SECTION 1 IDENTIFICATION

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>R507</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
<td>A-Gas R507</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Not Available</td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>Liquefied gas, n.o.s. (contains R125 and R143a)</td>
</tr>
<tr>
<td>Other means of idenƟficaƟon</td>
<td>Not Available</td>
</tr>
<tr>
<td>CAS number</td>
<td>150621-87-7</td>
</tr>
</tbody>
</table>

Recommended use of the chemical and restrictions on use

| Relevant identified uses | The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation. Use according to manufacturer’s directions. |

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

<table>
<thead>
<tr>
<th>Registered company name</th>
<th>A-Gas (U.S. Headquarters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>1100 Haskins Rd OH 43402 United States</td>
</tr>
<tr>
<td>Telephone</td>
<td>14198678990</td>
</tr>
<tr>
<td>Fax</td>
<td>1-419-867-3279</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.agasamericas.com">www.agasamericas.com</a></td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:tammy.myers@agas.com">tammy.myers@agas.com</a></td>
</tr>
</tbody>
</table>

Emergency phone number

<table>
<thead>
<tr>
<th>Association / OrganisaƟon</th>
<th>PERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency telephone numbers</td>
<td>1-800-633-8253</td>
</tr>
<tr>
<td>Other emergency telephone numbers</td>
<td>International 1-801-629-0667</td>
</tr>
</tbody>
</table>

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>NFPA 704 diamond</th>
<th>Note: The hazard category numbers found in GHS classification in section 2 of this SDs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health, Red = Fire, Yellow = Reactivity, White = Special (Oxidizer or water reactive substances)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Gas under Pressure (Liquefied gas), Simple Asphyxiant</td>
</tr>
</tbody>
</table>

Label elements

<table>
<thead>
<tr>
<th>Hazard pictogram(s)</th>
<th></th>
</tr>
</thead>
</table>
Hazard statement(s)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H280</td>
<td>Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation</td>
</tr>
</tbody>
</table>

Hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) General

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P101</td>
<td>If medical advice is needed, have product container or label at hand.</td>
</tr>
<tr>
<td>P102</td>
<td>Keep out of reach of children.</td>
</tr>
<tr>
<td>P103</td>
<td>Read label before use.</td>
</tr>
</tbody>
</table>

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P410+P403</td>
<td>Protect from sunlight. Store in a well-ventilated place.</td>
</tr>
</tbody>
</table>

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS No</th>
<th>% [weight]</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixtures</td>
<td>See section above for composition of Substances</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4 FIRST-AID MEASURES

Description of first aid measures

**Eye Contact**
- If product comes in contact with eyes remove the patient from gas source or contaminated area.
- Take the patient to the nearest eye wash, shower or other source of clean water.
- Open the eyelid(s) wide to allow the material to evaporate.
- Gently rinse the affected eye(s) with clean, cool water for at least 15 minutes. Have the patient lie or sit down and tilt the head back. Hold the eyelid(s) open and pour water slowly over the eyeball(s) at the inner corners, letting the water run out of the outer corners.
- The patient may be in great pain and wish to keep the eyes closed. It is important that the material is rinsed from the eyes to prevent further damage.
- Ensure that the patient looks up, and side to side as the eye is rinsed in order to better reach all parts of the eye(s)
- Transport to hospital or doctor.
- Even when no pain persists and vision is good, a doctor should examine the eye as delayed damage may occur.
- If the patient cannot tolerate light, protect the eyes with a clean, loosely tied bandage.
- Ensure verbal communication and physical contact with the patient.
- **DO NOT** allow the patient to rub the eyes
- **DO NOT** allow the patient to tightly shut the eyes
- **DO NOT** introduce oil or ointment into the eye(s) without medical advice
- **DO NOT** use hot or tepid water.

