

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 1 of 10

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1 Product identifier**

Product Name	Klea™ 410A
CAS No.	Not available.
EC No.	Not available.
REACH Registration No.	Difluoromethane (HFC 32): 01-2119471312-47-0002 Pentafluoroethane (HFC 125): 01-2119485636-25-0005

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified Use(s)	Subject to Member State regulations, applicable uses are: refrigerant.
Uses Advised Against	Not known.

**1.3 Details of the supplier of the safety data sheet**

Manufacturer	
Company Identification	Mexichem Fluor Japan Limited
Address of Manufacturer	Tennoz First Tower 2-4, Higashi-shinagawa 2-chome Shinagawa-ku, Tokyo JAPAN
Postal code	140-0002
Telephone:	+81-3-5462-8661
FAX:	+81-3-5462-8686

**1.4 Emergency telephone number**

Emergency Phone No.	For specialist advice in an emergency telephone +81-848-67-5232
---------------------	---

**SECTION 2: HAZARDS IDENTIFICATION**

Low acute toxicity. High exposures may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation. Liquid splashes or spray may cause freeze burns to skin and eyes.

**2.1 Classification of the substance or mixture**

Regulation (EC) No. 1272/2008 (CLP)	Press. Gas (Liq.) :Contains gas under pressure; may explode if heated.
-------------------------------------	--

**2.2 Label elements**

	According to Regulation (EC) No. 1272/2008 (CLP)
Product Name	Klea™ 410A

Hazard Pictogram(s)



GHS04

Signal Word(s)	Warning
----------------	---------

Hazard Statement(s)	H280: Contains gas under pressure; may explode if heated.
---------------------	---

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 2 of 10

Precautionary Statement(s) P410+P403: Protect from sunlight. Store in a well-ventilated place.

**2.3 Other hazards**

None known.

**2.4 Additional Information**

None.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Alternative names R 410A

**3.1 Substances**

Not applicable.

**3.2 Mixtures**

HAZARDOUS INGREDIENT(S)	%W/W	CAS No.	EC No.	Hazard Pictogram(s) and Hazard Statement(s)
Difluoromethane (HFC 32)	50	75-10-5	200-839-4	GHS02 H221 GHS04 H280
Pentafluoroethane (HFC 125)	50	354-33-6	206-557-8	GHS04 H280

**SECTION 4: FIRST AID MEASURES**



The first aid advice given for skin contact, eye contact, and ingestion is applicable following exposures to the liquid or spray. See Also Section 11

**4.1 Description of first aid measures**

Inhalation

Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.

Skin Contact

Thaw affected areas with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in the case of freeze burns. After contact with skin, wash immediately with plenty of warm water. If irritation or blistering occur obtain medical attention.

Eye Contact

Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain immediate medical attention.

Ingestion

Unlikely route of exposure. Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain immediate medical attention.

Further Medical Treatment

Symptomatic treatment and supportive therapy as indicated. Adrenaline and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest.

**4.2 Most important symptoms and effects, both acute and delayed**

High exposures may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.

**4.3 Indication of any immediate medical attention and special treatment needed**

Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 3 of 10

failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.

## SECTION 5: FIREFIGHTING MEASURES

This refrigerant is not flammable in air under ambient conditions of temperature and pressure. Certain mixtures of this refrigerant and air when under pressure may be flammable. Mixtures of this refrigerant and air under pressure should be avoided. Certain mixtures of HFCs and chlorine may be flammable or reactive under certain conditions.

### 5.1 Extinguishing media

Suitable Extinguishing media As appropriate for surrounding fire.  
Keep fire exposed containers cool by spraying with water.

Unsuitable extinguishing media None.

### 5.2 Special hazards arising from the substance or mixture

Thermal decomposition will evolve very toxic and corrosive vapours (hydrogen fluoride). Containers may burst if overheated.

### 5.3 Advice for firefighters

A self contained breathing apparatus and full protective clothing must be worn in fire conditions. See Also Section 8

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Ensure suitable personal protection (including respiratory protection) during removal of spillages. See Also Section 8

### 6.2 Environmental precautions

Prevent liquid from entering drains, sewers, basements and workpits since the vapour may create a suffocating atmosphere.

### 6.3 Methods and material for containment and cleaning up

Provided it is safe to do so, isolate the source of the leak. Allow small spillages to evaporate provided there is adequate ventilation.

Large spillages: Ventilate area. Contain spillages with sand, earth or any suitable adsorbent material. Prevent liquid from entering drains, sewers, basements and workpits since the vapour may create a suffocating atmosphere.

### 6.4 Reference to other sections

See Also Section 8, 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid inhalation of high concentrations of vapours. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Atmospheric concentrations well below the occupational exposure limit can be achieved by good occupational hygiene practice. The vapour is heavier than air, high concentrations may be produced at low levels where general ventilation is poor, in such cases provide adequate ventilation or wear suitable respiratory protective equipment with positive air supply. Avoid contact with naked flames and hot surfaces as corrosive

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 4 of 10

and very toxic decomposition products can be formed. Avoid contact between the liquid and skin and eyes. For correct refrigerant composition, systems should be charged using the liquid phase and not the vapour phase.

