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Version number 1

Revision: 03.02.2022

**\* 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:

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/>[sales@daikinchem.de](mailto:sales@daikinchem.de)**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: 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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## \* 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>	Aromatic
<b>Odour threshold:</b>	Not determined.
<b>Melting point/freezing point:</b>	No further information available.
<b>Boiling point or initial boiling point and boiling range</b>	109-110 °C (760mmHg)
<b>Flammability</b>	Not applicable.
<b>Fundamental burning velocity:</b>	
<b>Lower and upper explosion limit</b>	
<b>Lower explosive limit:</b>	4.8 Vol %
<b>Upper explosive limit:</b>	24 Vol %
<b>Flash point:</b>	47.5 °C
<b>Auto-ignition temperature:</b>	Not determined.
<b>Decomposition temperature:</b>	No further information available.
<b>pH</b>	Not determined.
<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	No further information available.
<b>Dynamic:</b>	Not determined.
<b>Solubility</b>	
<b>water:</b>	No further information available.
<b>Partition coefficient n-octanol/water (log value)</b>	No further information available.
<b>Vapour pressure:</b>	Not determined.
<b>Density and/or relative density</b>	
<b>Density:</b>	No further information available.
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>9.2 Other information:</b>	
<b>Appearance</b>	
<b>Form:</b>	Liquid
<b>Explosive properties:</b>	No further information available.
<b>Evaporation rate</b>	Not determined.
<b>Information with regard to physical hazard classes</b>	
<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>	Flammable liquid and vapour.
<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:** No decomposition if used according to specifications.

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Trade name: **FLUOROALCOHOL N1****10.3 Possibility of hazardous reactions:**

Reacts with peroxides and other radical forming substances.

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

No further relevant information available.

Not applicable.

**vPvB:**

No further relevant information available.

No further relevant information available.

Not applicable.

**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.

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## Uncleaned packaging

### Recommendation:

Empty contaminated packagings thoroughly.

Disposal must be made according to official regulations.

## \* 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 (FT1) 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



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## 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":

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



GHS02

GHS05

GHS06

GHS08

#### 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

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product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:** EHS Department

**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.**