

Printing date 28.03.2023

Version number 1

Revision: 28.03.2023

## \* SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Trade name:** OPTODYNE UV-2100

**Article number:** UV2100 STD

### 1.2 Relevant identified uses of the substance or mixture and uses advised against:

**Sector of Use** SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

### 1.3 Details of the supplier of the safety data sheet

**Manufacturer/Supplier:**

DAIKIN INDUSTRIES, LTD. CHEMICALS DIVISION:

OSAKA UMEDA TWIN TOWERS SOUTH, 1-13-1 Umeda, Kita-ku, Osaka-shi, Osaka, 530-0001, Japan

Phone: +81-6-6147-9702 Fax: +81-6-6147-9807

**Further information obtainable from:** <http://www.daikin.com/>

### 1.4 Emergency telephone number:

Japan: +81-6-6349-7521

China: +86-532-8388-9090, +86-21-34151689

South Korea: +82-2-568-1722

Americas: CHEMTREC +1-800-424-9300 (Outside US/Canada: +1-703-527-3887)

Europe: +49-211-179 225-0

## \* SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008**



Carc. 2 H351 Suspected of causing cancer.



Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008:**

The product is classified and labelled according to the CLP regulation.

**Signal word:** Warning

**Hazard-determining components of labelling:**

Vinylcyclohexane diepoxide

Poly(Bisphenol-A-co-epichlorohydrin)

**Precautionary statements:**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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**\* SECTION 3: Composition/information on ingredients****Information on ingredients:**

Blended fluoroepoxy monomers 50 – 60%

Hexanediol diglycidyl ether 5-15%

Poly(Bisphenol-A-co-epichlorohydrin) 10-20%

Aquatic Chronic 2, H411

Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317

EUH205

Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 %

Skin Irrit. 2; H315: C ≥ 5 %

Vinylcyclohexane diepoxide 10-20%

Acute Tox. 3, H331

Muta. 2, H341; Carc. 1B, H350; Repr. 1B, H360F

Acute Tox. 4, H302

ATE: LD50 oral: 847 mg/kg

LC50/4h inhalative: 0.5 ppm

Sb polymerization initiator < 1%

Non-fluoro epoxy monomer < 5%

Others < 5%

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

**\* SECTION 4: First aid measures****4.1 Description of first aid measures**

**General information:** Do not expose to sunlight or other strong light.

**After inhalation:** Supply fresh air; consult doctor in case of complaints.

**After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Consult a doctor in case of complaints.

Immediately remove any clothing soiled by the product and store in a dark container or wrapping.

**After eye contact:**

Immediately rinse with a lot of water for several minutes. Remove contact lenses if possible. Continue rinsing.

Consult an ophthalmologist in case of complaints.

Rinse opened eye for 15 minutes under running water, periodically lifting upper and lower eyelids. Then consult a doctor.

**After swallowing:**

Rinse mouth with water. Do not induce vomiting.

Consult a doctor in case of complaints.

**4.2 Most important symptoms and effects, both acute and chronic:** Allergic reactions

**4.3 Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

**Suitable extinguishing agents:** Use fire extinguishing methods suitable for surrounding conditions.

**5.2 Special hazards arising from the substance or mixture:**

Formation of toxic gases is possible during heating or in case of fire.

**5.3 Advice for firefighters:**

**Protective equipment:**

Wear self-contained breathing apparatus and protective suit.

Do not inhale explosion gases or combustion gases.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures:***Ensure adequate ventilation before entering the area.**Stay on the windward side.**Keep out unauthorized persons.**Wear appropriate protective devices (See Section 8 Exposure Controls/Personal Protection).**Avoid contact with eyes and skin.**Do not swallow the product.***6.2 Environmental precautions:** *Prevent seepage into sewage system, workpits and cellars.***6.3 Methods and material for containment and cleaning up:***For a small amount of leakage: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders) or collect in an empty container that can be sealed tightly.**For a large amount of leakage: Enclose with banks to avoid outflow. Lead the leakage to a safe place and collect.***6.4 Reference to other sections:***See Section 8 for information on personal protection equipment.**See Section 13 for disposal information.***\* SECTION 7: Handling and storage****7.1 Precautions for safe handling:***Ensure good ventilation/exhaustion at the workplace.**Do not handle until all safety precautions have been read and understood.**Never allow exposure to sunlight or strong light until after curing.**小心打開和處理插座。絕不允許任何形式的皮膚接觸。***Information about fire - and explosion protection:** *Keep ignition sources away - Do not smoke.***7.2 Conditions for safe storage, including any incompatibilities:****Storage****Requirements to be met by storerooms and receptacles:***Store in a cool and dry location.**Prevent any seepage into the ground.**Keep containers tightly sealed.***Information about storage in one common storage facility:***Store away from oxidising agents.**See section 10 for information on incompatible materials.***Further information about storage conditions:***Protect from heat and direct sunlight.**Store containers in a well ventilated area.**Store locked up.***7.3 Specific end use(s):** *No further relevant information available.***SECTION 8: Exposure controls/personal protection****8.1 Control parameters** *No further information available.***Ingredients with limit values that require monitoring at the workplace:***The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.***8.2 Exposure controls****Appropriate engineering controls** *No further data; see item 7.***Individual protection measures, such as personal protective equipment****General protective and hygienic measures:***Wash hands before breaks and at the end of work.**Do not eat or drink while working.**Keep away from tobacco products.**Never allow exposure to sunlight or other strong light until after curing.**Immediately remove all soiled and contaminated clothing and store in a dark container or dark wrapping until disposal to hazardous waste.*

