Preparation Date: Aug. 30, 2012
Date of Revision : Nov. 30, 2013

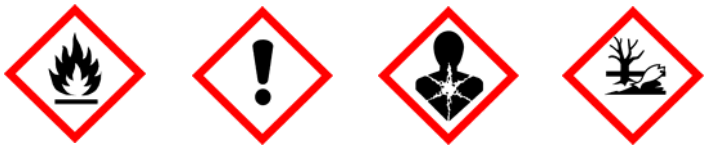
Material Safety Data Sheet

1. Information on Chemical Substances, etc. and Company

Product Name	Industrial Cleaner
Model Name	HYPER CLEAN EE-3320
Reference No.	PW9110U5S003
MANUFACTURER	
Name of Company	Olympus Corporation
Address	Sales Planning Dept, Sales 2 2-3-1 Nishi-Shinjuku, Shinjuku-ku, Tokyo Shinjuku-Monolith
Telephone No.	+81-3-6901-9341
FAX No.	+81-3-3340-2590
E-Mail Address	opto-m@ot.olympus.co.jp
SUPPLIER (Company responsible for importation)	
Name of Company	OLYMPUS (Thailand) CO., Ltd
Address	Optical Measuring Instruments Department 159 Sermmit Tower, 9th floor, unit# 906-910 Sukhumvit 21 road, North Klongtoey, Wattana, Bangkok 10110, Thailand
Telephone No.	+662-260-2730
FAX No.	+662-260-6600
E-Mail Address	info_OMI@olympus-thai.co.th
Recommended Applications and Usage Limitations	Hand-wiping cleaning liquid for optical lenses, optical prisms, processed metal parts, and thermoplastic and thermosetting resins.

2. Summary of Hazards

GHS Classification

Physical and Chemical Hazards	Inflammable Liquid Classification 2
	Not Classified as Spontaneous Ignition Liquid
	Not Classified as Metal Corrosive Substance
Health Hazards	Acute Toxicity (Oral): Not classified
	Acute Toxicity (Percutaneous): Not classified
	Acute Toxicity (Inhalation: Vapor) Class 4.
	Skin Corrosiveness and Irritability: Not classified
	Serious damage to the eyes. Eye Irritation Class 2
	Specific Target Organ Toxicity (Repeated Exposure) Class 2 (Liver)
Environmental Hazards	Acute Hazards for the Aquatic Environment Class 1
	Hazards not shown above are either not targeted or not classifiable.
GHS Label Element Symbol	
Alert word	Danger
Danger and Hazard Information	Highly Inflammable Liquid and Vapor
	Harmful if inhaled.
	Strong Eye Irritant
	Danger of liver damage from long-term or repeated exposure
	Very toxic to aquatic life

Precautions	
Safety Measures	Keep away from ignition sources such as heat, sparks, or open flame. Do not smoke when using the product.
	Use explosion-proof electrical equipment, ventilators, lighting, etc.
	Use tools that do not generate sparks.
	Take safety measures to discharge static electricity.
	Ground the container. Use a grounding wire.
	Keep in a cool place.
	Keep the container tightly sealed.
	Do not inhale the mist, vapor, or spray.
	Wear protective gloves, protective eyeglasses and a protective mask.
	Wash your hands thoroughly after handling the product.
	Avoid discharging the product into the environment.
Emergency Medical Measures	In case of fire, use the proper fire extinguisher.
	If the spray is inhaled, remove the victim to fresh air and keep them in a rest position comfortable for breathing.
	If the product adheres to the skin or hair, immediately remove any contaminated clothes and wash the skin or hair with running water or a shower.
	If the product comes on contact with the eyes, wash thoroughly for several minutes. When contact lenses are used and are easily removable, remove them, and continue washing the eyes.
	If irritation of the eyes persists, see a physician for diagnosis and treatment.
	If you feel unwell after using the product, see a physician for diagnosis and treatment.
Storage	Store in a cool, well-ventilated area.
Disposal	Contents, if you discard the containers, according to local regulations, and proper disposal.
Important Dangers and Hazards	The product is an easily ignitable liquid and forms an explosive mixture with air. Has a surfactant action on the skin. Weak irritation and discomfort to the eyes, however, the irritation is temporary, with natural recovery.