**Skin Contact**
- If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.
- In case of cold burns (frost-bite):
  - Move casualty into warmth before thawing the affected part; if feet are affected carry if possible
  - Bathe the affected area immediately in lukewarm water (not more than 35 deg C) for 10 to 15 minutes, immersing if possible and without rubbing
  - **DO NOT** apply hot water or radiant heat.
  - Apply a clean, dry, light dressing of “fluffed-up” dry gauze bandage
  - If a limb is involved, raise and support this to reduce swelling
  - If an adult is involved and where intense pain occurs provide pain killers such as paracetomol
  - Transport to hospital, or doctor
- Subsequent blackening of the exposed tissue indicates potential of necrosis, which may require amputation.
Inhalation

- Following exposure to gas, remove the patient from the gas source or contaminated area.
- NOTE: Personal Protective Equipment (PPE), including positive pressure self-contained breathing apparatus may be required to assure the safety of the rescuer.
- Prostheses such as false teeth, which may block the airway, should be removed, where possible, prior to initiating first aid procedures.
- If the patient is not breathing spontaneously, administer rescue breathing.
- If the patient does not have a pulse, administer CPR.
- If medical oxygen and appropriately trained personnel are available, administer 100% oxygen.
- Summon an emergency ambulance. If an ambulance is not available, contact a physician, hospital, or Poison Control Centre for further instruction.
- Keep the patient warm, comfortable and at rest while awaiting medical care.
- MONITOR THE BREATHING AND PULSE, CONTINUOUSLY.
- Administer rescue breathing (preferably with a demand-valve resuscitator, bag-valve mask-device, or pocket mask as trained) or CPR if necessary.

Ingestion

- Not considered a normal route of entry.
- For advice, contact a Poisons Information Centre or a doctor.
- Avoid giving milk or oils.
- Avoid giving alcohol.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

for intoxication due to Freons/ Halons;
A: Emergency and Supportive Measures
- Maintain an open airway and assist ventilation if necessary
- Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:

- There is no specific antidote

C: Decontamination

- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- Ingestion; (a) Prehospital: Administer activated charcoal, if available. DO NOT induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:

- There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition

Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- No specific antidote.
- Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- If lavage is performed, suggest endotracheal and/or esophageal control.
- Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- Treatment based on judgment of the physician in response to reactions of the patient
- For frost-bite caused by liquefied petroleum gas:
  - If part has not thawed, place in warm water bath (41-46 C) for 15-20 minutes, until the skin turns pink or red.
  - Analgesia may be necessary while thawing.
  - If there has been a massive exposure, the general body temperature must be depressed, and the patient must be immediately rewarmed by whole-body immersion, in a bath at the above temperature.
  - Shock may occur during rewarming.
  - Administer tetanus toxoid booster after hospitalization.
  - Prophylactic antibiotics may be useful.
  - The patient may require anticoagulants and oxygen.

[Shell Australia 22/12/87]
For gas exposures:

--------------------------------------------------
BASIC TREATMENT
--------------------------------------------------

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- Monitor and treat, where necessary, for pulmonary oedema .
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.

--------------------------------------------------
ADVANCED TREATMENT
--------------------------------------------------

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

BRONSTEIN, A.C. and CURRANCE, P.L.
SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire.

LARGE FIRE: Cool cylinder.

DO NOT direct water at source of leak or venting safety devices as icing may occur.

Special hazards arising from the substrate or mixture

Fire Incompatibility

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Special protective equipment and precautions for fire-fighters

<table>
<thead>
<tr>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert Fire Brigade and tell them location and nature of hazard.</td>
</tr>
<tr>
<td>Wear breathing apparatus and protective gloves.</td>
</tr>
<tr>
<td>Fight fire from a safe distance, with adequate cover.</td>
</tr>
<tr>
<td>Use water delivered as a fine spray to control fire and cool adjacent area.</td>
</tr>
</tbody>
</table>

Fire/Fire Hazards

Containers may explode when heated - Ruptured cylinders may rocket

Fire exposed containers may vent contents through pressure relief devices.

High concentrations of gas may cause asphyxiation without warning.

May decompose explosively when heated or involved in fire.

Contact with gas may cause burns, severe injury and/or frostbite.

Decomposition may produce toxic fumes of:

- carbon monoxide (CO)
- carbon dioxide (CO2)
- hydrogen chloride
- phosgene
- hydrogen fluoride
- other pyrolysis products typical of burning organic material.

Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills

- Avoid breathing vapour and any contact with liquid or gas. Protective equipment including respirator should be used.
- DO NOT enter confined spaces where gas may have accumulated.
- Increase ventilation.

