

# Safety data sheet

## Nature-R 2

Version 1.0

Effective date: 10-08-2020

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

#### 1.1 Product identifier

**Trade name:** Nature-R 2.

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

**Product use:** Refrigerant.

#### 1.3 Details of the Supplier of the safety data sheet:

**Company:** Arctiko A/S  
Oddesundvej  
DK 6715 Esbjerg N  
Denmark  
Tel.: +45 70 20 03 28  
Fax: +45 70 20 03 29

**Contact:** info@arctiko.com

**1.4 Emergency telephone number:** +45 82 12 12 12

### SECTION 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture according to CLP no. 1272/2008.

Flam. Gas 1; H220, STOT SE 3; H336.

#### 2.2 Label elements CLP no. 1272/2008:

##### Hazard pictograms:



##### Signal word:

Danger

**Contains:** Ethylene.

##### Hazard statements:

H220 Extremely flammable gas.

H336 May cause drowsiness or dizziness.

##### Precautionary statements:

General:

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### Prevention:

P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking.

P243 Take action to prevent static discharges.

### Response:

P301 + P315 IF SWALLOWED: Get immediate medical advice/attention.

### Storage:

P403 Store in a well ventilated place.

### Disposal:

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### Additional information:

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### 2.3 Other hazards:

May cause frostbite if in contact with skin.

The product does not meet the criteria for PBT or vPvB.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substance:

The product is a mixture.

### 3.2 Mixture:

CAS/EC-no.	REACH-no.	Name	Content %	Classification CLP
74-85-1 / 200-815-3	-	Ethylene	50-90	Flam. Gas 1; H220 Press Gas, STOT SE 3; H336.
106-97-8 / 203-448-7	-	Butane	10-50	Flam. Gas 1; H220 Press Gas,
74-82-8 / 200-812-7	-	Methane	5-20	Flam. Gas 1; H220 Press Gas,

See full text of H-phrases in section 16. Occupational limits are listed in section 8, if these are available.

## SECTION 4. FIRST AID MEASURES

### 4.1 Description of first aid measures:

#### General information:

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor, if in doubt about the injured person's condition or if the symptoms continue. First aider must be aware of own safety.

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- Inhalation:** Move injured person to fresh air (use fresh air-supplied respirator when entering areas with high concentrations). Keep the person calm. Call a doctor. If breathing stops give artificial respiration.
- Skin contact:** In case of frostbite, rinse immediately with plenty of lukewarm water. Seek medical attention.
- Eye contact:** In case of contact with substance, immediately flush eyes with running water for at least 15 minutes. Remove contact lenses. Get medical advice/attention.
- Ingestion:** Get medical attention immediately, bring this safety data sheet with you.
- Burns:** Flush with water until the pain stops. Clothes that are not stuck to the skin, are removed from the burned area during rinsing. If medical treatment is needed, then continue rinsing until a doctor takes over treatment.

#### 4.2 Most important symptoms and effects, both acute and delayed:

High concentrations may cause suffocation. The symptoms include any failing consciousness without the victim noticing. Low concentrations have an anesthetic effect. Symptoms include dizziness, headache, nausea and inability to concentrate. Skin and eye contact may cause frostbite.

#### 4.3 Indication of any immediate medical attention and special treatment needed:

In case of unconsciousness: Call a doctor or ambulance immediately. Show this safety data sheet to doctor.

## SECTION 5. FIRE FIGHTING MEASURES

**5.1 Extinguishing media:** All known extinguishing agents can be used, except water jet.

**Unsuitable extinguishing media:**

Water jets should not be used, since they can spread the fire.

**5.2 Special hazards arising from the substance or mixture:**

Extremely flammable gas.  
Risk of explosion of the container when heating and in case of fire. Avoid inhalation of flue gases. Incomplete combustion can form carbon monoxide.

**5.3 Advice for firefighters:**

Wear self-contained breathing apparatus and protective clothing to prevent contact.

Special precautions:

Turn off the gas outlet if possible. Or if possible and without risk, remove containers from the fire area.

