#11 Nissin Chemcial Ind. Co, Ltd. Materials Safety Data Sheet
MSDS "OLFINS"

ShinEtsu

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Material Safety Data Sheet

Section 1. Material Identification

Product Name: OLFINE® STG
"OLFINE" is a registered trademark of Nissin Chemical Industry Co., Ltd.

Manufacturer: Nissin Chemical Industry Co., Ltd.
Telephone Number: 0778-22-5100

Date Prepared: June 7, 1994

Chemical Name: Mixture of 2,4,7,9-Tetramethyl-5-Decyn-4,7-Diol, Nonionic Surfactant and Organic Solvent

Component: As written above
Names of both nonionic surfactant and the solvent and proportion of all components are trade secret.

Chemical Structure: 2,4,7,9-Tetramethyl-5-Decyn-4,7-Diol

$CH_3-CH(CH_3)-CH_2-C(CH_3)(OH)-C \equiv C-C(CH_3)(OH)-CH_2-CH(CH_3)-CH_3$

Existance Chemicals List Number: All components are assured to be listed.

CAS Number: All components are assured to be listed.

UN Classification: Not Applicable

Section 2. Classification of Dangerousness and Harmfulness

Group Code: Not Applicable

Dangerousness: The chemical is liquid classified in Fire Hazard Code Class 4. The Third Petroleum Group in Japan. As vapor of the chemical is heavier than air, it stays at lower level on ground. It does not ignite at room temperature. It may make explosive gas mixture under excess heating.

Harmfulness: No data

Environmental Effects: No data

Section 3. First Aid

Eye Contact Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Skin Contact Wash affected area with water or warm water, then wash with soap and water. If appearance may change or feel pain or itchy, call a physician.

Inhalation In case of inhalation or suspected inhalation, move the patient at once to fresh air and call a physician. Keep patient absolutely quiet and start oxygen inhalation through suitable equipment. If breathing has stopped or is labored, give assisted respiration(e.g. mouth-to-mouth). Supplemental oxygen may be indicated.

Ingestion If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person.

Section 4. Fire Fighting

Special Fire Fighting Procedure In case of fire use extinguishing media. Firefighters should wear butyl rubber boots, gloves, and body suit and a self-contained breathing apparatus. Use water spray to cool fire-exposed tanks.

Extinguishing Media Powder, Carbon Dioxide, Foam

Section 5. Spill and Leak Information

Containment Techniques Shut off or remove all ignition sources at once. Prepare firefighting tools and extinguishing media for ignition. Ventilate the space involved. Put on protective clothing and a self-contained breathing apparatus.

Clean-up Procedure Constructing a barrage to avoid to flow out into a drainageover, transfer to containers by suction, preparing for later disposal. When a small amount leak, place in a sealed drum after absorption in dry sand, sawdust or waste. Clean-up personnel must be equipped with self contained breathing apparatus and butyl rubber protective clothing.

Section 6. Storage and Handling

Handling Keep away from heat, flames and ignition sources. Handle at ventilated area. Avoid contact with skin, eye or clothes. Avoid inhalation of vapor of the chemical. Wash hands, face, eyes and gargle throat at the end of each work shift and before eating, smoking or using toilet.

Storage Keep away from heat, flames and ignition sources. Keep in cool, dry ventilated storage and in closed containers.

Section 7 Exposure Controls

Exposure Standard No data

Exposure Limit Japan Industrial Hygien Association '92 Not Listed
ACGIH '92 For Solvent 50 ppm

Engineering Controls Adequate general and local exhaust: Readily accessible washing station for eye, hands and gargling

Protection eyrash-proof eye goggles; impervious gloves; long sleeved clothing
Respiratory protection is not required under normal conditions. In emergency situations, put on a self-contained breathing apparatus.

Section 8 Typical Physical and Chemical Properties

Appearance	colorless ~ yellow transparent liquid
Boiling Point	≧ 100 ℃
Vapor Pressure	No data
Volatility	None
Melting Point	No data
Specific Gravity	1.0
Molecular Weight	Mixture
Solubility	in water 0.5% @ 25 ℃

Section 9 Fire and Explosion Data

Flash Point	118 ℃ (Cleavland Open Method)
Ignition Point	No data
Explosion Limit	No data
Combustibility	Combustible organic liquid
Autoignition Temperature	No data
Reactivity with Water	No reactivity
Oxidizing	None
Self-reactivity	None
Dust Explosiveness	None
Chemical Stability	Stable
Other Reactivity	Irritant vapor occurs by thermal decomposition. Combustible acetylene is included in the vapor. Acetylene gas may occur by excess heating under basic circumstance. No dangerous polymerization occurs. Explosive acetylide may occur by reaction with silver, mercury, copper and those alloys and chemical compounds. Avoid contacts or mixture with oxidizing or dehydrating agent.

Section 10 Health Hazard

Skin Irritation	mild irritant to skin
Eye Irritation	strong irritant to eyes
Target Organs	eye, kidney, the central nerve, reproduction system, respiratory system
Acute Toxicity	Oral LD50 1680 mg/kg (rat)
	Dermal LD50 >8000 mg/kg (rabbit)