

**OS® 4025 Tetraoximosilane in VOS**

Version 2

Revision Date 02/23/2010

Print Date 02/24/2010

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : OS® 4025 Tetraoximosilane in VOS  
MSDS Number : 00000007080  
Product Use Description : Crosslinker for Silicone Sealant.

Company : Honeywell International, Inc.  
101 Columbia Road  
Morristown, NJ 07962-1057

For more information call : 1-800-322-2766  
(Monday-Friday, 9:00am-5:00pm)

**In case of emergency call : Medical: 1-800-498-5701**  
: **Transportation: 1-800-424-9300 or +1-703-527-3887**  
: (24 hours/day, 7 days/week)

**SECTION 2. HAZARDS IDENTIFICATION****Emergency Overview**

Form : Mixture contains liquid and solid

Color : light yellow to dark yellow

Odor : mild aromatic

Hazard Summary : Combustible. Harmful by inhalation. May be harmful if swallowed. May be harmful if absorbed through skin. Causes serious eye irritation. Causes severe skin irritation. May cause burns. Irritating to respiratory system. May cause allergic skin reaction. May cause irritation of the gastrointestinal tract. Will reduce the ability of the blood to transport oxygen (methemoglobinemia and anemia).

**Potential Health Effects**

Skin : Causes severe skin irritation.  
May be harmful if absorbed through skin.  
May cause allergic skin reaction.  
May cause systemic poisoning with symptoms paralleling those of inhalation.

Eyes : Causes serious eye irritation.  
Causes itching, burning, redness and tearing.  
May cause burns.

Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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	May cause systemic poisoning with symptoms paralleling those of inhalation.
Inhalation	: Irritating to respiratory system. Vapours may be irritating to eyes, nose, throat, and lungs. The vapour may have narcotic effect Inhalation of high vapour concentrations can cause CNS-depression and narcosis. Will reduce the ability of the blood to transport oxygen (methemoglobinemia and anemia).
Chronic Exposure	: Will reduce the ability of the blood to transport oxygen (methemoglobinemia and anemia). Toxicology data for the components Based on animal evidence, there is limited evidence of a carcinogenic effect. The significance of these findings for humans has not been determined.
Aggravated Medical Condition	: Eye disorders Skin disorders Respiratory disorders
Target Organs	: Eyes Skin Respiratory system Central nervous system Gastrointestinal tract

**Carcinogenicity**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS-No.	Weight percent
Butan-2-one O,O',O''-(vinylsilyldiyl)trioxime	2224-33-1	57.00 - 63.00
Butan-2-one O,O',O'',O'''-silanetetrayltetraoxime	34206-40-1	27.00 - 33.00
Butanone oxime	96-29-7	<10.00
2,2-Bis(2-butanone oximino) butane	-	1.00 - 2.00
n-Hexane	110-54-3	<1.00

**SECTION 4. FIRST AID MEASURES**

Inhalation	: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.
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- Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.
- Ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Notes to physician**

- Treatment : Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Flash point : 88 °C (190 °F)  
closed cup
- Lower explosion limit : not determined
- Upper explosion limit : not determined
- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Alcohol-resistant foam  
Dry chemical  
Water may be ineffective.  
Decomposes in contact with water.
- Specific hazards during fire fighting : Combustible.  
Vapours may form explosive mixtures with air.  
Vapours are heavier than air and may spread along floors.  
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.  
In case of fire hazardous decomposition products may be produced such as:  
Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke.  
Methylethyl ketoxime (MEKO)  
Silicone oxide  
Methyl ethyl ketone
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.
- Additional advice : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions : Wear personal protective equipment.  
Immediately evacuate personnel to safe areas.  
Keep people away from and upwind of spill/leak.  
Ensure adequate ventilation.  
Remove all sources of ignition.  
Do not swallow.  
Avoid breathing vapors, mist or gas.  
Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.  
Discharge into the environment must be avoided.  
Prevent product from entering drains.  
Do not flush into surface water or sanitary sewer system.  
Do not allow run-off from fire fighting to enter drains or water courses.
- Methods for cleaning up : Ventilate the area.  
No sparking tools should be used.  
Use explosion-proof equipment.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**SECTION 7. HANDLING AND STORAGE****Handling**

- Handling : Wear personal protective equipment.  
Use only in well-ventilated areas.  
Keep container tightly closed.  
Protect from atmospheric moisture and water.  
Do not smoke.  
Do not swallow.  
Avoid breathing vapors, mist or gas.  
Avoid contact with skin, eyes and clothing.
- Advice on protection against fire and explosion : Keep away from fire, sparks and heated surfaces.  
Keep product and empty container away from heat and sources of ignition.  
Take precautionary measures against static discharges.  
Ensure all equipment is electrically grounded before beginning transfer operations.  
Use explosion-proof equipment.  
No sparking tools should be used.  
No smoking.

