

# BLUESTAR®

## SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2015/830)

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

#### 1.1. Product identifier

CAS: 811-97-2

EC: 212-377-0

REACH: 01-2119459374-33

Product name : PRESSURE RESERVE BLUESPRAY® LA-521

Product code : 0 (EN).

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

Aerosol propellant.

#### 1.3. Details of the supplier of the safety data sheet

Registered company name : BLUESTAR.

Address : 16, avenue de la Costa.98000.MONACO..

Telephone : +377 97 97 31 77. Fax : +377 97 97 31 61.

info@bluestar-forensic.com

www.bluestar-forensic.com

#### 1.4. Emergency telephone number : +33 (0) 1 45 42 59 59.

Association/Organisation : INRS / ORFILA <http://www.centres-antipoison.net>.

### SECTION 2 : HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

##### In compliance with EC regulation No. 1272/2008 and its amendments.

Compressed gas (Press. Gas, H280).

This substance does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

#### 2.2. Label elements

##### In compliance with EC regulation No. 1272/2008 and its amendments.

Hazard pictograms :



GHS04

Signal Word :

WARNING

Product identifiers :

EC 212-377-0

NORFLURANE

Hazard statements :

H280

Contains gas under pressure; may explode if heated.

Precautionary statements - Storage :

P410 + P403

Protect from sunlight. Store in a well-ventilated place.

#### 2.3. Other hazards

The substance does not satisfy the PBT or vPvP criteria in accordance with annexe XIII of the REACH regulations EC 1907/2006.

Fluorinated greenhouse gases under the Kyoto Protocol.

Vapors are heavier than air and can cause asphyxia by reducing the oxygen content.

Contact with liquid may cause severe frostbite and eye damage.

In the presence of air, under certain conditions of temperature and pressure, it may form a flammable mixture.

### SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Substances

**Composition :**

Identification	(EC) 1272/2008	Note	%
CAS: 811-97-2	GHS04	[1]	100%
EC: 212-377-0	Wng		
REACH: 01-2119459374-33	Press. Gas, H280		
NORFLURANE			

**Information on ingredients :**

[1] Substance for which maximum workplace exposure limits are available.

**SECTION 4 : FIRST AID MEASURES**

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

**4.1. Description of first aid measures****In the event of exposure by inhalation :**

If inhaled, move the patient into the fresh air and keep warm and at rest.

If breathing is irregular or has stopped, proceed with artificial respiration and seek medical attention.

**In the event of splashes or contact with eyes :**

Wash thoroughly with soft, clean water for 15 minutes holding the eyelids open.

If there is any redness, pain or visual impairment, consult an ophthalmologist.

**In the event of splashes or contact with skin :**

In case of contact with liquid: treat frostbite as burns.

Remove contaminated clothing and wash the skin thoroughly with soap and water or a recognised cleaner.

Contact a doctor.

**In the event of swallowing :**

Seek medical attention, showing the label.

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

Depression of the central nervous system.

Narcotic effect.

Cardiac disorders.

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

No data available.

**SECTION 5 : FIREFIGHTING MEASURES**

Non-flammable.

**5.1. Extinguishing media**

No data available.

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

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO<sub>2</sub>)
- hydrogen fluoride (HF)

**5.3. Advice for firefighters**

Due to the toxicity of the gas emitted on thermal decomposition of the products, fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

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

Consult the safety measures listed under headings 7 and 8.

**For first aid worker**

First aid workers will be equipped with suitable personal protective equipment (See section 8).

**6.2. Environmental precautions**

Prevent any material from entering drains or waterways.

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

Clean preferably with a detergent, do not use solvents.

**6.4. Reference to other sections**

No data available.

**SECTION 7 : HANDLING AND STORAGE**

Requirements relating to storage premises apply to all facilities where the substance is handled.

**7.1. Precautions for safe handling**

Always wash hands after handling.

Remove and wash contaminated clothing before re-using.

**Fire prevention :**

Prevent access by unauthorised personnel.

**Recommended equipment and procedures :**

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Only use joints provided by the supplier.

