

Material Safety Data Sheet

1. Information on Chemical Substances, etc. and Company

Product Name	Industrial Cleaner
Model Name	HYPER CLEAN EE-6310
Reference No.	PW9116U5S002
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 Serm- mit 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	Cleaning Liquid for Optical Parts & Precision Parts

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	Serious Damage to the Eyes / Eye Irritation Class 2
	Mutagenicity for Reproductive Cells Class 1B
	Carcinogenicity Class 2
	Effects on Reproduction Class 1A
	Specified Target Organ Toxicity (Single Exposure) Class 3 Airway Irritation
	Specified Target Organ Toxicity (Single Exposure) Class 3 (Anesthetic Action)
	Specified Target Organ Toxicity (Multiple Exposure) Class 1 (Liver)
	Specified Target Organ Toxicity (Multiple Exposure) Class 2 (Nervous System)
	Aspiratory Harm on Respiratory Organs Class 1.
	Environmental Hazards
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

Strong Eye Irritant

Danger of Genetic Disease

Possible Danger of Carcinogenicity

Danger of Harm to Reproductive Function and Fetuses

Danger of Respiratory Irritation

Danger of Drowsiness and Dizziness

Liver Damage with Long-term or Repeated Exposure

Danger of Damage to Nervous System with Long Term or Repeated Exposure

Potentially fatal if swallowed or inhaled

Precautions

Safety Measures

Always obtain the Instruction Manual before use.

Read all safety precautions and fully understand them before handling the product.

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.

Use the product outdoors or in a well-ventilated area.

Do not inhale the mist, vapor, or spray.

Wear protective gloves, protective eyeglasses and a protective mask.

Use designated individual protective equipment.

Wash your hands thoroughly after handling the product.

Do not eat, drink, or smoke when using the product.

Avoid discharging the product into the environment.

Emergency Medical Measures	<p>In case of fire, use the proper fire extinguisher.</p> <hr/> <p>If the spray is inhaled, remove the victim to fresh air and keep them in a rest position comfortable for breathing.</p> <hr/> <p>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.</p> <hr/> <p>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.</p> <hr/> <p>If the product is swallowed, contact a physician immediately.</p> <hr/> <p>If irritation of the eyes persists, see a physician for diagnosis and treatment.</p> <hr/> <p>In case of exposure or fear of exposure, see a physician for diagnosis and treatment.</p> <hr/> <p>If you feel unwell after using the product, see a physician for diagnosis and treatment.</p> <hr/> <p>Do not induce vomiting.</p>
Storage	<p>Store in a cool, well-ventilated area.</p> <hr/> <p>Store the product in a locked area.</p> <hr/> <p>Keep the container tightly sealed and store it in a well ventilated area.</p>
Disposal	<p>Contents, if you discard the containers, according to local regulations, and proper disposal.</p>
Important Dangers and Hazards	<p>The product is an easily ignitable liquid and forms an explosive mixture with air.</p> <p>There is a danger of genetic disease, carcinogenicity, harmful effects on reproductive organs or a fetus, and liver and nervous system problems with long-term or repeated exposure.</p> <p>There is a danger of lung damage, such as chemical pneumonia. if the product is accidentally swallowed.</p>

3. Information on Composition and Components

Classification of Substance or Mixture	Mixture
Chemical Name or General Name	Hydrocarbon-based cleaning liquid

Chemical Name or General Name	Concentration or Range of Concentration	CAS No.
2-Methyl Pentane	80-85%	107-83-5
3- Methyl Pentane		96-14-0
2,2 Dimethyl Butane		75-83-2
2,3 Dimethyl Butane		79-29-8
Normal Hexane	<4.2%	110-54-3
Ethanol	13-14%	64-17-5
1-Propanol	1-2%	71-23-8
Propane - 2 - ol	<0.80%	67-63-0

Impurities and Stabilizer Additives that Contribute to the Classification	No Information
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4. Emergency Measures