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**Storage**

Requirements for storage areas and containers : Store in area designed for storage of flammable liquids. Protect from physical damage.  
Keep containers tightly closed in a dry, cool and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Keep away from heat and sources of ignition.  
Keep away from direct sunlight.  
Protect from atmospheric moisture and water.  
Store away from incompatible substances.  
Container hazardous when empty.  
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : Use with local exhaust ventilation.  
Prevent vapor buildup by providing adequate ventilation during and after use.

Eye protection : Do not wear contact lenses.  
Wear as appropriate:  
Safety glasses with side-shields  
Safety goggles  
If splashes are likely to occur, wear:  
Goggles or face shield, giving complete protection to eyes

Hand protection : Solvent-resistant gloves (butyl-rubber)  
Neoprene gloves  
Gloves must be inspected prior to use.  
Replace when worn.

Skin and body protection : Wear as appropriate:  
Long sleeved clothing  
Gloves  
If splashes are likely to occur, wear:  
Protective suit

Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.  
Use NIOSH approved respiratory protection.  
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.

Hygiene measures : When using, do not eat, drink or smoke.  
Wash hands before breaks and immediately after handling the

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product.  
 Keep working clothes separately.  
 Remove and wash contaminated clothing before re-use.  
 Do not swallow.  
 Avoid breathing vapors, mist or gas.  
 Avoid contact with skin, eyes and clothing.

**Exposure Guidelines**

Methylethyl ketoxime	96-29-7	WEEL	TWA	10 ppm	36 mg/m3
		HONEYWELL	TWA		3 ppm
		HONEYWELL	STEL		10 ppm
n-Hexane	110-54-3	ACGIH	TWA		50 ppm
		Skin designation: Can be absorbed through the skin.			
		NIOSH	REL	50 ppm	180 mg/m3
		OSHA Z1	PEL	500 ppm	1,800 mg/m3
		OSHA Z1A	TWA	50 ppm	180 mg/m3

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form	: Mixture contains liquid and solid
Color	: light yellow to dark yellow
Odor	: mild aromatic
Melting point/range	: not determined
Boiling point/boiling range	: not determined
Vapor pressure	: not determined
Density	: ca.0.900 g/cm3 at 20 °C (68 °F)
Water solubility	: Hydrolyzes to the oxime in the presence of moisture.

**SECTION 10. STABILITY AND REACTIVITY**

Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight. Protect from atmospheric moisture and water.
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Materials to avoid	: Acids Oxidizing agents Metals Iron
Hazardous decomposition products	: Decomposes in contact with water. Possible decomposition products in case of hydrolysis are: Methylethyl ketoxime (MEKO) In case of fire hazardous decomposition products may be produced such as: Carbon dioxide (CO <sub>2</sub> ), carbon monoxide (CO), oxides of nitrogen (NO <sub>x</sub> ), dense black smoke. Methyl ethyl ketone Silicone oxide
Hazardous reactions	: Avoid exposure to water, strong acids and heat, especially in the presence of iron. Hazardous polymerisation may occur. May react violently if in contact with electrophiles, such as ferric chloride. Stable under recommended storage conditions.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Acute oral toxicity	: LD50 rat Dose: > 2,000 mg/kg Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime
Acute dermal toxicity	: LD50 rabbit Dose: 1,000 - 1,800 mg/kg Test substance: Butanone oxime
Acute inhalation toxicity	: LC50 rat Dose: > 4.8 mg/l Exposure time: 4 h Test substance: Butanone oxime
Skin irritation	: rabbit Moderate skin irritation Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime
Eye irritation	: rabbit Severe eye irritation Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime
Sensitisation	: guinea pig May cause sensitization by skin contact. Causes sensitization. Test substance: Butanone oxime
Repeated dose toxicity	: Oral gavage bioassay rat Subchronic toxicity, Blood effects, anemia, Lowest observed adverse effect level