Walk away from the container and spray with water from a covered position. Burning gas leaks must only be extinguished in an emergency case, if there is a risk of gas explosion. Extinguish all other fires. Do not spray water on the container itself in the event of a gas spill. Instead, spray on the surroundings from a protected position to limit the fire.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures:**

Wear protective suit. Use fresh air-supplied respirators when entering the room, unless it is documented to be safe to enter.  
Evacuate the area. Provide adequate ventilation. Remove all sources of ignition.

**6.2 Environmental precautions:**

Avoid discharge to lakes, streams, sewers, etc.  
Stop the spill if it can be done without risk.

**6.3 Methods and material for containment and cleaning up:**

Put leaky containers in specially marked containers. If possible, stop the spill. The product evaporates. Provide adequate ventilation.  
If possible, spray water mist over the vapors, which reduces the risk of explosion. Remove all sources of ignition, use only non-sparking equipment.

**6.4 Reference to other sections:**

Not relevant.

**SECTION 7. HANDLING AND STORAGE****7.1 Precautions for safe handling:**

Avoid inhalation and contact with skin and eyes. Keep away from sources of ignition, including electrostatic discharge. Make sure the equipment is ground. Avoid sucking water into the container. Rinse the system for air (flush the piping system) before supplying the gas. Avoid backflow into the container. Use only well-defined equipment, suitable for the product at its pressure and temperature.

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

Store away from flammable gases and substances. Keep the bottle temperature below 50°C and store the container in a well-ventilated place. Container must be placed so that it cannot tip over or be hit.

**7.3 Specific end use(s):**

This product should only be used for applications described in section 1.2

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters - Occupational exposure limits EH-40 (Great Britain) 2019:**

CAS-no:	Name:	Limits:
106-97-8	Butane	Long-term value: 1450 mg/m <sup>3</sup> , 600 ppm Short-term: 1810 mg/m <sup>3</sup> , 750 ppm

**DNEL / PNEC:**

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### 8.2 Exposure controls:

#### Appropriate technical measures:

Airborne concentrations must be kept as low as possible. Use for example an exhaust system if the normal air flow in the work room is not sufficient.

#### General information / Hygiene measures:

Smoking, consumption of food or liquid, and storage of tobacco, food or liquid, are not allowed in the workroom. Whenever you take a break in using this product and when you have finished using it, all exposed areas of the body must be washed. Always wash hands, forearms and face. Avoid all contact with the gas. Do not breathe gas/vapor.

#### Personal protective equipment:

Only CE-marked personal protection equipment should be used.

#### Respiratory protection:

In case of leaks, use fresh air-supplied respirators.

#### Hand,- skin protection:

Insulating protective gloves and protective clothing, must be worn if there is a risk of liquid splashing.

#### Eye protection:

Wear tightly safety goggles, if risk of contact. EN 166.

#### Measures to avoid environmental exposure:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties:

<b>Appearance:</b> Liquid gas	<b>Color:</b> Colorless	<b>Odor:</b> Sweet*	<b>PH:</b> Not relevant	<b>Viscosity 20°C:</b> No data
<b>Flashpoint:</b> -100°C - ethylene	<b>Boiling point:</b> -103°C - ethylene	<b>Vapor pressure:</b> Not relevant	<b>Density 20°C:</b> 0,98 – ethylene (water=1)	<b>Melting/freezing point:</b> -169°C - ethylene
<b>Ignition:</b> 425°C - ethylene	<b>Odor threshold:</b> 186 ppm - ethylene	<b>Explosion limits:</b> 2,4-36 vol. %	<b>Solubility in water:</b> Insoluble	

\*At low concentrations it might be difficult to detect the gas, due to the faint odor.

### 9.2 Other information:

None.

## SECTION 10. STABILITY AND REACTIVITY

### 10.1 Reactivity:

No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability:

May degrade/decompose violently at high temperatures and/or pressures, or in the presence of a catalyst.

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### 10.3 Possibility of hazardous reactions:

Vapors may form explosive mixtures with air. Gases/vapors are heavier than air and may accumulate in closed spaces, especially on the ground and in lower areas. The gas can move over large distances and ignite. May react violently with oxidizing agents. Spills can crack/affect building materials.

