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

1.1 Product identifier

**Trade name:** DAIFREE MS-600  
**Article number:** MS600

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:  
Umeda Center Bldg., 4-12, Nakazaki-Nishi 2-chome, Kita-Ku, Osaka, JAPAN  
Phone: (+81) 6-6373-4345 Fax: (+81) 6-6373-4281

Further information obtainable from: http://www.daikin.com/

1.4 Emergency telephone number:

Japan: +81-6-6349-7521  
China: +86-512-5-232-0949, +86-21-34151689  
South Korea: +82-2-568-1722  
Americas: +1-256-306-5000  
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. 2** H225 Highly flammable liquid and vapour.
- **Asp. Tox. 1** H304 May be fatal if swallowed and enters airways.
- **Aquatic Chronic 2** H411 Toxic to aquatic life with long lasting effects.
- **Skin Irrit. 2** H315 Causes skin irritation.
- **Eye Irrit. 2** H319 Causes serious eye irritation.
- **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:** Danger  
**Precautionary statements:**

- **P210** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
- **P241** Use explosion-proof electrical/ventilating/lettling equipment.  
- **P303+P361+P353 IF ON SKIN (or hair):** Take off immediately all contaminated clothing. Rinse skin with water/shower.  
- **P305+P351+P338 IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Safety data sheet

Trade name: DAIFREE MS-600

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:

Fluorocompound <5%

CAS: 67-63-0 Isopropyl alcohol 45-55%
Flam. Liq. 2, H225
Eye Irrit. 2, H319; STOT SE 3, H336

CAS: 107-83-5 2-Methylpentane 20-30%
Flam. Liq. 2, H225
Asp. Tox. 1, H304
Aquatic Chronic 2, H411
Skin Irrit. 2, H315; STOT SE 3, H336

CAS: 96-14-0 3-Methylpentane 20-30%
Flam. Liq. 2, H225
Asp. Tox. 1, H304
Aquatic Chronic 2, H411
Skin Irrit. 2, H315; STOT SE 3, H336

CAS: 110-54-3 n-Hexane <5%
Flam. Liq. 2, H225
Repr. 2, H361f; STOT RE 2, H373; Asp. Tox. 1, H304
Aquatic Chronic 2, H411
Skin Irrit. 2, H315; STOT SE 3, H336

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: Seek medical treatment.
After inhalation: Supply fresh air; consult doctor in case of complaints.
After skin contact:
Remove contaminated clothes immediately.
Immediately wash with water and soap and rinse thoroughly.
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:
Alcohol resistant foam
Fire-extinguishing powder
Dry sand
Trade name: DAIFREE MS-600

49.0.1 CO₂

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.
Receptacle may explode when heated.
Extremely flammable; can ignite easily with heat, sparks, fire.

5.3 Advice for firefighters: Remove receptacles from area of fire if possible.

Protective equipment:
Wear fully protective suit.
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:
Keep away from ignition sources.
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:
Do not flush with water or aqueous cleansing agents
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.
Ground all equipment when the product leaks.
There is a danger of explosion. Prepare fire extinguisher in case of emergency.

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.
Handle with care. Avoid jolting, friction and impact.
Do not handle until all safety precautions have been read and understood.

Information about fire - and explosion protection:
Do not weld.
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.
Prevent any seepage into the ground.
Use only receptacles specifically permitted for this substance/product.
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

Additional information about design of technical facilities: No further data; see item 7.

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
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.

Protection of hands:

Protective gloves

Material of gloves: Rubber

Penetration time of glove material
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye 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
Appearance

Form: Liquid
Colour: Colourless
Odour: Alcohol-like
Odour threshold: Not determined.

pH-value: No further information available.
Melting point/freezing point: No further information available.
Initial boiling point and boiling range: 82 °C
Flash point: -20 °C (TCC)
Flammability (solid, gas): Not applicable.
Decomposition temperature: No further information available.
Auto-ignition temperature: Product is not selfigniting.
Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

Explosion limits:
- Lower explosive limit: No further information available.
- Upper explosive limit: No further information available.

Vapour pressure: No further information available.

Density at 25 °C: 0.71-0.73 g/cm³

Relative density: Not determined.

Vapour density: Not determined.

Evaporation rate: Not determined.

Solubility in / Miscibility with water: No further information available.

Partition coefficient: n-octanol/water: No further information available.

Viscosity:
- Dynamic: Not determined.
- Kinematic: Not determined.

9.2 Other information: No further relevant information available.

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: Danger of toxic fluorine based pyrolysis products.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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

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

Primary irritant effect

Skin corrosion/irritation: Causes skin irritation.

Serious eye damage/irritation: Causes serious eye irritation.

Respiratory or skin sensitisation: 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.

CMR effects

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

May be fatal if swallowed and enters airways.

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.
Trade name: DAIFREE MS-600

Ecotoxic effects: no data
Remark: Toxic for fish
Additional ecological information:
General notes:
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment
PBT:
No further relevant information available.
Not applicable.
vPvB:
No further relevant information available.
Not applicable.

12.6 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:
ADR, IMDG, IATA
UN1993

14.2 UN proper shipping name:
ADR: 1993 FLAMMABLE LIQUID, N.O.S.
IMDG, IATA FLAMMABLE LIQUID, N.O.S.

14.3 Transport hazard class(es):

ADR

Class: 3 Flammable liquids.
Label: 3

IMDG, IATA

Class: 3 Flammable liquids.
Label: 3

14.4 Packing group:
ADR, IMDG, IATA II

14.5 Environmental hazards:
Marine pollutant: Yes

14.6 Special precautions for user:

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:
Avoid direct sunlight. Make sure of no damage, corrosion, leaks on the receptacles.
Take necessary measures for preventing cargo shift.
Safety data sheet

Trade name: DAIFREE MS-600

ADR
Limited quantities (LQ): 1L
Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

UN "Model Regulation": UN1993, FLAMMABLE LIQUID, N.O.S., 3, II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No further relevant information available.

Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.

Hazard pictograms

- GHS02
- GHS07
- GHS08
- GHS09

Signal word Danger

Hazard-determining components of labelling:
2-Methylpentane
Isopropyl alcohol
3-Methylpentane
n-Hexane

Hazard statements
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H304 May be fatal if swallowed and enters airways.
H411 Toxic to aquatic life with long lasting effects.

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/ shower.
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.

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
Trade name: DAIFREE MS-600

ICAO-TI: Technical Instructions by the “International Civil Aviation Organisation” (ICAO)
ADR: Accord européen sur le transport 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. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Asp. Tox. 1: Aspiration hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

* Data compared to the previous version altered.