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Version number 5

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Trade name: ZEFFLE GK-510****Article number: GK510****1.2 Relevant identified uses of the substance or mixture and uses advised against:**

No further relevant information available.

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**

Flam. Liq. 3 H226 Flammable liquid and vapour.



STOT SE 3 H336 May cause drowsiness or dizziness.

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:**

n-Butyl acetate

Precautionary statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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

P405 Store locked up.

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

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

| | |
|-------------------------------|--------|
| Tetrafluoroethylene copolymer | 45-55% |
| CAS: 123-86-4 n-Butyl acetate | 45-55% |
| Flam. Liq. 3, H226 | |
| STOT SE 3, H336 | |
| EUH066 | |

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

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: Seek medical treatment.

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

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Remove contaminated clothes immediately.

Consult a doctor in case of complaints.

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.

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: No further relevant information available.

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:

Fire-extinguishing powder

CO₂

Dry sand

Alcohol resistant foam

Water haze

Water spray

For safety reasons unsuitable extinguishing agents: Water with full jet

5.2 Special hazards arising from the substance or mixture:

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

Extremely flammable; can ignite easily with heat, sparks, fire.

5.3 Advice for firefighters:

Protective equipment:

Wear self-contained breathing apparatus and protective suit.

Do not inhale explosion gases or combustion gases.

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 small amount of leakage: Use clean anti-static tools when absorbing the product.

For a large amount of leakage: Enclose with banks to avoid outflow. Lead the leakage to a safe place and collect.

Remove ignition sources immediately.

There is a danger of explosion. Prepare fire extinguisher in case of emergency.

Ground all equipment when the product leaks.

6.4 Reference to other sections:

See Section 8 for information on personal protection equipment.

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Ensure good ventilation/exhaustion at the workplace.

Never allow exposure to sunlight or strong light until after curing.

Do not handle until all safety precautions have been read and understood.

Handle with care. Avoid jolting, friction and impact.

Information about fire - and explosion protection:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Use flame proof electric/lighting devices and ventilation equipment.

Ground/bond container and receiving equipment.

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.

Provide solvent resistant, sealed floor.

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:

CAS: 123-86-4 n-Butyl acetate

OEL (Japan) Long-term value: 475 mg/m³, 100 ppm

PEL (USA) Long-term value: 710 mg/m³, 150 ppm

REL (USA) Short-term value: 950 mg/m³, 200 ppm

Long-term value: 710 mg/m³, 150 ppm

TLV (USA) Short-term value: 950 mg/m³, 200 ppm

Long-term value: 713 mg/m³, 150 ppm

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.

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

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

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

Body protection: Protective work clothing

* **SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

General Information

| | |
|---|-----------------------------------|
| Physical state | Fluid |
| Colour: | Light yellow |
| Odour: | Aromatic |
| Melting point/freezing point: | Undetermined. |
| Boiling point or initial boiling point and boiling range | 124-125 °C (As n-butyl acetate) |
| Flammability | Not applicable. |
| Lower and upper explosion limit | |
| Lower explosive limit: | 1.7 Vol % (As n-butyl acetate) |
| Upper explosive limit: | 7.6 Vol % (As n-butyl acetate) |
| Flash point: | 25 °C (SCC) |
| Decomposition temperature: | No further information available. |
| pH | Not determined. |
| Viscosity: | |
| Kinematic viscosity | No further information available. |
| Solubility | |
| water: | No further information available. |
| Partition coefficient n-octanol/water (log value) | No further information available. |
| Vapour pressure: | - |
| Density and/or relative density | |
| Relative density at 20 °C | 1.06 |
| Vapour density | No further information available. |
| Particle characteristics | No further information available. |

9.2 Other information:

| | |
|-----------------------------------|---|
| Form: | Liquid |
| Auto-ignition temperature: | Product is not self-igniting. |
| Explosive properties: | Product is not explosive. However, formation of explosive air/vapour mixtures are possible. |