If the product is inhaled	Remove the victim to fresh air and keep them in a rest position comfortable for breathing. Receive a diagnosis and treatment from a physician.
If the product adheres to the skin	Wash the skin immediately. Receive a diagnosis and treatment from a physician.
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. Receive a diagnosis and treatment from a physician.
If the product is swallowed	Contact a physician immediately. Do not let the victim vomit. Rinse the mouth. Receive a diagnosis and treatment from a physician.
Expected acute symptoms and delayed symptoms	[Acute Symptoms] If the product comes in contact with the eyes, the eyes may become bloodshot and painful.
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	<p>For a small fire, use dry powder chemicals, carbon dioxide, water spray or general foam extinguishers.</p> <p>For a large fire, use water spray, water mists or general foam fire extinguishers.</p>
Fire extinguishers that should not be used	Flooding with water
Specific Dangers and Hazards	<p>Extremely flammable. Easily ignited by heat, sparks, or flame.</p> <p>There is danger of explosion if the container is heated.</p> <p>There is a danger of generating gases that are irritating, corrosive and/or toxic.</p> <p>There is danger of vapor explosion indoors, outdoors, or in waste water ditches.</p>
Special fire extinguishing method	<p>The ignition point is extremely low. For a large fire where fire extinguishing means other than spraying water are not effective, use water spraying.</p> <p>If not dangerous, move the containers away from the fire area.</p> <p>Conduct firefighting activities from the farthest effective distance, and use automated hose holders or nozzles with monitors for firefighting.</p> <p>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.</p> <p>Use plenty of water to thoroughly cool the containers, even after the fire is extinguished.</p>
Protection for person(s) conducting the firefighting	When fighting a fire, wear an respirator and protective clothes against chemicals.

6. Measures taken for leakage

<p>Precautions for the body, protective equipment, and emergency measures</p>	<p>Do not touch or walk in any spillage.</p> <hr/> <p>Immediately isolate the spillage area a suitable distance in all directions.</p> <hr/> <p>Limit access to only authorized personnel.</p> <hr/> <p>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.</p> <hr/> <p>Remain upwind of the site.</p> <hr/> <p>Keep away from low ground.</p> <hr/> <p>Ventilate a closed space before entering it.</p>
<p>Precautions related to the environment</p>	<p>Do not discharge the spillage into the environment.</p> <hr/> <p>Be careful not to discharge the spillage into rivers, which will cause environmental problems.</p>
<p>Recovery and Neutralization</p>	<p>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.</p> <hr/> <p>If the spillage is small, collect the absorbent material using clean, anti-static tools.</p> <hr/> <p>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.</p> <hr/> <p>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.</p>
<p>Containerization and Clarification Methods and Equipment</p>	<p>If the situation does not present any danger, stop the leakage.</p> <hr/> <p>Ground all equipment used for handling the spillage.</p> <hr/> <p>Use vapor suppressing foam to lower the vapor concentration.</p>
<p>Measures to Prevent Secondary Disasters</p>	<p>Remove all ignition sources promptly. (Prohibit smoking and use of sparks and flame in the vicinity.)</p> <hr/> <p>Prevent flow into waste water ditches, sewage ditches, basements and enclosed areas.</p>

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	Obtain the Instruction Manual prior to use.	
	Read all safety precautions and fully understand them before handling the product.	
	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 to keep the concentration in the air below the exposure limit.	
	Do not inhale or swallow the product.	
	Wash your hands thoroughly after handling the product.	
	Use the product outdoors or in a well-ventilated area.	
	Do not eat, drink, or smoke when using the product.	
Avoid discharging the product into the environment.		
Avoid contact	Refer to 10. Stability and Reactivity.	

