

Printing date 23.03.2023

Version number 1

Revision: 23.03.2023

**\* SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name: FLUOROALCOHOL N1****Article number: F-ALC1 STD****EC number:**

200-955-5

**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/>[sales@daikinchem.de](mailto:sales@daikinchem.de)**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.



Acute Tox. 3 H331 Toxic if inhaled.



STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.



Eye Dam. 1 H318 Causes serious eye damage.

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

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

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

2,2,3,3-tetrafluoropropan-1-ol

**Precautionary statements:**

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

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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.*  
P310 *Immediately call a POISON CENTER/doctor.*  
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:**

CAS: 76-37-9 2,2,3,3-tetrafluoropropan-1-ol 100%  
Flam. Liq. 3, H226  
Acute Tox. 3, H331  
STOT RE 1, H372  
Eye Dam. 1, H318

**Identification number(s)****EC number:** 200-955-5**SECTION 4: First aid measures****4.1 Description of first aid measures****General information:** Seek medical treatment.**After skin contact:**

Remove contaminated clothes immediately.

Consult a doctor in case of complaints.

**After eye contact:** Consult an ophthalmologist 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:**CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**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 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:**

Wear protective clothing.

Ensure adequate ventilation before entering the area.

Keep out unauthorized persons.

**6.2 Environmental precautions:** Do not allow to enter sewers/surface or ground water.**6.3 Methods and material for containment and cleaning up:**

Dispose of the material collected according to regulations.

**6.4 Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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Trade name: *FLUOROALCOHOL N1***\* SECTION 7: Handling and storage****7.1 Precautions for safe handling:***Use only in well ventilated areas.**Keep away from heat and direct sunlight.**Ensure good ventilation/exhaustion at the workplace.**Do not handle until all safety precautions have been read and understood.***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:***Make floor, wall and columns of the storage location fire-resistant construction. Make beams noncombustible construction.**Store in a cool and dry location.**Prevent any seepage into the ground.***Information about storage in one common storage facility:***Store away from foodstuffs.**See section 10 for information on incompatible materials.***Further information about storage conditions:***Store in cool, dry conditions in well sealed receptacle.**Protect from heat and direct sunlight.**Store containers in a well ventilated area.***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:** *Not required.***Additional information:** *The lists valid during the making were used as basis.***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:** *Not required.***Hand protection**

Protective gloves

**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:***Colourless*

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<b>Odour:</b>	<i>Aromatic</i>
<b>Odour threshold:</b>	<i>Not determined.</i>
<b>Melting point/freezing point:</b>	<i>No further information available.</i>
<b>Boiling point or initial boiling point and boiling range</b>	<i>109-110 °C (760mmHg)</i>
<b>Flammability</b>	<i>Not applicable.</i>
<b>Lower and upper explosion limit</b>	
<b>Lower explosive limit:</b>	<i>4.8 Vol %</i>
<b>Upper explosive limit:</b>	<i>24 Vol %</i>
<b>Flash point:</b>	<i>47.5 °C</i>
<b>Decomposition temperature:</b>	<i>No further information available.</i>
<b>pH</b>	<i>Not determined.</i>
	<i>Not determined.</i>
<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	<i>Not determined.</i>
<b>Dynamic:</b>	<i>Not determined.</i>
<b>Solubility</b>	
<b>water:</b>	<i>No further information available.</i>
<b>Partition coefficient n-octanol/water (log value)</b>	<i>No further information available.</i>
	<i>Not determined.</i>
<b>Vapour pressure:</b>	<i>No further information available.</i>
<b>Density and/or relative density</b>	
<b>Density:</b>	<i>Not determined.</i>
<b>Relative density</b>	<i>Not determined.</i>
<b>Vapour density</b>	<i>Not determined.</i>
<b>Particle characteristics</b>	<i>No further information available.</i>
<b>9.2 Other information:</b>	
<b>Form:</b>	<i>Liquid</i>
<b>Auto-ignition temperature:</b>	<i>Not determined.</i>
<b>Explosive properties:</b>	<i>No further information available.</i>
<b>Evaporation rate</b>	<i>Not determined.</i>
<b>Information with regard to physical hazard classes</b>	
<b>Explosives</b>	<i>Not applicable</i>
<b>Flammable gases</b>	<i>Not applicable</i>
<b>Aerosols</b>	<i>Not applicable</i>
<b>Oxidising gases</b>	<i>Not applicable</i>
<b>Gases under pressure</b>	<i>Not applicable</i>
<b>Flammable liquids</b>	<i>Flammable liquid and vapour.</i>
<b>Flammable solids</b>	<i>Not applicable</i>
<b>Self-reactive substances and mixtures</b>	<i>Not applicable</i>
<b>Pyrophoric liquids</b>	<i>Not applicable</i>
<b>Pyrophoric solids</b>	<i>Not applicable</i>
<b>Self-heating substances and mixtures</b>	<i>Not applicable</i>
<b>Substances and mixtures, which emit flammable gases</b>	
<b>in contact with water</b>	<i>Not applicable</i>
<b>Oxidising liquids</b>	<i>Not applicable</i>
<b>Oxidising solids</b>	<i>Not applicable</i>
<b>Organic peroxides</b>	<i>Not applicable</i>
<b>Corrosive to metals</b>	<i>Not applicable</i>
<b>Desensitised explosives</b>	<i>Not applicable</i>