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**Respiratory protection:**

Use respiratory protective device with filters for organic and acid gas (or airline respirators in some cases) if formation of toxic gases is possible while the product is heated.

Use respiratory protective device with organic gas cartridge.

**Hand protection**


Protective gloves

Material of gloves: Rubber

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye/face protection**


Safety glasses

Splash-proof goggles

**Body protection:**

Protective work clothing

Impervious protective clothing, face protection, and gloves

\* **SECTION 9: Physical and chemical properties**
**9.1 Information on basic physical and chemical properties**
**General Information**

Physical state

Fluid

Colour:

Light yellow

Odour:

Characteristic

Odour threshold:

Not determined.

Melting point/freezing point:

Undetermined.

Boiling point or initial boiling point and boiling range

Undetermined.

Flammability

Not applicable.

Lower and upper explosion limit

Lower explosive limit:

No further information available.

Upper explosive limit:

Not determined.

Flash point:

128 °C (COC)

Not applicable.

Decomposition temperature:

No further information available.

Not determined.

pH

Not determined.

Not determined.

Viscosity:

Kinematic viscosity

Not determined.

Dynamic:

Not determined.

Solubility

water:

No further information available.

Not determined.

Partition coefficient n-octanol/water (log value)

No further information available.

Not determined.

Vapour pressure:

No further information available.

Density and/or relative density

Density at 20 °C:

1.31 g/cm<sup>3</sup>

Relative density

Not determined.

Vapour density

Not determined.

Particle characteristics

No further information available.

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**9.2 Other information:**

<b>Form:</b>	Liquid
<b>Auto-ignition temperature:</b>	Product is not self-igniting.
<b>Explosive properties:</b>	Product does not present an explosion hazard.
<b>Evaporation rate</b>	Not determined.

**Information with regard to physical hazard classes**

<b>Explosives</b>	Not applicable
<b>Flammable gases</b>	Not applicable
<b>Aerosols</b>	Not applicable
<b>Oxidising gases</b>	Not applicable
<b>Gases under pressure</b>	Not applicable
<b>Flammable liquids</b>	Not applicable
<b>Flammable solids</b>	Not applicable
<b>Self-reactive substances and mixtures</b>	Not applicable
<b>Pyrophoric liquids</b>	Not applicable
<b>Pyrophoric solids</b>	Not applicable
<b>Self-heating substances and mixtures</b>	Not applicable
<b>Substances and mixtures, which emit flammable gases</b>	
<b>in contact with water</b>	Not applicable
<b>Oxidising liquids</b>	Not applicable
<b>Oxidising solids</b>	Not applicable
<b>Organic peroxides</b>	Not applicable
<b>Corrosive to metals</b>	Not applicable
<b>Desensitised explosives</b>	Not applicable

**SECTION 10: Stability and reactivity****10.1 Reactivity** No further relevant information available.**10.2 Chemical stability****Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.**10.3 Possibility of hazardous reactions:**

May react drastically when exposed to light or heat.

No dangerous reactions known under normal conditions of use.

**10.4 Conditions to avoid:**

Keep away from heat, sparks, flame, high temperature.

Do not allow exposure to sunlight or strong light before curing.

**10.5 Incompatible materials:** Acids, alkali**10.6 Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Danger of toxic fluorine based pyrolysis products.

Danger of release of SbF<sub>6</sub> before curing.**\* SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity** Harmful if swallowed, in contact with skin or if inhaled.**LD/LC50 values relevant for classification:****Vinylcyclohexane diepoxide**

Oral LD50 847 mg/kg (ATE)

Inhalative LC50/4h 0.5 ppm (ATE)

**Skin corrosion/irritation:** Causes skin irritation.**Serious eye damage/irritation:** Causes serious eye irritation.**Respiratory or skin sensitisation:** May cause an allergic skin reaction.**Carcinogenicity:** Suspected of causing cancer.**STOT-repeated exposure:** No further information available.**Other information (about experimental toxicology):** No further information available.**Subacute to chronic toxicity:** No further information available.

