

Safewing MP I LFD 88

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Substance key: 000000702835

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SECTION 1. IDENTIFICATION

Identification of the company:

Clariant Corporation
4000 Monroe Road
Charlotte, NC, 28205
Telephone No.: +1 704 331 7000

Information of the substance/preparation:

BU Industrial & Consumer Specialties
Product Stewardship, +1-704-331-7710

Emergency tel. number: +1 800-424-9300(CHEMTREC)

Trade name: Safewing MP I LFD 88
Material number: 304580

Primary product use: Aircraft de-icing

Chemical family: Aqueous solution of corrosion inhibitors and surface active agents in propylene glycol

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Substance name : Aqueous solution of corrosion inhibitors and surface active agents in propylene glycol

Hazardous components

| Chemical name | CAS-No. | Concentration (% w/w) |
|------------------|---------|-----------------------|
| Propylene Glycol | 57-55-6 | 70 - 90 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SECTION 4. FIRST AID MEASURES

General advice : Remove/Take off immediately all contaminated clothing.
Get medical advice/ attention if you feel unwell.

If inhaled : Move the victim to fresh air.

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- Give oxygen or artificial respiration if needed.
Get immediate medical advice/ attention.
- In case of skin contact : Remove contaminated clothing and shoes.
Wash off with soap and plenty of water.
Wash off immediately with plenty of water for at least 15 minutes.
Get medical attention if irritation develops and persists.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Get immediate medical advice/ attention.
- If swallowed : Rinse mouth.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
Get medical advice/ attention.
- Most important symptoms and effects, both acute and delayed : The possible symptoms known are those derived from the labelling (see section 2).
No additional symptoms are known.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray jet
Alcohol-resistant foam
Dry powder
Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : In case of fires, hazardous combustion gases are formed:
Carbon monoxide (CO)
Carbon dioxide (CO₂)
Sulphur dioxide (SO₂)
- Further information : In the event of fire and/or explosion do not breathe fumes.
Do not allow run-off from fire fighting to enter drains or water courses.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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- Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.
Avoid contact with skin, eyes and clothing.
Wash thoroughly after handling.
- Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.
- Methods and materials for containment and cleaning up : Prevent product from entering drains.
Non-sparking tools should be used.
Take measures to prevent the build up of electrostatic charge.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Clean contaminated surface thoroughly.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Observe the general rules of industrial fire protection
- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice.
For personal protection see section 8.
Avoid contact with skin, eyes and clothing.
Use only with adequate ventilation.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Keep away from heat, sparks and open flames. Store in proper container and keep container closed when not in use.
- Technical measures/Precautions : Keep containers tightly closed in a cool, well-ventilated place.
Handle and open container with care.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|------------------|---------|----------------------------------|---|---------|
| Propylene Glycol | 57-55-6 | TWA | 10 mg/m ³ | US WEEL |

- Engineering measures** : Use engineering controls such as local or general exhaust to maintain airborne concentrations below exposure limits.

Personal protective equipment

- Respiratory protection : Use respiratory protection in case of insufficient exhaust ventilation or prolonged exposure

Hand protection

Remarks

- : Chemical resistant gloves (butyl rubber, nitrile rubber,

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polyvinyl alcohol). However, please note that PVA degrades in water.

- Eye protection : Chemical splash goggles with face shield.
- Skin and body protection : Wear suitable protective equipment.
- Protective measures : Observe the usual precautions for handling chemicals.
Avoid contact with skin and eyes.
- Hygiene measures : Wash hands before breaks and at the end of workday.
Use protective skin cream before handling the product.
Take off immediately all contaminated clothing and wash it before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid
- Colour : orange
- Odour : characteristic
- Odour Threshold : no data available
- pH : ca. 7.5 (20 °C)
- pour point : < -50 °C
- Boiling point : 125 °C
- Flash point : ca. 100 °C
- Evaporation rate : not determined
- Flammability (solid, gas) : Not applicable
- Self-ignition : no data available
- Upper explosion limit : no data available
- Lower explosion limit : no data available
- Vapour pressure : no data available
- Relative vapour density : no data available
- Relative density : no data available
- Density : ca. 1.042 g/cm³ (25 °C)

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| | |
|--|--|
| | ca. 1.107 g/cm ³ (40 °C) |
| Bulk density | : no data available |
| Solubility(ies) | |
| Water solubility | : completely soluble |
| Partition coefficient: n-octanol/water | : Not applicable |
| Auto-ignition temperature | : no data available |
| Decomposition temperature | : no data available |
| Viscosity | |
| Viscosity, dynamic | : ca. 39 mPa.s (15 °C) |
| | ca. 22 mPa.s (25 °C) |
| Viscosity, kinematic | : no data available |
| Explosive properties | : Not explosive |
| Oxidizing properties | : The substance or mixture is not classified as oxidizing. The product does not contain organic peroxide-groups which result from either the manufacturing process or from added ingredients. |
| Metal corrosion rate | : Not corrosive to metals |

SECTION 10. STABILITY AND REACTIVITY

| | |
|------------------------------------|--|
| Reactivity | : No dangerous reaction known under conditions of normal use. |
| Chemical stability | : Stable under normal conditions. |
| Possibility of hazardous reactions | : No dangerous reaction known under conditions of normal use. Stable |
| Conditions to avoid | : None known. |
| Incompatible materials | : not known |
| Hazardous decomposition products | : When handled and stored appropriately, no dangerous decomposition products are known |

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity : Remarks: not tested.