**\* SECTION 10: Stability and reactivity****10.1 Reactivity** *No further relevant information available.***10.2 Chemical stability****Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.***10.3 Possibility of hazardous reactions:***Reacts with peroxides and other radical forming substances.*

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Reacts with amines.

Reacts with sodium metal.

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

**10.5 Incompatible materials:** No further relevant information available.

**10.6 Hazardous decomposition products:** Fluorophosgene in contact with naked flame or red hot objects.

## \* SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

LC50 2hr mouse =8600mg/m<sup>3</sup>

Ames negative

Chromosome aberrations negative

Acute toxicity Toxic if inhaled.

**LD/LC50 values relevant for classification:**

**CAS: 76-37-9 2,2,3,3-tetrafluoropropan-1-ol**

Inhalative LC50 8600 mg/m<sup>3</sup> (Mouse) (2h)

**Skin corrosion/irritation:** No further information available.

**Serious eye damage/irritation:** Causes serious eye damage.

**Respiratory or skin sensitisation:** No further information available.

**STOT-repeated exposure:** Causes damage to organs through prolonged or repeated exposure.

**Other information (about experimental toxicology):**

No further information available.

Chromosomal Aberration Study in vivo - Negative

**Subacute to chronic toxicity:** No further information available.

### 11.2 Information on other hazards:

**Endocrine disrupting properties:**

Substance is not listed.

## \* SECTION 12: Ecological information

### 12.1 Toxicity

**Aquatic toxicity:** No further relevant information available.

### 12.2 Persistence and degradability:

This product will persist in the environment. Handle with care in case of accidental release or disposal.

**Other information:** The product is slightly biodegradable.

**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

## \* SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Recommendation:

Wear appropriate protective devices.

Disposal must be made according to official regulations.

#### Uncleaned packaging

#### Recommendation:

Empty contaminated packagings thoroughly.

Disposal must be made according to official regulations.

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\* **SECTION 14: Transport information**

**14.1 UN number or ID number**

**ADR, IMDG, IATA**

UN1992

**14.2 UN proper shipping name:**

**ADR, IMDG, IATA**

*FLAMMABLE LIQUID, TOXIC, N.O.S. (2,2,3,3-tetrafluoropropan-1-ol)*

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

**ADR**



**Class:**

3 (F1) Flammable liquids.

**Label:**

3+6.1

**IMDG**



**Class:**

3 Flammable liquids.

**Label:**

3/6.1

**IATA**



**Class:**

3 Flammable liquids.

**Label:**

3 (6.1)

**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):**

36

**EMS Number:**

F-E,S-D

**Stowage Category**

E

**Stowage Code**

SW2 Clear of living quarters.

**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

**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



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UN "Model Regulation":

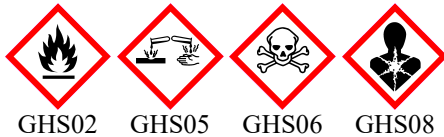
UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (2,2,3,3-TETRAFLUOROPROPAN-1-OL), 3 (6.1), III

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

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

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

**Hazard pictograms****Signal word** Danger**Hazard-determining components of labelling:**

2,2,3,3-tetrafluoropropan-1-ol

**Hazard statements**

H226 Flammable liquid and vapour.

H331 Toxic if inhaled.

H318 Causes serious eye damage.

H372 Causes damage to organs through prolonged or repeated exposure.

**Precautionary statements**

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.

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

P310 Immediately call a POISON CENTER/doctor.

P405 Store locked up.

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

**Seveso category**

H2 ACUTE TOXIC

P5c FLAMMABLE LIQUIDS

**DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

Substance is not listed.

**Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

Substance is not listed.

**Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

Substance is not listed.

**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

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**Contact:**

<http://www.daikin.com/>

[sales@daikinchem.de](mailto:sales@daikinchem.de)

[www.daikinchem.de](http://www.daikinchem.de)

**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*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*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*

*Acute Tox. 3: Acute toxicity – Category 3*

*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*

*STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1*

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