

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/10/2019

Reviewed on 01/10/2019

## 1 Identification

- **Product identifier**
- **Trade name:** DUST-PRO DISPOSABLE
- **Article number:** 70847-01, 70847-12
- **CAS Number:**  
811-97-2
- **EC number:**  
212-377-0
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: [info@emsdiasum.com](mailto:info@emsdiasum.com)  
[www.emsdiasum.com](http://www.emsdiasum.com)
- **Information department:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS04 Gas cylinder

Press. Gas H280 Contains gas under pressure; may explode if heated.

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GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

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- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS04



GHS07

- **Signal word** Warning
- **Hazard statements**  
Contains gas under pressure; may explode if heated.  
May cause drowsiness or dizziness.
- **Precautionary statements**  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a poison center/doctor if you feel unwell.

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Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

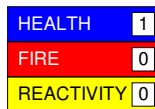


Health = 1

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1

Fire = 0

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

811-97-2 1,1,1,2-tetrafluoroethane

· **Identification number(s)**

· **EC number:** 212-377-0

### 4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:** Generally the product does not irritate the skin.

· **After eye contact:** Rinse opened eye for several minutes under running water.

· **After swallowing:** If symptoms persist consult doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

### 5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** No special measures required.

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## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** No special measures required.
- **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.
- **Protective Action Criteria for Chemicals**

<b>· PAC-1:</b>	
	8,000 ppm

<b>· PAC-2:</b>	
	13,000 ppm

<b>· PAC-3:</b>	
	27,000 ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

<b>· Components with limit values that require monitoring at the workplace:</b>	
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811-97-2 1,1,1,2-tetrafluoroethane	
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WEEL Long-term value: 1000 ppm	
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- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **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 protection:** Not required.

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:** Compressed gas

**Color:** Clear

· **Odor:** Ether-like

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

**Melting point/Melting range:** Undetermined.

**Boiling point/Boiling range:** -26.2 °C (-15.2 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.  
Not flammable.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

**Lower:** Not determined.

**Upper:** Not determined.

· **Vapor pressure at 20 °C (68 °F):** 5,716 hPa (4,287.4 mm Hg)

· **Density at 20 °C (68 °F):** 1.226 g/cm<sup>3</sup> (10.23097 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

**Water at 20 °C (68 °F):** 1.93 g/l

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

**Dynamic at 20 °C (68 °F):** 0.22 mPas

**Kinematic:** Not determined.

**VOC content:** 0.00 %

0.0 g/l / 0.00 lb/gal

**Solids content:** 0.0 %

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· **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety Health Administration)**

Substance is not listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
- Water hazard class 1 (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

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Trade name: DUST-PRO DISPOSABLE

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## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

<b>· UN-Number</b>	UN3159
<b>· DOT, ADR, IMDG, IATA</b>	UN3159
<b>· UN proper shipping name</b>	1,1,1,2-Tetrafluoroethane
<b>· DOT</b>	3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
<b>· ADR</b>	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
<b>· IMDG, IATA</b>	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
<b>· Transport hazard class(es)</b>	
<b>· DOT</b>	
	
<b>· Class</b>	2.2
<b>· Label</b>	2.2
<b>· ADR, IMDG, IATA</b>	
	
<b>· Class</b>	2.2
<b>· Label</b>	2.2
<b>· Environmental hazards:</b>	Not applicable.
<b>· Special precautions for user</b>	Not applicable.
<b>· EMS Number:</b>	F-C,S-V
<b>· Stowage Category</b>	A
<b>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>· Transport/Additional information:</b>	
<b>· ADR</b>	
<b>· Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

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· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	120 ml
· <b>Excepted quantities (EQ)</b>	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A), 2.2

## 15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS04 GHS07

· **Signal word** Warning

· **Hazard statements**

Contains gas under pressure; may explode if heated.