Information with regard to physical hazard classes

| | |
|--|----------------|
| Explosives | Not applicable |
| Flammable gases | Not applicable |
| Aerosols | Not applicable |
| Oxidising gases | Not applicable |
| Gases under pressure | Not applicable |
| Flammable liquids | |
| Flammable liquid and vapour: | |
| Flammable solids | Not applicable |
| Self-reactive substances and mixtures | Not applicable |
| Pyrophoric liquids | Not applicable |
| Pyrophoric solids | Not applicable |
| Self-heating substances and mixtures | Not applicable |
| Substances and mixtures, which emit flammable gases in contact with water | Not applicable |
| Oxidising liquids | Not applicable |
| Oxidising solids | Not applicable |

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

| | |
|-------------------------|----------------|
| Organic peroxides | Not applicable |
| Corrosive to metals | Not applicable |
| Desensitised explosives | 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: No dangerous reactions known under normal conditions of use.

10.4 Conditions to avoid: Keep away from heat, sparks, flame, high temperature.

10.5 Incompatible materials: Oxidizing agents

10.6 Hazardous decomposition products:

As for decomposition products, particulate matters and extremely toxic/corrosive fumes may be generated (HF, carbonyl fluoride, monomers, perfluoroisobutylene).

Decomposition products differ depending on the temperature and conditions.

*** SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute toxicity Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification: No further information available.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

after inhalation: No further information available.

Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure:

May cause drowsiness or dizziness.

STOT-repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

Other information (about experimental toxicology): No further information available.

Subacute to chronic toxicity: No further information available.

Additional toxicological information:

General effects:

Fumes generated during burning may cause "polymer fume fever" (flu-like symptoms such as fever, chill, cough).

This may last for a whole day and night.

Fumes are not absorbed in skin. No sensitizing effect known.

Effects of hydrogen fluoride:

Low concentration of hydrogen fluoride may cause feeling of dyspnea, cough, irritation in eyes, nose, throat, fever, chill for 1-2 days.

After that, dyspnea, cyanosis and pulmonary edema may be seen.

High concentration of hydrogen fluoride damages liver and kidney.

Effects of carbonyl fluoride:

Skin: Irritation or eruption

Eye: Ulcer in cornea, conjunctiva

Respiratory system: Irritation

Lung: Temporary symptoms such as cough, pain, dyspnea

Persons who have experienced lung diseases are vulnerable to toxicity caused by excessive exposure to pyrolysis products

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

None of the ingredients is listed.

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

*** 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** *For information on endocrine disrupting properties see section 11.***12.7 Other adverse effects:** *No further relevant information available.***SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation:** *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** UN1263**14.2 UN proper shipping name:****ADR:** 1263 PAINT, solution
IMDG, IATA PAINT, solution**14.3 Transport hazard class(es):****ADR, IMDG, IATA****Class:** 3 Flammable liquids.**Label:** 3**14.4 Packing group:****ADR, IMDG, IATA** III**14.5 Environmental hazards:****Marine pollutant:** No**14.6 Special precautions for user:** *Warning: Flammable liquids.***Hazard identification number (Kemler code):** 30**EMS Number:** F-E,S-D**14.7 Maritime transport in bulk according to IMO instruments***Not applicable.***Transport/Additional information:***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:** 3**Tunnel restriction code:** D/E

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

IMDG**Limited quantities (LQ)****Excepted quantities (EQ)**

5L

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

UN "Model Regulation":

UN1263, PAINT, solution, 3, III

*** SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Labelling according to Regulation (EC) No 1272/2008**

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

Hazard pictograms

GHS02 GHS07

Signal word Warning**Hazard-determining components of labelling:**

n-Butyl acetate

Hazard statements

H226 Flammable liquid and vapour.

H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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

P405 Store locked up.

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

National regulations No further information available.**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)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

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

Flam. Liq. 3: Flammable liquids – Category 3

Printing date 20.03.2023

Version number 5

Revision: 20.03.2023

Trade name: ZEFFLE GK-510

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

*** Data compared to the previous version altered.**