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**11.2 Information on other hazards:****Endocrine disrupting properties:**

None of the ingredients is listed.

**\* SECTION 12: Ecological information****12.1 Toxicity***Aquatic toxicity:* No further relevant information available.*12.2 Persistence and degradability:* No further relevant information available.*12.3 Bioaccumulative potential:* No further relevant information available.*12.4 Mobility in soil:* No further relevant information available.**12.5 Results of PBT and vPvB assessment***PBT:* No further relevant information available.*vPvB:* No further information available.**12.6 Endocrine disrupting properties***The product does not contain substances with endocrine disrupting properties.**For information on endocrine disrupting properties see section 11.***12.7 Other adverse effects:***Ecotoxicological effects:* no data*Remark:* Harmful to fish**Additional ecological information:***General notes:* Harmful to aquatic organisms**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation:***Dispose of used containers (tubes) and any uncured or un-neutralized contamination to permitted hazardous waste.**Disposal must be made according to official regulations.***Uncleaned packaging***Recommendation:* Disposal must be made according to official regulations.**\* SECTION 14: Transport information****14.1 UN number or ID number***ADR, IMDG, IATA*

UN2810

**14.2 UN proper shipping name:***ADR, IMDG, IATA*

TOXIC LIQUID, ORGANIC, N.O.S. (Vinylcyclohexane diepoxide)

**14.3 Transport hazard class(es):***ADR**Class:*

6.1 (T1) Toxic substances.

*Label:*

6.1

*ADN/R Class:*

Not applicable

*IMDG, IATA**Class:*

6.1 Toxic substances.

*Label:*

6.1

**14.4 Packing group:***ADR, IMDG, IATA*

III

**14.5 Environmental hazards:***Marine pollutant:*

No

**14.6 Special precautions for user:**

Warning: Toxic substances.

*Hazard identification number (Kemler code):*

60

*EMS Number:*

F-A, S-A

*Stowage Category*

A

*Stowage Code*

SW2 Clear of living quarters.



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## 14.7 Maritime transport in bulk according to IMO instruments

Transport/Additional information:

Not applicable.

Avoid direct sunlight. Make sure of no damage, corrosion, leaks on the receptacles.

Take necessary measures for preventing cargo shift.

### ADR

Limited quantities (LQ):

5L

Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

Transport category:

2

Tunnel restriction code:

E

### IMDG

Limited quantities (LQ)

5L

Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

UN "Model Regulation":

UN 2810 TOXIC LIQUID, ORGANIC, N.O.S.  
(VINYL CYCLOHEXANE DIEPOXIDE), 6.1, III

## \* SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No further relevant information available.

#### Dutch List of Substances of Very High Concern (ZZS)

None of the ingredients is listed.

#### Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

#### Hazard pictograms



GHS07 GHS08

#### Signal word Warning

#### Hazard-determining components of labelling:

Vinylcyclohexane diepoxide

Poly(Bisphenol-A-co-epichlorohydrin)

#### Hazard statements

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H412 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Seveso category H2 ACUTE TOXIC

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**Trade name: OPTODYNE UV-2100*****DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II****None of the ingredients is listed.****Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))****None of the ingredients is listed.****Annex II - REPORTABLE EXPLOSIVES PRECURSORS****None of the ingredients is listed.****Regulation (EC) No 273/2004 on drug precursors****None of the ingredients is listed.****Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors****None of the ingredients is listed.****National regulations*** No further information available.***Information about limitation of use:****Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.**Exceptions can be made by the authorities in certain cases.****15.2 Chemical safety assessment:*** A Chemical Safety Assessment has not been carried out.***\* SECTION 16: Other information***

*The product is for the industrial use only. We do not guarantee the safety in case the product is used for the other purposes. When using the product for health-care application or food/feed application, consult us in advance. This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

***Department issuing SDS:*** EHS Department***Contact:*** <http://www.daikin.com/>***Abbreviations and acronyms:****RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**ICAO: International Civil Aviation Organisation**ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised System of Classification and Labelling of Chemicals**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Acute Tox. 4: Acute toxicity – Category 4**Acute Tox. 3: Acute toxicity – Category 3**Skin Irrit. 2: Skin corrosion/irritation – Category 2**Eye Irrit. 2: Serious eye damage/eye irritation – Category 2**Skin Sens. 1: Skin sensitisation – Category 1**Muta. 2: Germ cell mutagenicity – Category 2**Carc. 1B: Carcinogenicity – Category 1B**Carc. 2: Carcinogenicity – Category 2**Repr. 1B: Reproductive toxicity – Category 1B**Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2**Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3****\* Data compared to the previous version altered.***