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**Trade name: DUST-PRO DISPOSABLE**

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*May cause drowsiness or dizziness.*

· **Precautionary statements**

*Avoid breathing dust/fume/gas/mist/vapors/spray*

*Use only outdoors or in a well-ventilated area.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Call a poison center/doctor if you feel unwell.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store locked up.*

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

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Date of preparation / last revision** 01/10/2019 / -

· **Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety **Health***

***TLV: Threshold Limit Value***

***PEL: Permissible Exposure Limit***

***REL: Recommended Exposure Limit***

***Press. Gas: Gases under pressure – Liquefied gas***

***STOT SE 3: Specific target organ toxicity (single exposure) – Category 3***



# Safety Data Sheet

## according to WHS Regulations

Printing date 10.01.2019

Revision: 10.01.2019

### 1 Identification

- **Product identifier**
- **Trade name:** DUST-PRO DISPOSABLE
- **Article number:** 70847-01, 70847-12
- **CAS Number:**  
811-97-2
- **EC number:**  
212-377-0
- **Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- ProSciTech Pty Ltd  
11 Carlton Street, Kirwan QLD 4817 Australia  
Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)  
Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)  
Website: ems.proscitech.com
- Emgrid Australia Pty. Ltd.  
P.O. Box 118  
The Patch VIC 3792  
Australia  
Tel: 03 9752 1785  
Fax: 03 9752 1784  
Website: www.emgrid.com.au
- **Further information obtainable from:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### 2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS04 gas cylinder

Press. Gas L H280 Contains gas under pressure; may explode if heated.



GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

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Trade name: **DUST-PRO DISPOSABLE**

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· **Hazard pictograms**

GHS04 GHS07

· **Signal word** Warning· **Hazard statements**

Contains gas under pressure; may explode if heated.

May cause drowsiness or dizziness.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER/doctor if you feel unwell.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.

### 3 Composition and Information on Ingredients

· **Chemical characterisation: Substances**· **CAS No. Description**

811-97-2 1,1,1,2-tetrafluoroethane

· **Identification number(s)**· **EC number:** 212-377-0

### 4 First Aid Measures

· **Description of first aid measures**· **After inhalation:** Supply fresh air; consult doctor in case of complaints.· **After skin contact:** Generally the product does not irritate the skin.· **After eye contact:** Rinse opened eye for several minutes under running water.· **After swallowing:** If symptoms persist consult doctor.· **Information for doctor:**· **Most important symptoms and effects, both acute and delayed** No further relevant information available.· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### 5 Fire Fighting Measures

· **Extinguishing media**· **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.· **Special hazards arising from the substance or mixture** No further relevant information available.

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- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** No special measures required.
- **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.

### 7 Handling and Storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

**811-97-2 1,1,1,2-tetrafluoroethane**

NES Long-term value: 4240 mg/m<sup>3</sup>, 1000 ppm

WES Long-term value: 4240 mg/m<sup>3</sup>, 1000 ppm

- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Respiratory protection:** Not required.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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- **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 protection:** Not required.

## 9 Physical and Chemical Properties

### · Information on basic physical and chemical properties

#### · General Information

#### · Appearance:

**Form:** Compressed gas

**Colour:** Clear

· **Odour:** Ether-like

· **Odour threshold:** Not determined.

· **pH-value:** Not determined.

#### · Change in condition

**Melting point/freezing point:** Undetermined.

**Initial boiling point and boiling range:** -26.2 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gas):** Not determined.  
Not applicable.

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Not determined.

· **Explosive properties:** Not determined.

#### · Explosion limits:

**Lower:** Not determined.

**Upper:** Not determined.

· **Vapour pressure at 20 °C:** 5,716 hPa

· **Density at 20 °C:** 1.226 g/cm<sup>3</sup>

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with water at 20 °C:**

1.93 g/l

· **Partition coefficient: n-octanol/water:** Not determined.

#### · Viscosity:

**Dynamic at 20 °C:** 0.22 mPas

**Kinematic:** Not determined.

#### · Solvent content:

**VOC (EC)** 0.00 %

**Solids content:** 0.0 %

· **Other information** No further relevant information available.

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Trade name: **DUST-PRO DISPOSABLE**

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### 10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect:**
- **Skin corrosion/irritation** No irritant effect.
- **Serious eye damage/irritation** No irritating effect.
- **Respiratory or skin sensitisation** No sensitising effects known.