Storage

Technical Countermeasures	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>The storage area for the product shall be equipped with suitable lighting, illumination, and ventilation for storing and handling dangerous substances.</p>
Hazardous substance when mixed	Refer to 10. Stability and Reactivity.
Storage Conditions	<p>Store by keeping away from ignition sources such as heat, sparks, and open flame. No smoking is allowed near the product.</p> <p>Store the container away from oxidants.</p> <p>Keep the containers away from sunlight and flame</p> <p>Keep the containers tightly sealed, and store in a cool, well-ventilated area.</p> <p>Store the product in a locked area.</p>
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
2-Methyl Pentane	Undetermined	The 8-hour PEL (TWA): 500 ppm (1760 mg/m ³) The 15-minute PEL (STEL): 1000 ppm (3500 mg/m ³)	TWA 500 ppm STEL 1000 ppm
3- Methyl Pentane	Undetermined	The 8-hour PEL (TWA): 500 ppm (1760 mg/m ³) The 15-minute PEL (STEL): 1000 ppm (3500 mg/m ³)	TWA 500 ppm STEL 1000 ppm
2,2-Dimethyl Butane	Undetermined	The 8-hour PEL (TWA): 500 ppm (1760 mg/m ³) The 15-minute PEL (STEL): 1000 ppm (3500 mg/m ³)	TWA 500 ppm STEL 1000 ppm
2,3 Dimethyl Butane	Undetermined	The 8-hour PEL (TWA): 500 ppm (1760 mg/m ³) The 15-minute PEL (STEL): 1000 ppm (3500 mg/m ³)	TWA 500 ppm STEL 1000 ppm
Normal Hexane	40 ppm		TWA 50 ppm (Skin)
Ethanol	Undetermined	The 8-hour PEL (TWA): 1000 ppm (1880 mg/m ³)	TWA 1000 ppm
1-Propanol	Undetermined	The 8-hour PEL (TWA): 200 ppm (492 mg/m ³) The 15-minute PEL (STEL): 250 ppm (614 mg/m ³)	TWA 100 ppm
Propane - 2 - ol	200 ppm	The 8-hour PEL (TWA): 400 ppm (983 mg/m ³) The 15-minute PEL (STEL): 500 ppm (1230 mg/m ³)	TWA 200ppm STEL 400ppm

* 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.

For high-heat handling, install ventilating equipment to keep the air contaminant level below the control concentration and the permissible concentration in case vapor, fumes and mist form in the handling process.

Protective Equipment	Protective breathing apparatus	Use individual protective breathing apparatuses, as required.
	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.
Use individual protective clothes and protective masks, as required.		
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		≤ -30 deg C (Freezing Point)
Boiling Point, Initial Boiling Point, and Boiling Range		58 deg C (Boiling Point)
Flash Point		-28.5 deg C. (Measurement Method: Tightly Closed)
Flammability or Explosion Range	Lower Limit	1.2 vol%
	Upper Limit	8.2 vol%
Vapor Pressure		31.2 kPa (25 deg C)
Vapor Density (Air = 1)		2.63
Specific Gravity (Density)		0.67 (26 deg C)
Solubility		Insoluble in water
Octanol (Water Distribution Coefficient)		No Data
Spontaneous Ignition Temperature		≥ 200 deg C
Decomposition		No Data
Evaporation Speed (Butyl Acetate = 1)		No Data
Combustibility (Solid and Gas)		Not applicable
Viscosity		No Data
Coefficient of Kinematic Viscosity		No Data
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	No dangerous reaction if handled and stored as specified.
Conditions to avoid	Ignition sources, such as heat, sparks, and open flame.
Hazardous substance	Oxidants
Hazardous and harmful decomposition materials	Gases generated by combustion, such as carbon monoxide, carbon dioxide, etc.

11. Toxicity Information

Acute Toxicity	Oral	Cannot be classified due to lack of data.
	Percutaneous	Cannot be classified due to lack of data.
	Inhalation (Vapor)	Cannot be classified due to lack of data.
	Inhalation (Mist)	Cannot be classified due to lack of data.
Skin Corrosiveness / Irritation		Cannot be classified due to lack of data.
Serious damage and irritation to the eyes		Because Normal Hexane, Ethanol, 1-Propanol, Propane-2-ol are Class 2 and the total Class 2 Component Concentration is greater than the Concentration Limit (10%), it was categorized as Class 2.
Sensitization of Respiratory Organs		Could not be classified because there is no data.