Major Spills

- Clear area of all unprotected personnel and move upwind.
- Alert Emergency Authority and advise them of the location and nature of hazard.
- Wear breathing apparatus and protective gloves.
- Prevent by any means available, spillage from entering drains and water-courses.
- Remove leaking cylinders to a safe place.
- Fit vent pipes. Release pressure under safe, controlled conditions
- Burn issuing gas at vent pipes.
- DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

- Consider use in closed pressurised systems, fitted with temperature, pressure and safety relief valves which are vented for safe dispersal. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature

- The tubing network design connecting gas cylinders to the delivery system should include appropriate pressure indicators and vacuum or suction lines.

- Fully-welded types of pressure gauges, where the bourdon tube sensing element is welded to the gauge body, are recommended.

- Before connecting gas cylinders, ensure manifold is mechanically secure and does not containing another gas.

- DO NOT transfer gas from one cylinder to another.
Cylinders should be stored in a purpose-built compound with good ventilation, preferably in the open. Such compounds should be sited and built in accordance with statutory requirements. The storage compound should be kept clear and access restricted to authorised personnel only. Cylinders stored in the open should be protected against rust and extremes of weather.

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

**Suitable container**
- **DO NOT** use aluminium or galvanised containers
- Cylinder:
  - Ensure the use of equipment rated for cylinder pressure.
  - Ensure the use of compatible materials of construction.
  - Valve protection cap to be in place until cylinder is secured, connected.
  - Cylinder must be properly secured either in use or in storage.

**Storage incompatibility**
- Compressed gases may contain a large amount of kinetic energy over and above that potentially available from the energy of reaction produced by the gas in chemical reaction with other substances

### SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control parameters**

**OCCUPATIONAL EXPOSURE LIMITS (OEL)**

Not Available

**INGREDIENT DATA**

**EMERGENCY LIMITS**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material name</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>R507</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Original IDLH</th>
<th>Revised IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>R143a</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>R125</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

**MATERIAL DATA**

**Exposure controls**

**Appropriate engineering controls**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:

- Process controls which involve changing the way a job activity or process is done to reduce the risk.
- Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

**Personal protection**

[Images of safety glasses, chemical goggles, and protective clothing]

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.

**Skin protection**

See Hand protection below

**Hands/feet protection**

- When handling sealed and suitably insulated cylinders wear cloth or leather gloves.
- Insulated gloves:
  - NOTE: Insulated gloves should be loose fitting so that may be removed quickly if liquid is spilled upon them. Insulated gloves are not made to permit hands to be placed in the liquid; they provide only short-term protection from accidental contact with the liquid.

**Body protection**

See Other protection below

**Other protection**

- Protective overalls, closely fitted at neck and wrist.
- Eye-wash unit.
- Ensure availability of lifeline in confined spaces.
- Staff should be trained in all aspects of rescue work.

**Respiratory protection**

Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

<table>
<thead>
<tr>
<th>Required minimum protection factor</th>
<th>Maximum gas/vapour concentration present in air p.p.m. (by volume)</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10</td>
<td>1000</td>
<td>AX-AUS / Class 1 P3</td>
<td>-</td>
</tr>
<tr>
<td>up to 50</td>
<td>1000</td>
<td>-</td>
<td>AX-AUS / Class 1 P3</td>
</tr>
</tbody>
</table>
SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colourless liquefied gas with faint ether odour; does not mix with water.</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquified Gas</td>
</tr>
<tr>
<td>Relative density (Water = 1)</td>
<td>107 @ 21 deg C</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Melting point / freezing point (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range (°C)</td>
<td>-46.7</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>Not Available</td>
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<tr>
<td>Explosive properties</td>
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<tr>
<td>Upper Explosive Limit (%)</td>
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</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour pressure (kPa)</td>
<td>1061.1 @ 21 deg C</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Immiscible</td>
</tr>
<tr>
<td>Vapour density (Air = 1)</td>
<td>3.43</td>
</tr>
<tr>
<td>VOC g/L</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

SECTION 10 STABILITY AND REACTIVITY

**Reactivity**

See section 7

**Chemical stability**

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.
- Extremely high temperatures.

**Possibility of hazardous reactions**

See section 7

**Conditions to avoid**

See section 7

**Incompatible materials**

See section 7

**Hazardous decomposition products**

See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

**Information on toxicological effects**

**Inhaled**

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure.