3. Information on Composition and Components

Classification of Substance or Mixture	Single Substance
Chemical Name or General Name	Volatile Silicone

Chemical Name or General Name	Concentration or Range of Concentration	CAS No.
Hexamethyl disiloxane	100.0%	107-46-0

Impurities and Stabilizer Additives that Contribute to the Classification	No Information

4. Emergency Measures

If the product is inhaled	Remove the victim to fresh air and keep them in a rest position comfortable for breathing.
	If you feel unwell after using the product, see a physician for diagnosis and treatment.
If the product adheres to the skin	Wash the skin immediately.
	If skin irritation occurs, see a physician for diagnosis and treatment.
	If you feel unwell after using the product, see a physician for diagnosis and treatment.
If the product comes in contact with the eyes	Wash thoroughly with water for a few minutes. If contact lenses are worn and are easy to remove, remove them, and continue to wash the eyes.
	If irritation of the eyes persists, see a physician for diagnosis and treatment.
	If you feel unwell after using the product, see a physician for diagnosis and treatment.
If the product is swallowed	Rinse the mouth.
	If you feel unwell after using the product, see a physician for diagnosis and treatment.
Expected acute symptoms and delayed symptoms	If the product adheres to the skin, it has a weak surfactant action, and may cause dry skin.
Protection of the person conducting first-aid	Because the product is highly flammable, be careful of flame when treating at the site.

5. Measures to be taken in case of fire

Fire Extinguishing Agents	For a small fire, use dry powder chemicals, carbon dioxide, water spray or general foam extinguishers.
	For a large fire, use water spray, water mists or general foam fire extinguishers.
Fire extinguishers that should not be used	Flooding with water
Specific Dangers and Hazards	Extremely flammable. Easily ignited by heat, sparks, or flame.
	There is danger of explosion if the container is heated.
	There is a danger of generating gases that are irritating, corrosive and/or toxic.
	There is danger of vapor explosion indoors, outdoors, or in waste water ditches.
Special fire extinguishing method	The ignition point is extremely low. For a large fire where fire extinguishing means other than spraying water are not effective, use water spraying.
	If not dangerous, move the containers away from the fire area.
	Conduct firefighting activities from the farthest effective distance, and use automated hose holders or nozzles with monitors for firefighting.
	For a large fire, conduct fire fighting with automated hose holders and nozzles with monitors. If this is impossible, seek refuge in a safe place, and allow the containers to burn.
	Use plenty of water to thoroughly cool the containers, even after the fire is extinguished.
Protection for person(s) conducting the firefighting	When fighting a fire, wear an respirator and protective clothes against chemicals.
	Wear a respirator with an air supply, and protective gear that covers the entire body.

6. Measures taken for leakage

Precautions for the body, protective equipment, and emergency measures	Do not touch or walk in any spillage.
	Immediately isolate the spillage area a suitable distance in all directions.
	Limit access to only authorized personnel.
	Workers shall wear suitable protective equipment (Refer to 8. Exposure Prevention Measures and Protective Measures), avoid contact with the eyes and skin, and avoid inhalation.
	Remain upwind of the site.
	Keep away from low ground.
	Ventilate a closed space before entering it.
Precautions related to the environment	Do not discharge the spillage into the environment.
	Be careful not to discharge the spillage into rivers, which will cause environmental problems.
Recovery and Neutralization	For a small amount, absorb the spillage with dry soil, sand, or another incombustible material or cover the spillage, and recover it in tightly sealable containers. Dispose of the recovered material later.
	If the spillage is small, collect the absorbent material using clean, anti-static tools.
	If the spillage is large, surround the area with a bank to prevent out-flow. After directing the spillage to a safe area, conduct the recovery.
	If the spillage is large, water spray will lower the vapor concentration. However, in a tightly enclosed area there is a risk of not effectively suppressing the flammability of the product.
Containerization and Clarification Methods and Equipment	If the situation does not present any danger, stop the leakage.
	Ground all equipment used for handling the spillage.
	Use vapor suppressing foam to lower the vapor concentration.
Measures to Prevent Secondary Disasters	Remove all ignition sources promptly. (Prohibit smoking and use of sparks and flame in the vicinity.)
	Prevent flow into waste water ditches, sewage ditches, basements and enclosed areas.
	Remove any product from the floor completely, because the product causes the surface to become smooth and slippery.