### 12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN3159

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Trade name: DUST-PRO DISPOSABLE

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· <b>UN proper shipping name</b>	
· <b>ADG</b>	3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
· <b>IMDG, IATA</b>	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

· <b>Transport hazard class(es)</b>	
· <b>ADG, IMDG, IATA</b>	



· <b>Class</b>	2.2
· <b>Label</b>	2.2

· <b>Environmental hazards:</b>	Not applicable.
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· <b>Special precautions for user</b>	Not applicable.
· <b>EMS Number:</b>	F-C,S-V
· <b>Stowage Category</b>	A

· <b>Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
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· <b>Transport/Additional information:</b>	
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· <b>ADG</b>	
· <b>Limited quantities (LQ)</b>	120 ml
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	120 ml
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

· <b>UN "Model Regulation":</b>	UN 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A), 2.2
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## 15 Regulatory information

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

· <b>Australian Inventory of Chemical Substances</b>
--

Substance is listed.
----------------------

· <b>Standard for the Uniform Scheduling of Medicines and Poisons</b>
---

Substance is not listed.
--------------------------

· **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

(Contd. on page 7)

# Safety Data Sheet

## according to WHS Regulations

Printing date 10.01.2019

Revision: 10.01.2019

Trade name: **DUST-PRO DISPOSABLE**

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· **Hazard pictograms**

GHS04 GHS07

· **Signal word** Warning· **Hazard statements**

Contains gas under pressure; may explode if heated.

May cause drowsiness or dizziness.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

**IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a **POISON CENTER/doctor** if you feel unwell.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** Substance is not listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport 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

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Press. Gas L: Gases under pressure – Liquefied gas

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/10/2019

Reviewed on 01/10/2019

## 1 Identification

- **Product identifier**
- **Trade name:** DUST-PRO DISPOSABLE
- **Article number:** 70847-01, 70847-12
- **CAS Number:**  
811-97-2
- **EC number:**  
212-377-0
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: [info@emsdiasum.com](mailto:info@emsdiasum.com)  
[www.emsdiasum.com](http://www.emsdiasum.com)
- **Information department:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS04 Gas cylinder

Gases Under Pressure - Liquefied Gas

H280 Contains gas under pressure; may explode if heated.



GHS07

Specific Target Organ Toxicity - Single Exposure -  
Category 3

H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS04 GHS07

- **Signal word** Warning

- **Hazard statements**

Contains gas under pressure; may explode if heated.  
May cause drowsiness or dizziness.

- **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.  
Use only outdoors or in a well-ventilated area.

(Contd. on page 2)



# Safety Data Sheet

acc. to OSHA HCS

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**Trade name: DUST-PRO DISPOSABLE**

(Contd. of page 1)

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Call a poison center/doctor if you feel unwell.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store locked up.*

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

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 1

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1

Fire = 0

Reactivity = 0

### 3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

811-97-2 1,1,1,2-tetrafluoroethane

· **Identification number(s)**

· **EC number:** 212-377-0

### 4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:** Generally the product does not irritate the skin.

· **After eye contact:** Rinse opened eye for several minutes under running water.

· **After swallowing:** If symptoms persist consult doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

### 5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** No special measures required.

### 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.

(Contd. on page 3)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/10/2019

Reviewed on 01/10/2019

**Trade name: DUST-PRO DISPOSABLE**

(Contd. of page 2)

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** No special measures required.
- **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.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **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 protection:** Not required.

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

<b>Form:</b>	Compressed gas
<b>Color:</b>	Clear

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/10/2019

Reviewed on 01/10/2019

Trade name: DUST-PRO DISPOSABLE

(Contd. of page 3)

· <b>Odor:</b>	Ether-like
· <b>Odor threshold:</b>	Not determined.
· <b>pH-value:</b>	Not determined.
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	-26.2 °C
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Not determined. Not flammable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Not determined.
· <b>Danger of explosion:</b>	Not determined.
· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapor pressure at 20 °C:</b>	5,716 hPa
· <b>Density at 20 °C:</b>	1.226 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with</b>	
<b>Water at 20 °C:</b>	1.93 g/l
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic at 20 °C:</b>	0.22 mPas
<b>Kinematic:</b>	Not determined.
<b>Solids content:</b>	0.0 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