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Acute inhalation toxicity : Remarks: not tested.

Acute dermal toxicity : Acute toxicity estimate: 2,841 mg/kg
Method: Calculation method

Components:**Propylene Glycol:**

Acute oral toxicity : LD50 (Rat, male and female): 22,000 mg/kg
Method: Other
GLP: no

Acute inhalation toxicity : LC50 (Rabbit): > 317.042 mg/l
Exposure time: 2 h
Test atmosphere: vapour
Method: Other
GLP: no

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: Other
GLP: no

Skin corrosion/irritation**Components:****Propylene Glycol:**

Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: No information available.

Serious eye damage/eye irritation**Components:****Propylene Glycol:**

Species: rabbit eye
Result: non-irritant
Method: OECD Test Guideline 405
GLP: No information available.

Respiratory or skin sensitisation**Product:**

Remarks: no data available

Components:**Propylene Glycol:**

Test Type: Guinea pig maximization test
Exposure routes: Skin contact

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Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.
GLP: No information available.

Test Type: Mouse local lymphnode assay
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.
GLP: No information available.

Germ cell mutagenicity**Product:**

Germ cell mutagenicity - Assessment : No information available.

Components:**Propylene Glycol:**

Genotoxicity in vitro : Test Type: Ames test
Species: Salmonella typhimurium
Concentration: <= 10 mg/plate
Metabolic activation: with
Method: Ames test
Result: negative
GLP: No information available.

: Test Type: Chromosome aberration test in vitro
Species: Cultured peripheral human lymphocytes
Concentration: 7,4 - 3810 µg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Chromosome Aberration Test
Species: Rat (male)
Strain: Sprague-Dawley
Cell type: Bone marrow
Application Route: oral (gavage)
Exposure time: 6 - 24 - 48 h
Dose: 30 - 2500 - 5000 mg/kg
Method: Other
Result: negative
GLP: no

Test Type: Chromosome Aberration Test
Species: Mouse (male)
Cell type: Erythrocytes
Application Route: Intraperitoneal injection
Exposure time: 18 h

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Dose: 2500-5000-10000-15000 mg/kg

Method: Other

Result: negative

GLP: No information available.

Germ cell mutagenicity - Assessment : It is concluded that the product is not mutagenic based on evaluation of several mutagenicity tests.

Carcinogenicity**Product:**

Carcinogenicity - Assessment : No information available.

Components:**Propylene Glycol:**

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

IARC Not listed

OSHA Not listed

NTP Not listed

Reproductive toxicity**Product:**

Reproductive toxicity - Assessment : No information available.

No information available.

Components:**Propylene Glycol:**

Effects on fertility : Test Type: Two-generation study
Species: Mouse, male and female
Strain: CD1
Application Route: oral (gavage)
Dose: 1820 - 4800 - 10100 mg/kg
General Toxicity - Parent: NOAEL: 10,100 mg/kg body weight
General Toxicity F1: NOAEL: 10,100 mg/kg body weight
General Toxicity F2: NOAEL: 10,100 mg/kg body weight
Method: Other
GLP: No information available.

Effects on foetal development : Species: Mouse
Strain: CD1
Application Route: oral (gavage)
Dose: 52 - 520 - 10400 mg/kg

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General Toxicity Maternal: NOAEL: 52 mg/kg body weight
Teratogenicity: NOAEL: 10,400 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Reproductive toxicity - Assessment : No reproductive toxicity to be expected.
No teratogenic effects to be expected.

STOT - single exposure**Components:****Propylene Glycol:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure**Product:**

Remarks: no data available

Components:**Propylene Glycol:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity**Product:**

Remarks: no data available

Components:**Propylene Glycol:**

Species: Rat, male and female
NOAEL: 1,700 - 2,100 mg/kg
Application Route: oral (feed)
Exposure time: 2 a
Number of exposures: daily
Dose: 200-2100 mg/kg
Group: yes
Method: Other
GLP: no

Species: Cat, male
NOAEL: 443 mg/kg
Application Route: oral (feed)
Exposure time: 69 - 94 d
Number of exposures: daily
Dose: 80 - 4239 mg/kg
Group: yes

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Method: Other

GLP: no

Species: Rat, male and female

NOAEL: 1 - 2.2 mg/l

Application Route: Inhalation

Exposure time: 90 d

Number of exposures: 6 hours/day, 5 days/week

Dose: 0,16 - 1,01 - 2,18 mg/l

Group: yes

Method: Other

GLP: No information available.