7. Precautions for Handling and Storage

Handling	Technical Countermeasures	Conduct the facility measures described in 8. Exposure Prevention Measures and Protective Measures and wear protective equipment.
	Local Exhaust and General Ventilation	Use local exhaust and general ventilation measures described in 8. Exposure Prevention Measures and Protective Measures.
	Precautionary Items Related to Safety Handling	Prohibit use of high temperature material, sparks and flame near the product.
		Containers should not be tumbled, dropped, bumped or dragged.
		Do not touch, inhale or swallow the product.
		Use exhaust ventilation.
		Wash your hands thoroughly after handling the product.
		Use the product outdoors or in a well-ventilated area.
	Avoid contact.	Refer to 10. Stability and Reactivity.
Storage	Technical Countermeasures	Make sure the storage area for the product has a fire resistant structure for the walls, pillars, and floors. Beams shall be made of incombustible material.
		The roof of the storage area for the product shall be made of incombustible material and covered with light-weight incombustibles, such as metal sheet. There should be no ceiling.
		The floor of the storage area for the product shall have a structure that will not allow water to enter or penetrate the floor surface.
		The floor of the storage area for the product shall have a structure that will not allow dangerous substances to penetrate, and shall have a suitable slope and gutter for retaining spillage.
		The storage area for the product shall be equipped with suitable lighting, illumination, and ventilation for storing and handling dangerous substances.
	Hazardous substance when	Refer to 10. Stability and Reactivity.
	Storage Conditions	Store by keeping away from ignition sources such as heat, sparks, and open flame. No smoking is allowed near the product.
		Store the container away from oxidants.
		Keep the containers away from sunlight and flame
		Keep the containers tightly sealed, and store in a cool, well-ventilated area.
	Container packaging materials.	Use containers that are defined in the UN transport regulations.

8. Exposure Prevention Measures and Protective Measures

	Control Concentration	Permissible concentration (Exposure Limit Value Biological Exposure Index)	
		Singapore. OELs. *	ACGIH 2009 Edition
Hexamethyl disiloxane	Undetermined	Undetermined	Undetermined

* Singapore. OELs (Workplace Safety and Health (General Provisions) Regulations 2006 (S 134/2006), First Schedule: Permissible Exposure Limits of Toxic Substances, Feb. 28, 2006)

Facility Countermeasures		Use explosion-proof electrical, ventilating and illuminating equipment.
		Take steps to prevent static electricity discharge.
		Install eye washing equipment and safety showers in the work area where the product is stored or handled.
		Handle the product in an area equipped with general ventilating equipment.
		For high-heat handling, install ventilating equipment in case vapor, fumes and mist form in the handling
Protective Equipment	Protective breathing apparatus	Always wear appropriate respiratory protective equipment in case ventilation is inadequate.
	Hand protection	Wear protective gloves.
	Eye Protection	Wear protective equipment for the eyes.
		Protective eyeglasses (ordinary eyeglasses, ordinary eyeglasses with side plates, goggle-type eyeglasses).
	Skin and body protection	Wear protective equipment for the face.
Sanitary Measures		Wash your hands thoroughly after handling the product.

9. Physical and Chemical Properties

Physical Conditions	Form	Liquid
	Color	Colorless and transparent
	Odor	Peculiar odor
	pH	No Data
Melting Point and Freezing Point		≤ -68 deg C (Melting Point)
Boiling Point, Initial Boiling Point, and Boiling Range		100 deg C (Boiling Point)
Flash Point		-1 deg C
Flammability or Explosion Range	Lower Limit	0.63vol%
	Upper Limit	19.7vol%
Vapor Pressure		3.2 kPa (20 deg C)
Vapor Density (Air = 1)		5.6
Specific Gravity (Density)		0.76 (25 deg C)
Solubility		Insoluble in water
Octanol (Water Distribution Coefficient)		No Data
Spontaneous Ignition Temperature		≥350 deg C
Decomposition		No Data
Evaporation Speed (Butyl Acetate = 1)		No Data
Combustibility (Solid and Gas)		Not applicable
Viscosity		0.49 mPa / s (25 deg C)
Coefficient of Kinematic Viscosity		0.65
Lower Limit Concentration for Dust Explosion		No Data
Minimum Ignition Energy		No Data
Volume Resistivity (Conductance)		No Data
Others		No Data

10. Stability and Reactivity

Stability	Stable under normal handling conditions
Possibility of Hazardous and Harmful Reactions	Dangerous and/or toxic reactions do not occur under normal conditions.
Conditions to avoid	Ignition sources, such as heat, sparks, and open flame.
Hazardous substance when mixed	Oxidants
Hazardous and harmful decomposition materials	Gases generated by combustion, such as carbon monoxide, carbon dioxide, etc.