Avoid venting to atmosphere.

The fluorinated greenhouse gas R 410A may be supplied in returnable containers (drums/cylinders). The container contains fluorinated greenhouse gases covered by the Kyoto Protocol. The fluorinated greenhouse gases in containers may not be vented to the atmosphere. Regulation (EU) No. 517/2014 of the European Parliament and the Council on certain fluorinated greenhouse gases.

Process Hazards

Liquid refrigerant transfers between refrigerant containers and to and from systems can result in static generation. Ensure adequate earthing. Certain mixtures of HFCs and chlorine may be flammable or reactive under certain conditions. Care must be taken to mitigate the risk of developing high pressures in systems caused by a temperature rise when liquid is trapped between closed valves or in cases where containers have been overfilled.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep in a well ventilated place away from fire risk and avoid sources of heat such as electric or steam radiators. Avoid storing near to the intake of air conditioning units, boiler units and open drains.

Storage temperature

Avoid high temperatures.

Storage life

Stable under normal conditions.

Incompatible materials

finely divided metals, alkali metals (sodium, potassium), alkaline earth metals (barium, magnesium), alloys containing more than 2% magnesium.

**7.3 Specific end use(s)**

Subject to Member State regulations, applicable uses are: refrigerant.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Difluoromethane (HFC 32)	75-10-5	1000				COM
Pentafluoroethane (HFC 125)	354-33-6	1000				COM

Source COM: The company aims to control exposure in its workplace to this limit.

**8.2 Exposure controls**

- 8.2.1. Appropriate engineering controls Provide adequate ventilation. Atmospheric levels should be controlled in compliance with the occupational exposure limit.
- 8.2.2. Personal protection equipment Wear suitable protective clothing and eye/face protection.

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 5 of 10



Eye Protection

Wear protective eyewear (goggles, face shield, or safety glasses).



Skin protection

Wear thermal insulating gloves when handling liquefied gases.



Respiratory protection

In cases of insufficient ventilation, where exposure to high concentrations of vapour is possible, suitable respiratory protective equipment with positive air supply should be used.



Thermal hazards

See above - Skin protection

8.2.3. Environmental Exposure Controls Prevent liquid from entering drains, sewers, basements and workpits since the vapour may create a suffocating atmosphere.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Liquefied gas. Colour: Colourless.
Odour	Slight ethereal
Odour threshold	No information available.
pH	Not applicable.
Melting point/freezing point	No information available.
Initial boiling point and boiling range	-51.9 to -51.8°C (boiling range)
Flash Point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	10880 mm Hg @ 20°C
Vapour Density (Air=1)	2.6 at bubble point temperature
Density (g/ml)	1.09 @ 20°C
Relative density	No information available.
Solubility(ies)	Solubility (Water) : Insoluble. Solubility (Other) : Soluble in: Alcohols, Chlorinated solvents, esters.
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature (°C)	No information available.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

### 9.2 Other information

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 6 of 10

None.

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

See Section: Possibility of hazardous reactions

### 10.2 Chemical Stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Certain mixtures of HFCs and chlorine may be flammable or reactive under certain conditions. Incompatible materials: finely divided metals, magnesium and alloys containing more than 2% magnesium. Can react violently if in contact with alkali metals and alkaline earth metals - sodium, potassium, barium.

### 10.4 Conditions to avoid

Avoid high temperatures.

### 10.5 Incompatible materials

finely divided metals, alkali metals (sodium, potassium), alkaline earth metals (barium, magnesium), alloys containing more than 2% magnesium.

### 10.6 Hazardous decomposition products

hydrogen fluoride by thermal decomposition and hydrolysis.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Acute toxicity - Ingestion	Highly unlikely - but should this occur freeze burns will result.
Acute toxicity - Skin Contact	Unlikely to be hazardous by skin absorption.
Acute toxicity - Inhalation	HFC 32: LC50 (rat) (4 hrs) > 520000 ppm (1107600 mg/m <sup>3</sup> ) HFC 125: LC50 (rat) (4 hrs) > 800000 ppm (3928000 mg/m <sup>3</sup> ) High exposures may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.
Skin corrosion/irritation	Liquid splashes or spray may cause freeze burns.
Serious eye damage/irritation	Liquid splashes or spray may cause freeze burns.
Skin sensitization data	It is not a skin sensitiser.
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	No evidence of mutagenic effects.
Carcinogenicity	It is unlikely to present a carcinogenic hazard to man.
Reproductive toxicity	HFC 32, HFC 125: Studies in animals have shown that repeated exposures produce no teratogenic effects.

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 7 of 10

Lactation Not classified.  
 STOT - single exposure Not classified.  
 STOT - repeated exposure Not classified.  
 Aspiration hazard Not applicable.

**11.2 Other information**

Respiratory irritation Non-irritant.  
 Repeated dose toxicity  
 HFC 32: An inhalation study in animals has shown that repeated exposures produce no significant effects (49500ppm in rats).  
 HFC 125: An inhalation study in animals has shown that repeated exposures produce no significant effects (50000ppm in rats).