Species: Mouse, female

NOAEL: 0.02

Application Route: Skin contact

Exposure time: Lifespan

Number of exposures: 2x / w

Dose: 10-50-100% / 0.02 ml acetone

Group: yes

Method: Other

GLP: no

Remarks: No pathological findings

Aspiration toxicity**Product:**

no data available

Components:**Propylene Glycol:**

No aspiration toxicity classification

Experience with human exposure**Product:**

General Information : The possible symptoms known are those derived from the labelling (see section 2).

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**Toxicity to fish :
Remarks: no data availableToxicity to daphnia and other :
aquatic invertebrates Remarks: no data available

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Toxicity to algae :
Remarks: no data available

Toxicity to microorganisms : Remarks: no data available

Components:**Propylene Glycol:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: Other
GLP: no

Toxicity to daphnia and other aquatic invertebrates : LC50 (Mysidopsis bahia (opossum shrimp)): 18,800 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: Other
GLP: yes

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 19,000 mg/l
End point: Growth rate
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 15,000 mg/l
End point: Growth rate
Exposure time: 14 d
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : Chronic Toxicity Value (Fish): 2,500 mg/l
End point: Other
Exposure time: 30 d
Method: Other
GLP: no

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia spec.): 13,020 mg/l
End point: Reproduction rate
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: No information available.

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- Toxicity to microorganisms : NOEC (Pseudomonas putida): > 20,000 mg/l
End point: Growth rate
Exposure time: 18 h
Test Type: aquatic
Analytical monitoring: no
Method: Other
GLP: no
Remarks: The details of the toxic effect relate to the nominal concentration.
- Toxicity to soil dwelling organisms : Remarks: The study is not necessary from a scientific perspective.
- Plant toxicity : Remarks: The study is not necessary from a scientific perspective.
- Sediment toxicity : Remarks: The study is not necessary from a scientific perspective.
- Toxicity to terrestrial organisms : Remarks: The study is not necessary from a scientific perspective.

Persistence and degradability**Product:**

- Biodegradability : Remarks: Not applicable

Components:**Propylene Glycol:**

- Biodegradability : aerobic
Inoculum: activated sludge, domestic
Concentration: 100 mg/l ThOD
BOD in % of theoretical OD
Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes
- aerobic
Inoculum: activated sludge, domestic
Concentration: 50.3 mg/l
CO2 formation in % of theoretical value
Result: Readily biodegradable.
Biodegradation: 90.6 %
Exposure time: 64 d
Method: OECD Test Guideline 306
GLP: yes

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Bioaccumulative potential**Components:****Propylene Glycol:**

Bioaccumulation : Bioconcentration factor (BCF): 0.09
Method: calculated
GLP: no

Mobility in soil**Components:****Propylene Glycol:**

Distribution among environmental compartments : Adsorption/Soil
Medium: water - soil
log Koc: 0.46
Method: other (calculated)

Other adverse effects**Product:**

Additional ecological information : no data available

Components:**Propylene Glycol:**

Environmental fate and pathways : not available

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Additional ecological information : Do not allow to enter ground water, waterways or waste water.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

RCRA - Resource Conservation and Recovery Act

Authorization Act Waste Code : NONE

Waste from residues : Small quantities may be treated in aerobic wastewater treatment systems. Larger quantities may be incinerated or landfilled after solidification in permitted systems.

Contaminated packaging : Packaging that cannot be cleaned should be disposed of as product waste

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SECTION 14. TRANSPORT INFORMATION

| | |
|------|----------------|
| DOT | not restricted |
| IATA | not restricted |
| IMDG | not restricted |

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|---------------------|-----------|-----------------------|--------------------------------|
| Potassium hydroxide | 1310-58-3 | 1000 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.**Clean Water Act**

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

The components of this product are reported in the following inventories:

TSCA : On TSCA Inventory

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA -

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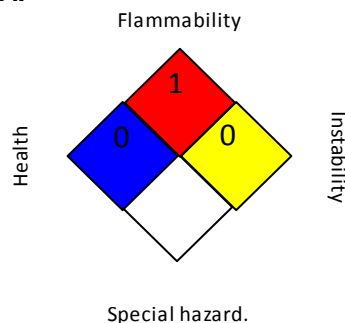
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International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information**NFPA:**

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This information corresponds to the present state of our knowledge and is intended as a general description of our products and their possible applications. Clariant makes no warranties, express or implied, as to the information's accuracy, adequacy, sufficiency or freedom from defect and assumes no liability in connection with any use of this information. Any user of this product is responsible for determining the suitability of Clariant's products for its particular application. NO EXPRESS OR IMPLIED WARRANTY IS MADE OF THE MERCHANTABILITY, SUITABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE OF ANY PRODUCT OR SERVICE. Nothing included in this information waives any of Clariant's General Terms and Conditions of Sale, which control unless it agrees otherwise in writing. Any existing intellectual/industrial property rights must be observed. Due to possible changes in our products

SAFETY DATA SHEET



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and applicable national and international regulations and laws, the status of our products could change. Material Safety Data Sheets providing safety precautions, that should be observed when handling or storing Clariant products, are available upon request and are provided in compliance with applicable law. You should obtain and review the applicable Material Safety Data Sheet information before handling any of these products. For additional information, please contact Clariant.

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