11. Toxicity Information

Acute Toxicity	Oral	Not classified was selected because, from rat data LD50 > 15000 mg/ kg (Product MSDS) (Not classified when > 2000 mg / kg).
	Percutaneous	Not classified was selected, because, from rabbit data LD50 > 16 ml / kg (RTECS) to 12200 mg/kg (Not classified when > 2000 mg / kg).
	Inhalation (Vapor)	Categorized as Class 4 because, from Vapor Pressure = 20 hPa the Saturated Vapor Pressure Concentration = 19740 ppm and rat data for LC50 (4H) = 15956 ppm (RTECS)<19740 ppm x 0.90, it is believed that the vapor contains almost no mist, so the categorization was made using the ppm concentration standard value LC50 (4H) = 15956 ppm (2500 ppm < Class 4 ≤20000 ppm).
	Inhalation (Mist)	Cannot be classified due to lack of data.
Skin Corrosiveness / Irritation		Not classified was selected based on the Standard Dray's Skin Stimulation Test Method (rabbit data 500 mg/ 24H, mild) (RTECS).
Serious damage and irritation to the eyes		Categorized as Class 2 because of the description (Product MSDS) Weak irritation and discomfort to the eyes, however, the irritation is temporary, with natural recovery.
Sensitization of Respiratory Organs		Cannot be classified due to lack of data.
Sensitization of Skin		Cannot be classified due to lack of data.
Mutagenicity for Reproductive Cells		Although there is a description (Product MSDS) that microbial and chromosomal abnormality tests showed negative results, because details were not clear, we adopted Not classified.
Carcinogenicity		Cannot be classified due to lack of data.
Reproductive Toxicity		Cannot be classified due to lack of data.
Specific Target Organ Toxicity (Single Exposure)		Cannot be classified due to lack of data.
Specific Target Organ Toxicity (Repeated Exposure)		Categorized as Class 2 (Liver) because of the description (Product MSDS) By repeated exposure on rats (Male) (55110 ppm x 6H x 90 days), it was verified that the weight of the liver increased.

Toxicity to Respiratory Organs	Cannot be classified due to lack of data.

12. Information on Environmental Effects

Acute toxicity to the aquatic environment	Hexamethyl disiloxane	LC50 Japanese medaka : 1.27mg/L 48hr

13. Precautions at the time of disposal

Residual Waste	Prior to disposal, perform as much detoxification, safety and neutralization treatment as possible, and lower the level of hazard and toxicity.
	The waste is to follow local regulations.
Contaminated containers and packaging	How to recycle containers and clean, follow local regulations, and proper disposal.
	When disposing of empty containers, make certain that they are completely empty.

14. Precautions in Transportation.

International Rules	Information on Marine Controls	Follow the provisions of the IMO.
	UN No.	1993
	Proper Shipping	FLAMMABLE LIQUID, N.O.S.
	Class	3
	Packing Group	II
	Marine Pollutant	Applicable
	Information on aircraft regulations	Follow the provisions of the ICAO / IATA
	UN No.	1993
	Proper Shipping Name	FLAMMABLE LIQUID, N.O.S.
	Class	3
	Packing Group	II

Special Safety Measures	Prior to transportation, verify that the container is not damaged, corroded, or is leaking.
	Dangerous goods shall be loaded so that they do not fall, or that the transport containers containing the dangerous goods do not fall, topple, or become damaged.
	Ensure that toppling, bumping, friction, crushing, leakage etc. do not occur during transport.
	When transporting the product, avoid direct exposure to sunlight, avoid damage, corrosion, and leakage of the containers when loading the product and ensure that measures are taken to prevent the load from collapsing.
	In case of disaster because of an accident during transport, report to the nearest firefighting agency and other related agencies.

15. Applicable Laws and Ordinances

Environmental Protection and Management Act (Cap. 94A): not applicable

Workpace Safety and Health Act (Cap. 354A): hazardous substance

Fire Safety Act (Cap 109A): Class I petroleum

16. Other Information

Contact information	Olympus Corporation
References	CHEMWATCH Corp. GHS-MSDS
	RTECS (2006 - 2008)
	Olympus Corporation Product MSDS HYPER CLEAN EE-3320 Reference No. : PW9110U5S003) (2013/11/30Revision).
	The described contents are based on generally available information and in-house information. This does not mean that all chemical and technical information at the present time are included. Thus, no guarantees are made. Furthermore, the precautionary items provided are only for normal handling. Keep in mind that these precautions may not necessarily be applicable for special handling.
Distributor information	