Symptoms of asphyxia (suffocation) may include headache, dizziness, shortness of breath, muscular weakness, drowsiness and ringing in the ears. If the asphyxia is allowed to progress, there may be nausea and vomiting, further physical weakness and unconsciousness and, finally,
convulsions, coma and death. Significant concentrations of the non-toxic gas reduce the oxygen level in the air. As the amount of oxygen is reduced from 21 to 14 volume %, the pulse rate accelerates and the rate and volume of breathing increase.

The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.

Ingestion

Not normally a hazard due to physical form of product.

Considered an unlikely route of entry in commercial/industrial environments

Skin Contact

Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Vapourising liquid causes rapid cooling and contact may cause cold burns, frostbite, even through normal gloves. Frozen skin tissues are painless and appear waxy and yellow. Signs and symptoms of frost-bite may include “pins and needles”, paleness followed by numbness, a hardening of stiffening of the skin, a progression of colour changes in the affected area, (first white, then mottled and blue and eventually black; on recovery, red, hot, painful and blistered).

Eye

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

Direct contact with the eye may not cause irritation because of the extreme volatility of the gas; however concentrated atmospheres may produce irritation after brief exposures.

Chronic

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Principal route of occupational exposure to the gas is by inhalation.

It is generally accepted that the fluorocarbons are less toxic than the corresponding halogenated aliphatic based on chlorine. Repeated inhalation exposure to the fluorocarbon FC-11 does not produce pathologic lesions of the liver and other visceral organs in experimental animals. There has been conjecture in non-scientific publications that fluorocarbons may cause leukemia, cancer, sterility and birth defects; these have not been verified by current research. The high incidence of cancer, spontaneous abortion and congenital anomalies amongst hospital personnel, repeatedly exposed to fluorine-containing general anaesthetics, has caused some scientists to call for a lowering of the fluorocarbon exposure standard to 5 ppm since some are mutagens.

Legend:

- Data either not available or does not fill the criteria for classification
- Data available to make classification

Acute Toxicity

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Skin Irritation/Corrosion

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
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</tbody>
</table>

Serious Eye Damage/Irritation

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Respiratory or Skin sensitisation

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Mutagenicity

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Legend:  x – Data either not available or does not fill the criteria for classification  ✔ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

R125 Cardiac sensitisation threshold limit >245400 mg/m3 Anaesthetic effects threshold limit 490800 mg/m3 * DuPont SDS

Legend:  x – Data either not available or does not fill the criteria for classification  ✔ – Data available to make classification
### Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>R143a</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
<tr>
<td>R125</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R143a</td>
<td>LOW (LogKOW = 1.7393)</td>
</tr>
<tr>
<td>R125</td>
<td>LOW (LogKOW = 1.5472)</td>
</tr>
</tbody>
</table>

### Mobility in soil

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>R143a</td>
<td>LOW (KOC = 48.64)</td>
</tr>
<tr>
<td>R125</td>
<td>LOW (KOC = 154.4)</td>
</tr>
</tbody>
</table>

### SECTION 13 DISPOSAL CONSIDERATIONS

#### Waste treatment methods

- Evaporate residue at an approved site.
- Return empty containers to supplier. If containers are marked non-returnable establish means of disposal with manufacturer prior to purchase.
- Ensure damaged or non-returnable cylinders are gas-free before disposal.

### SECTION 14 TRANSPORT INFORMATION

#### Labels Required

- Marine Pollutant: NO

#### Land transport (DOT)

<table>
<thead>
<tr>
<th>UN number</th>
<th>3163</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Liquefied gas, n.o.s. (contains R125 and R143a)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>Class 2.2, Subrisk Not Applicable</td>
</tr>
<tr>
<td>Packing group</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Environmental hazard</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Hazard Label 2.2, Special provisions T50</td>
</tr>
</tbody>
</table>
Air transport (ICAO-IATA / DGR)

<table>
<thead>
<tr>
<th><strong>UN number</strong></th>
<th>3163</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN proper shipping name</strong></td>
<td>Liquefied gas, n.o.s. * (contains R125 and R143a)</td>
</tr>
</tbody>
</table>

**Transport hazard class(es)**
- ICAO/IATA Class: 2.2
- ICAO / IATA Subrisk: Not Applicable
- ERG Code: 2L

**Packing group**: Not Applicable

**Environmental hazard**: Not Applicable

**Special precautions for user**
- Special provisions: Not Applicable
- Cargo Only Packing Instructions: 200
- Cargo Only Maximum Qty / Pack: 150 kg
- Passenger and Cargo Packing Instructions: 200
- Passenger and Cargo Maximum Qty / Pack: 75 kg
- Passenger and Cargo Limited Quantity Packing Instructions: Forbidden
- Passenger and Cargo Limited Maximum Qty / Pack: Forbidden