Sensitization of Skin	Could not be classified because there is no data.
Mutagenicity for Reproductive Cells	Because Ethanol is Class 1B and is greater than the Concentration Limit (0.1%), it was categorized as Class 1B.
Carcinogenicity	Because 1-propanol is Class 2 and is greater than the Concentration Limit (1.0%), the Carcinogenicity was categorized as Class 2.
Reproductive Toxicity	Because Ethanol is Class 1A and is greater than the Concentration Limit (0.3%), the reproductive toxicity was categorized as Class 1A.
Specific Target Organ Toxicity (Single Exposure)	<p>Class 3 components (Airway Irritation) are 2-methyl pentane, 3-methyl pentane, normal hexane, ethanol, 1-propanol, propane-2-ol, and because the total Component Concentration is higher than the Concentration Limit (20%), it was categorized as Class 3 (Airway Irritation). Expert opinions were not sought when judging Class 3 (Airway Irritation).</p> <p>Class 3 components (Anesthetic Action) are 2-methyl pentane, 3-methyl pentane, 2,2-dimethyl butane, 2,3-dimethyl butane, normal hexane, ethanol, and 1 propanol, and because the total Component Concentration is greater than the Concentration Limit (20%) it was categorized as Class 3 (Anesthetic Action). Expert opinions were not sought when judging Class 3 (Anesthetic Action).</p>
Specific Target Organ Toxicity (Repeated Exposure)	<p>Class 1 component having a Component Concentration that exceeds the Concentration Limit (10.0%) is Ethanol (Liver). so it was categorized as Class 1 (Liver).</p> <p>Because the Class 1 Component with a Component Concentration within the Concentration Limits ($\geq 1.0\%$, $< 10\%$) is Normal Hexane (Central Nervous System and Peripheral Nervous System), it was categorized as Class 2 (Central Nervous System and Peripheral Nervous System).</p> <p>Because the Class 2 Component with a Component Concentration that exceeds the Concentration Limit (10.0%) is Ethanol (Nervous System), it was categorized as Class 2 (Nervous System). (Target Organs (Central Nervous System and Peripheral Nervous System) are included in the Target Organ (Nervous System).</p>
Toxicity to Respiratory Organs	Because 2-methyl pentane, 3-methyl pentane, 2,2-dimethyl butane, 2,3-dimethyl butane, and normal hexane are Class 1, the total Component Concentration is more than 10%, and the kinetic viscosity coefficient of this product at 40 deg C is 20.5 mm ² / s or lower, we judged a Class 1 categorization to be adequate.

12. Information on Environmental Effects

Acute toxicity to the aquatic environment	Because Normal Hexane is Class 2, and the Concentration Total of the Concentration x 10 of Class 2 exceeds the Concentration Limit (25%), it was categorized as Class 3. (Contains 80% unclassified components.)(UN-GHS 4th edition)
Chronic toxicity to the aquatic environment	Cannot be classified due to lack of data.

13. Precautions at the time of disposal

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

14. Precautions in Transportation

International Rules	Information on Marine Controls	Follow the provisions of the IMO.
	UN No.	1993
	Proper Shipping Name	FLAMMABLE LIQUID, N.O.S.
	Class	3
	Packing Group	II
	Marine Pollutant	Not 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	<p>Prior to transportation, verify that the container is not damaged, corroded, or is leaking.</p> <p>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 <u>damaged</u>.</p> <p>Ensure that toppling, bumping, friction, crushing, leakage etc. do not occur during transport.</p> <p>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.</p> <p>In case of disaster because of an accident during transport, report to the nearest firefighting agency and other related agencies.</p>
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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

NITE GHS Classification Public Announcement Data

EU CLP Regulation Annex VI

CHEMWATCH Corp. GHS-MSDS

RTECS (2006 - 2008)

Olympus Corporation Product MSDS HYPER CLEAN
EE-6310 (Reference No. PW9116U5 S002) (2013/11/30
Revision)

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