**10.4 Conditions to avoid:** Avoid heating and all sources of ignition.

**10.5 Incompatible materials:** Keep away from oxidizing agents.

### 10.6 Hazardous decomposition products:

Incomplete combustion can form carbon monoxide.

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on Toxicological effects:

**Acute toxicity:** Not classified.

**Skin corrosion/irritation:** Not classified.

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

**Respiratory or skin sensitization:** Not classified.

**Germ cell mutagenicity:** Not classified.

**Carcinogenicity:** Not classified.

**Reproductive toxicity:** Not classified.

**Specific target organ toxicity - single exposure:** May cause drowsiness or dizziness.

**Specific target organ toxicity – repeated exposure:** Not classified.

**Aspiration hazard:** Not classified.

**Additional Information:** Probable routes of exposure:  
Skin, eyes, inhalation.

#### Inhalation:

High concentrations can cause suffocation. The symptoms include any failing consciousness without the victim noticing. Low concentrations have an anesthetic effect.

Symptoms include dizziness, headache, nausea and inability to concentrate.

#### Skin contact:

May cause frostbite.

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Eye contact  
May cause frostbite.

Ingestion:  
Not likely.

Long-term effects:  
None known.

## SECTION 12. ECOLOGICAL INFORMATION

**12.1 Toxicity:** Not classified as hazardous to the environment.

**12.2 Persistence and degradability:**  
Evaporates quickly.

**12.3 Bioaccumulative potential:**  
No potential known.

**12.4 Mobility in soil:** No further relevant information available.

**12.5 Result of PBT and vPvB assessment:**  
The product does not meet the criteria for PBT or vPvB.

**12.6 Other adverse effects:** Avoid release to the environment.

## SECTION 13. DISPOSAL CONSIDERATIONS

**13.1 Waste treatment methods:**  
Do not blow off gas in places where there is a risk of explosive mixtures with the air. Residual gas should pass a suitable burner with flame arrestor. Do not divert to places where accumulation can be dangerous. Waste and residues are disposed of in accordance with the municipality's waste regulations. Please note that it is the end user's responsibility to assign the correct waste code.  
Option:

**EWC-code:** 14 06 02\* other halogenated solvents and solvent mixtures.

**Contaminated packing:** Empty containers and containers with residual content, are returned to the supplier. Dispose of in accordance with local regulations.

## SECTION 14. TRANSPORT INFORMATION

This product is classified as dangerous to transport.

	ADR/RID	IMDG/IMO
<b>14.1 UN number</b>	1965	1965

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<b>14.2 UN proper shipping name</b>	LIQUEFIED PETROLEUM GASES, N.O.S. (Ethylene, Butane, Methane)	LIQUEFIED PETROLEUM GASES, N.O.S. (Ethylene, Butane, Methane)
<b>14.3 Transport hazard class(es)</b>	2 (2F – 2.1)	2 (2F – 2.1)
<b>14.4 Packing group</b>	-	-
<b>14.5 Environmental hazards – MP EmS:</b>	No F-D, S-U	No F-D, S-U
<b>Other information</b>	LQ: - TUNNEL: B/D	LQ: - TUNNEL: B/D

### 14.6 Special precautions for user:

Avoid transport with vehicles where the load is not separated from the driver.

Make sure the driver knows the possible risks of the load and the precautions in case of emergency or an accident.

Before transport:

- Make sure that the containers are clamped.
- Provide adequate ventilation.
- Compliance with given regulations.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

## SECTION 15. REGULATORY INFORMATION

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

#### Sources:

Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). EC regulation 1907/2006 (REACH) Directive 2000/532/EC. Seveso directive: 96/82/EC. EU 830/2015. CLP 1272/2008.

#### Additional information:

People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC.

### 15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.



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### SECTION 16. OTHER INFORMATION

**Full text of H-phrases as mentioned in section 3:**

H220 Extremely flammable gas.

H336 May cause drowsiness or dizziness.

**Additional information:**

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

**Validated by:**

[www.am-gruppen.dk](http://www.am-gruppen.dk)

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