Sea transport (IMDG-Code / GGVSee)

<table>
<thead>
<tr>
<th><strong>UN number</strong></th>
<th>3163</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN proper shipping name</strong></td>
<td>LIQUEFIED GAS, N.O.S. (contains R125 and R143a)</td>
</tr>
</tbody>
</table>

**Transport hazard class(es)**
- IMDG Class: 2.2
- IMDG Subrisk: Not Applicable

**Packing group**: Not Applicable

**Environmental hazard**: Not Applicable

**Special precautions for user**
- EMS Number: F-C, S-V
- Special provisions: 274
- Limited Quantities: 120 mL

**Transport in bulk according to Annex II of MARPOL and the IBC code**
Not Applicable

SECTION 15 REGULATORY INFORMATION

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

**R143A IS FOUND ON THE FOLLOWING REGULATORY LISTS**
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL)

**R125 IS FOUND ON THE FOLLOWING REGULATORY LISTS**
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL)

Federal Regulations

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<table>
<thead>
<tr>
<th><strong>SECTION 311/312 HAZARD CATEGORIES</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable (Gases, Aerosols, Liquids, or Solids)</td>
<td>No</td>
</tr>
<tr>
<td>Gas under pressure</td>
<td>Yes</td>
</tr>
<tr>
<td>Explosive</td>
<td>No</td>
</tr>
<tr>
<td>Self-heating</td>
<td>No</td>
</tr>
<tr>
<td>Pyrophoric (Liquid or Solid)</td>
<td>No</td>
</tr>
<tr>
<td>Pyrophoric Gas</td>
<td>No</td>
</tr>
<tr>
<td>Corrosive to metal</td>
<td>No</td>
</tr>
<tr>
<td>Oxidizer (Liquid, Solid or Gas)</td>
<td>No</td>
</tr>
</tbody>
</table>
### Organic Peroxide

- **Self-reactive**: No
- **In contact with water emits flammable gas**: No
- **Combustible Dust**: No
- **Carcinogenicity**: No
- **Acute toxicity (any route of exposure)**: No
- **Reproductive toxicity**: No
- **Skin Corrosion or irritation**: No
- **Respiratory or Skin Sensitization**: No
- **Serious eye damage or eye irritation**: No
- **Specific target organ toxicity (single or repeated exposure)**: No
- **Aspiration Hazard**: No
- **Germ cell mutagenicity**: No
- **Simple Asphyxiant**: Yes
- **Hazards Not Otherwise Classified**: No

#### US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported

#### State Regulations

**US. CALIFORNIA PROPOSITION 65**

None Reported

#### National Inventory Status

<table>
<thead>
<tr>
<th>National Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia - AICS</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada - DSL</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada - NDSL</td>
<td>No (R125; R143a)</td>
</tr>
<tr>
<td>China - IECSC</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe - EINEC / ELINCS / NLP</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan - ENCS</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea - KECI</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand - NZIoC</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines - PICCS</td>
<td>Yes</td>
</tr>
<tr>
<td>USA - TSCA</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan - TCSI</td>
<td>Yes</td>
</tr>
<tr>
<td>Mexico - INSQ</td>
<td>Yes</td>
</tr>
<tr>
<td>Vietnam - NCI</td>
<td>Yes</td>
</tr>
<tr>
<td>Russia - ARIPS</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Legend:

- **Yes** = All CAS declared ingredients are on the inventory
- **No** = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

#### SECTION 16 OTHER INFORMATION

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Initial Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/07/2019</td>
<td>19/01/2007</td>
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</tbody>
</table>

#### SDS Version Summary

<table>
<thead>
<tr>
<th>Version</th>
<th>Issue Date</th>
<th>Sections Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1.1.1</td>
<td>16/03/2017</td>
<td>Acute Health (eye), Ingredients</td>
</tr>
<tr>
<td>8.1.1.1</td>
<td>23/07/2019</td>
<td>Physical Properties</td>
</tr>
</tbody>
</table>

#### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.
Definitions and abbreviations

PC — TWA: Permissible Concentration-Time Weighted Average
PC — STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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