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

The product is predicted to have low toxicity to aquatic organisms.  
 Toxicity - Aquatic invertebrates Low toxicity to aquatic invertebrates.  
 Toxicity - Fish Low toxicity to fish.  
 Toxicity - Algae Low toxicity to algae.  
 Toxicity - Sediment Compartment Not classified.  
 Toxicity - Terrestrial Compartment Not classified.  
 Environmental Fate and Distribution High tonnage material produced in wholly contained systems. High tonnage material used in open systems. Gas.

**12.2 Persistence and Degradation**

HFC 32: Decomposed comparatively rapidly in the lower atmosphere (troposphere). Atmospheric lifetime is 4.9 years.  
 HFC 125: Decomposed slowly in the lower atmosphere (troposphere). Atmospheric lifetime is 29 years.  
 R 410A: Does not influence photochemical smog (i.e. is not a VOC under the terms of the UNECE agreement). Does not deplete ozone. Has a Global Warming Potential (GWP) of 2088 (relative to a value of 1 for carbon dioxide at 100 years) according to Annex I of Regulation (EU) No. 517/2014 on certain fluorinated greenhouse gases. Values in Annex I are taken from the fourth assessment report (AR4) of the Intergovernmental Panel on Climate Change.  
 United Nations Framework Convention on Climate Change (UNFCCC) reporting GWP is 1725.

**12.3 Bioaccumulative potential**

The product has no potential for bioaccumulation.

**12.4 Mobility in soil**

Not applicable.

**12.5 Results of PBT and vPvB assessment**

Not classified as PBT or vPvB.

**12.6 Other adverse effects**

None known.  
 Effect on Effluent Treatment Discharges of the product will enter the atmosphere and will not result in long term aqueous contamination.

SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 8 of 10

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

Best to recover and recycle. If this is not possible, destruction is to be in an approved facility which is equipped to absorb and neutralise acid gases and other toxic processing products.

**13.2 Additional Information**

Disposal should be in accordance with local, state or national legislation.

**SECTION 14: TRANSPORT INFORMATION**

**14.1 UN number**

UN No. 3163

**14.2 UN proper shipping name**

UN proper shipping name LIQUEFIED GAS, N.O.S

**14.3 Transport hazard class(es)**

ADR/RID

ADR/RID Class 2.2

IMDG

IMDG Class 2.2

ICAO/IATA

ICAO/IATA Class 2.2

Labels



**14.4 Packing group**

Packing group Not applicable.

**14.5 Environmental hazards**

Environmental hazards Not classified as a Marine Pollutant.

**14.6 Special precautions for user**

Special precautions for user Not known.

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Transport in bulk according to Annex II of Not applicable.

Marpol and the IBC Code

**SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

European Regulations

EC Classification According to Regulation (EC) No. 1272/2008 (CLP)

Gases under pressure - liquefied gas



SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 9 of 10

**Special Restrictions:** The fluorinated greenhouse gas R 410A may be supplied in returnable containers (drums/cylinders). The container contains fluorinated greenhouse gases covered by the Kyoto Protocol. The fluorinated greenhouse gases in containers may not be vented to the atmosphere.

Regulation (EU) No. 517/2014 of the European Parliament and the Council on certain fluorinated greenhouse gases.

Directive 2006/40/EC of the European Parliament and the Council relating to emissions from air-conditioning systems in motor vehicles and amending Council Directive 70/156/EC.

**15.2 Chemical Safety Assessment**

A chemical safety assessment is not required under REACH.

**SECTION 16: OTHER INFORMATION**

The following sections contain revisions or new statements: 1-16

**LEGEND**

**Hazard Statement(s)** H221: Flammable gas.  
H280: Contains gas under pressure; may explode if heated.

**Acronyms**

ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road  
CAS : Chemical Abstracts Service  
CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures  
EC : European Community  
IATA : International Air Transport Association  
IBC : Intermediate Bulk Container  
ICAO : International Civil Aviation Organization  
IMDG : International Maritime Dangerous Goods  
LTEL : Long term exposure limit  
PBT : Persistent, Bioaccumulative and Toxic  
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals  
RID : Regulations concerning the International Carriage of Dangerous Goods by Rail  
STEL : Short term exposure limit  
STOT : Specific Target Organ Toxicity  
UN : United Nations  
vPvB : very Persistent and very Bioaccumulative

**Disclaimers** Information in this publication is believed to be accurate and is given in good faith, but it is for the User to satisfy itself of the suitability for its own particular purpose. Accordingly, Mexichem UK Limited gives no warranty as to the fitness of the Product for any particular purpose and any implied warranty or condition (statutory or



SAFETY DATA SHEET

Product Name: Klea™ 410A Revision: GHS04-4 Date: 02/2024 Page: 10 of 10

otherwise) is excluded except to the extent that such exclusion is prevented by law. Freedom under Patent, Copyright and Designs cannot be assumed. Klea™ is a trademark, the property of Mexichem SAB de C.V.

Mexichem UK Limited is Registered in England No 7088219. Registered Office The Heath Business & Technical Park, Runcorn, Cheshire WA7 4QX.

© Mexichem UK Limited 2016.