



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MSDS No. : RC-0038

## 12.3 Bioaccumulative Potential:

- **Bioaccumulation** : No bioaccumulation potential.

12.4 **Mobility in Soil**: None known.

## 12.5 Additional Environmental Information:

- **Fate and Effects in Waste Water Treatment Plants** : No adverse effects on bacteria are predicted.

## 13. DISPOSAL CONSIDERATIONS

13.1 **Product Disposal** : Dispose of in accordance with local regulations.

13.2 **Disposal precaution**: Dispose of in accordance with local regulations.

## 14. TRANSPORT INFORMATION

### 14.1 Sea transport (IMDG):

UN No. :	Not subject to IMDG code.
Class :	Not subject to IMDG code.
Packing Group:	Not subject to IMDG code.
Proper Shipping Name:	Not subject to IMDG code.
Technical Name:	Not subject to IMDG code.
Marine Pollutant (Yes/No):	Not subject to IMDG code.
Hazard Label(s):	Not subject to IMDG code.

### 14.2 Transportation Precautions:

Transport in accordance with the relevant regulations. Refer to section 7.2 for further information on transportation requirements. Refer to section 6 for the safety measures to be taken in the event of accidental release.

### 14.3 Other International Transportation Regulations

#### Air Transport (IATA-DGR):

UN No.:	Not subject to IATA regulations.
Class:	Not subject to IATA regulations.
Packing Group:	Not subject to IATA regulations.
Proper Shipping Name:	Not subject to IATA regulations.
Technical Name:	Not subject to IATA regulations.
Hazard Label(s):	Not subject to IATA regulations.





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## 15. REGULATORY INFORMATION

### 15.1 Classification and labelling in accordance with Industrial Safety and Health Law :

#### Harmful Substances Prohibited from Manufacturing :

No subject chemicals

#### Harmful Substances Requiring Permission :

No subject chemicals

#### Controlled Hazardous Substances :

No subject chemicals

### 15.2 Chemicals controlled in accordance with Toxic Chemicals Control Act :

#### Toxic Chemicals :

No subject chemicals

#### Observational Chemicals :

No subject chemicals

#### Prohibited Chemicals :

No subject chemicals

#### Restricted Toxic Chemicals :

No subject chemicals

#### Korean TRI Chemicals :

No subject chemicals

#### Accident Release Prevention Chemicals :

No subject chemicals

### 15.3 Hazardous Material Safety Management Act :

**Classification :** Not applicable for Korea Fire Law.

**15.4 Wastes Management Act :** Product should be disposed of in accordance with Waste Management Law Article 13.

### 15.5 Other Local or International Regulations :

#### Chemical Inventories :

**EINECS:** All ingredients listed or exempt.

**AICS:** All ingredients listed or exempt.

**IECSC :** All ingredients listed or exempt.



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**KECL** : All ingredients listed, exempt or notified.

**HSNO** : All ingredients listed or exempt.

**PICCS** : All ingredients listed or exempt.

**TSCA** : Not determined.

**ENCS/ISHL** : Not determined.

**DSL** : Not determined.

## 16. OTHER INFORMATION

**Information Source** : Dong Yang Silicone co., Ltd.

**Preparation Department** : R&D Center.

**First Issuing Date** : 2012/03/08

**Revision No** : 3

**Latest Revision Date**: 2017/01/09

**Others** : Not determined.

This information is offered in good faith as typical values and not as a product specification. No warranty, expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable.

However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