Check the condition of joints before use. Replace any joints showing signs of wear or damage.

Keep the valve's protective cap in place until the bottle is ready for use.

Bottles in service must be stowed with a metal chain to prevent falling.

Valves must always be opened slowly.

If it is impossible to open the valve on the bottle manually, return it to the supplier. Never attempt to open using forceful methods (use of wrenches, etc.).

Never exert force to close a valve.

Close bottle after use.

**Prohibited equipment and procedures :**

No smoking, eating or drinking in areas where the substance is used.

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

No data available.

**Storage**

Store all gas bottles outdoors preferably, away from sunlight, or if this is not possible, in a cool, closed area.

Only store bottles that are currently in use in the workplace (plants, laboratories, etc.), containing the minimum amount if necessary.

Unless specified to the contrary, move and store bottles in a vertical position.

**Packaging**

Always keep in packaging made of an identical material to the original.

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

No data available.

**SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1. Control parameters****Occupational exposure limits :**

- Germany - AGW (BAuA - TRGS 900, 21/06/2010) :

CAS	VME :	VME :	Excess	Notes
811-97-2		1000 ppm 4200 mg/m3		8(II)

- Switzerland (SUVA 2015) :

CAS	VME	VLE	Valeur plafond	Notations
811-97-2	1000 ppm 4200 mg/m3			SSC

- UK / WEL (Workplace exposure limits, EH40/2005, 2007) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
811-97-2	1000 ppm 4240 mg/m3				

- USA / AIHA WEEL (American Industrial Hygiene Association, Workplace Environmental Exposure Limit, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
811-97-2	1000 ppm				

**Derived no effect level (DNEL) or derived minimum effect level (DMEL):**

NORFLURANE (CAS: 811-97-2)

**Final use:**

Exposure method:

Potential health effects:

DNEL :

**Workers.**

Inhalation.

Long term systemic effects.

13936 mg of substance/m3

**Final use:**

Exposure method:  
Potential health effects:  
DNEL :

**Consumers.**

Inhalation.  
Long term systemic effects.  
2476 mg of substance/m<sup>3</sup>

**Predicted no effect concentration (PNEC):**

NORFLURANE (CAS: 811-97-2)

Environmental compartment:

PNEC :

Fresh water.

0.1 mg/l

Environmental compartment:

PNEC :

Sea water.

0.01 mg/l

Environmental compartment:

PNEC :

Intermittent waste water.

1 mg/l

Environmental compartment:

PNEC :

Fresh water sediment.

0.75 mg/kg

Environmental compartment:

PNEC :

Waste water treatment plant.

73 mg/l

**8.2. Exposure controls****Personal protection measures, such as personal protective equipment**

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

**- Eye / face protection**

Avoid contact with eyes.

**- Hand protection**

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN374.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

Type of gloves recommended :

- Nitrile rubber (butadiene-acrylonitrile copolymer rubber (NBR))

- Viton® (Hexafluoropropylene copolymer and vinylidene fluoride)

Recommended properties :

- Impervious gloves in accordance with standard EN374

**- Body protection**

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

**- Respiratory protection**

Anti-gas and vapour filter(s) (Combined filters) in accordance with standard EN14387 :

- AX

**SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES****9.1. Information on basic physical and chemical properties****General information :**

Physical state :	Gas.
Colour:	Colourless.
Odour:	Light and ethereal.

**Important health, safety and environmental information**

pH :	Not relevant.
Boiling point/boiling range :	-26 °C.
Flash point interval :	Not relevant.
Vapour pressure (50°C) :	Not relevant.
Vapour density :	3.6 (air=1)
Density :	> 1
Water solubility :	Insoluble. 0.9 g/l
Partition coefficient: n-octanol/water :	1.06 (log Poe)
Evaporation rate :	> 1 / CCl4
Melting point/melting range :	-101 °C.
Self-ignition temperature :	743 °C.
Decomposition point/decomposition range :	370 °C.
Vapour pressure :	5.7 Bar (20°C) - 13.2 Bar (50°C).