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	25mg/kg/d Exposure time: 13 Weeks Test substance: Butanone oxime
Repeated dose toxicity	: Inhalation rat Subchronic toxicity, Blood effects, anemia NOEL: 25 ppm Exposure time: 4 Weeks Test substance: Butanone oxime
Repeated dose toxicity	: Inhalation rat Carcinogenicity, Liver tumors, 374 ppm Exposure time: 26 Months Test substance: Butanone oxime
Repeated dose toxicity	: Inhalation mouse Carcinogenicity, Liver tumors, 374 ppm Exposure time: 18 Months Test substance: Butanone oxime
Repeated dose toxicity	: Oral rat Transient target organ effects, central nervous system effects NOEL: 13 mg/kg Exposure time: 13 Weeks Test substance: Butanone oxime
Genotoxicity in vitro	: Mutagenicity (Escherichia coli - reverse mutation assay with or without metabolic activation) negative Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime
Genotoxicity in vitro	: Mutagenicity (Salmonella typhimurium - reverse mutation assay) with or without metabolic activation negative Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime
Genotoxicity in vitro	: Chromosome aberration test in vitro Chinese Hamster Ovary Cells positive, negative Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime
Genotoxicity in vivo	: Species: mouse Cell type: Bone marrow Mutagenicity (micronucleus test) Test substance: Butan-2-one O,O',O''-(vinylsilylidyne)trioxime negative
Reproductive toxicity	: Application Route: Oral rat Exposure time: Two-generation reproductive toxicity Test substance: Butanone oxime No toxicity to reproduction
Teratogenicity	: Application Route: Oral rat Test substance: Butanone oxime

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Teratogenicity	:	Did not show teratogenic effects in animal experiments, even at maternally toxic concentrations. Application Route: Oral rabbit Test substance: Butanone oxime Did not show teratogenic effects in animal experiments, even at maternally toxic concentrations.
Additional advice	:	Toxicology data for the components Based on animal evidence, there is limited evidence of a carcinogenic effect. The significance of these findings for humans has not been determined.

**SECTION 12. ECOLOGICAL INFORMATION**

Biodegradability	:	Inherently biodegradable. Test substance: Butanone oxime
Toxicity to fish	:	LC50 Species: not specified Dose: > 100 mg/l Exposure time: 96 h Test substance: Butanone oxime
Toxicity to fish	:	LC50 Species: <i>Oryzias latipes</i> (Orange-red killifish) Dose: > 100 mg/l Exposure time: 14 d Test substance: Butanone oxime
Toxicity to daphnia and other aquatic invertebrates.	:	LC50 Species: <i>Daphnia</i> Dose: 750 mg/l Exposure time: 48 h Test substance: Butanone oxime
Toxicity to daphnia and other aquatic invertebrates.	:	Reproduction Test EC50 Species: <i>Daphnia</i> Dose: > 100 mg/l Exposure time: 21 d Test substance: Butanone oxime OECD
Toxicity to algae	:	Biomass EC50 Species: Algae Dose: 6.1 mg/l Exposure time: 72 h Test substance: Butanone oxime

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Toxicity to algae : Growth rate EC50  
 Species: Algae  
 Dose: 11.6 mg/l  
 Exposure time: 72 h  
 Test substance: Butanone oxime

**SECTION 13. DISPOSAL CONSIDERATIONS**

Waste Information: Observe all Federal, State, and Local Environmental regulations.

**SECTION 14. TRANSPORT INFORMATION**

**DOT** UN-Number : 1993  
 Proper shipping name : Combustible liquid, n.o.s.  
 (Vinyl Oximino Silane, Tetra Oximino Silane)  
 Class CBL  
 Packing group III  
 Hazard Labels NON  
 Required only for US-DOT Bulk Shipments

**TDG** Not dangerous goods

**IATA** Not dangerous goods

**IMDG** Not dangerous goods

**SECTION 15. REGULATORY INFORMATION****Inventories**

1907/2006 (EU) : This mixture contains only ingredients which have been subject to a pre-registration according to Regulation (EC) No. 1907/2006 (REACH).

US. Toxic Substances Control Act : On TSCA Inventory

Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133) : All components of this product are on the Canadian DSL list.

Korea. Toxic Chemical Control Law (TCCL) List : On the inventory, or in compliance with the inventory

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Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

**National regulatory information**

**SARA 311/312 Hazards** : Fire Hazard  
Acute Health Hazard  
Chronic Health Hazard

**CERCLA Reportable Quantity** : 500000 lbs

**California Prop. 65** : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**Massachusetts RTK** : n-Hexane 110-54-3

**New Jersey RTK** : n-Hexane 110-54-3

**Pennsylvania RTK** : n-Hexane 110-54-3

**WHMIS Classification** : B2  
D2A  
D2B  
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

**SECTION 16. OTHER INFORMATION****HMIS III****NFPA**

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Health hazard	: 2*	2
Flammability	: 2	2
Physical Hazard	: 1	
Instability	:	1

**Further information**

\* - Chronic health hazard