**9.2. Other information**

Critical pressure :	4070 kPa
Critical temperature :	101°C
Density :	1103 kg/m3 (50°C) - 1226 kg/m3 (20°C).

**SECTION 10 : STABILITY AND REACTIVITY****10.1. Reactivity**

No data available.

**10.2. Chemical stability**

This substance is stable under the recommended handling and storage conditions in section 7.

**10.3. Possibility of hazardous reactions**

No data available.

**10.4. Conditions to avoid**

Avoid :

- contact with air

**10.5. Incompatible materials**

Keep away from :

- alkalis

- alkaline earth metals

- oxidising agents

- powdered metals (aluminium, magnesium, potassium, sodium and zinc)

**10.6. Hazardous decomposition products**

The thermal decomposition may release/form :

- carbon monoxide (CO)

- carbon dioxide (CO2)

- hydrogen fluoride (HF)

**SECTION 11 : TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects**

No data available.

**11.1.1. Substances****Acute toxicity :**

NORFLURANE (CAS: 811-97-2)

Inhalation route (Gas) :

LC50 > 500000 ppm

Species : Rat

**SECTION 12 : ECOLOGICAL INFORMATION****12.1. Toxicity****12.1.1. Substances**

NORFLURANE (CAS: 811-97-2)

Fish toxicity :

LC50 = 450 mg/l

Species : Oncorhynchus mykiss

Duration of exposure : 96 h

Crustacean toxicity :

EC50 = 930 mg/l  
Species : Daphnia magna  
Duration of exposure : 48 h

## 12.2. Persistence and degradability

### 12.2.1. Substances

Persistence: Persistent product. Half life in air: 8.6 - 16.7 years.

NORFLURANE (CAS: 811-97-2)

Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

## 12.3. Bioaccumulative potential

### 12.3.1. Substances

NORFLURANE (CAS: 811-97-2)

Octanol/water partition coefficient : log K<sub>ow</sub> = 1.06

## 12.4. Mobility in soil

No data available.

## 12.5. Results of PBT and vPvB assessment

No data available.

## 12.6. Other adverse effects

Potential for depletion of the ozone ODP (R-11=1)=0

layer:

Greenhouse effect: GWP (CO<sub>2</sub>=1/100 ans) = 1300

## German regulations concerning the classification of hazards for water (WGK) :

WGK 1 (VwVwS vom 27/07/2005, KBws) : Slightly hazardous for water.

## SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the substance and/or its container must be determined in accordance with Directive 2008/98/EC.

### 13.1. Waste treatment methods

Do not pour into drains or waterways.

#### Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

#### Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

## SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2015 - IMDG 2014 - ICAO/IATA 2016).

### 14.1. UN number

3159

### 14.2. UN proper shipping name

UN3159=1,1,1,2- TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

### 14.3. Transport hazard class(es)

- Classification :



2.2

**14.4. Packing group**

-

**14.5. Environmental hazards**

-

**14.6. Special precautions for user**

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	2	2A	-	2.2	20	120 ml	662	E1	3	C/E
IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ			
	2.2	-	-	120 ml	F-C,S-V	-	E1			
IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ	
	2.2	-	-	200	75 kg	200	150 kg	-	E1	
	2.2	-	-	Forbidden	Forbidden	-	-	-	E1	

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

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

No data available.

**SECTION 15 : REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****- Classification and labelling information included in section 2:**

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2016/1179. (ATP 9)

**- Container information:**

No data available.

**- Particular provisions :**

No data available.

**- German regulations concerning the classification of hazards for water (WGK) :**

WGK 1 (VwVwS vom 27/07/2005, KBws) : Slightly hazardous for water.

**15.2. Chemical safety assessment**

No data available.

**SECTION 16 : OTHER INFORMATION**

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the substance and not as a guarantee of the properties thereof.

**Wording of the phrases mentioned in section 3 :**

H280	Contains gas under pressure; may explode if heated.
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**Abbreviations :**

DNEL : Derived No-Effect Level

PNEC : Predicted No-Effect Concentration

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

GHS04 : Gas cylinder

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.