CA

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/10/2019

Reviewed on 01/10/2019

Trade name: **DUST-PRO DISPOSABLE**

(Contd. of page 4)

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
- Water hazard class 1 (Assessment by list): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
- Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- |                                  |                           |
|----------------------------------|---------------------------|
| · <b>UN-Number</b>               |                           |
| · <b>DOT, TDG, IMDG, IATA</b>    | UN3159                    |
| · <b>UN proper shipping name</b> |                           |
| · <b>DOT</b>                     | 1,1,1,2-Tetrafluoroethane |

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CA

# Safety Data Sheet



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Trade name: **DUST-PRO DISPOSABLE**

(Contd. of page 5)

· <b>TDG</b>	3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
· <b>IMDG, IATA</b>	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	2.2
· <b>Label</b>	2.2
· <b>TDG, IMDG, IATA</b>	
	
· <b>Class</b>	2.2
· <b>Label</b>	2.2
· <b>Environmental hazards:</b>	Not applicable.
· <b>Special precautions for user</b>	Not applicable.
· <b>EMS Number:</b>	F-C,S-V
· <b>Stowage Category</b>	A
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>TDG</b>	
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	120 ml
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A), 2.2

## 15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

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**Trade name: DUST-PRO DISPOSABLE**

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· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

Substance is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

Substance is not listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

Substance is not listed.

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS04 GHS07

· **Signal word** Warning

· **Hazard statements**

Contains gas under pressure; may explode if heated.

May cause drowsiness or dizziness.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a poison center/doctor if you feel unwell.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of the latest revision of the safety data sheet** 01/10/2019 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.01.2019

Revision: 10.01.2019

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** DUST-PRO DISPOSABLE
- **Article number:** 70847-01, 70847-12
- **CAS Number:**  
811-97-2
- **EC number:**  
212-377-0
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS04 gas cylinder

Press. Gas L H280 Contains gas under pressure; may explode if heated.



GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS04 GHS07

- **Signal word** Warning
- **Hazard statements**  
H280 Contains gas under pressure; may explode if heated.  
H336 May cause drowsiness or dizziness.

(Contd. on page 2)

**Safety data sheet**  
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Trade name: **DUST-PRO DISPOSABLE**

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· **Precautionary statements**

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P405 Store locked up.
- P410+P403 Protect from sunlight. Store in a well-ventilated place.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### SECTION 3: Composition/information on ingredients

· **3.1 Chemical characterisation: Substances**

- **CAS No. Description**  
811-97-2 1,1,1,2-tetrafluoroethane
- **Identification number(s)**
- **EC number:** 212-377-0

### SECTION 4: First aid measures

· **4.1 Description of first aid measures**

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed** 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:** Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:** No special measures required.
- **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.

GB

(Contd. on page 3)



# Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 10.01.2019

Revision: 10.01.2019

Trade name: DUST-PRO DISPOSABLE

(Contd. of page 2)

## SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **7.3 Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

### 8.1 Control parameters

- **Ingredients with limit values that require monitoring at the workplace:**

811-97-2 1,1,1,2-tetrafluoroethane
------------------------------------

WEL Long-term value: 4240 mg/m <sup>3</sup> , 1000 ppm
--

- **Additional information:** The lists valid during the making were used as basis.

### 8.2 Exposure controls

- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Respiratory protection:** Not required.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **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 protection:** Not required.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### General Information

#### Appearance:

Form:	Compressed gas
-------	----------------

Colour:	Clear
---------	-------

Odour:	Ether-like
--------	------------

Odour threshold:	Not determined.
------------------	-----------------

pH-value:	Not determined.
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(Contd. on page 4)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.01.2019

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Trade name: **DUST-PRO DISPOSABLE**

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· <b>Change in condition</b> Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	-26.2 °C
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gas):</b>	Not determined. Not applicable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Not determined.
· <b>Explosive properties:</b>	Not determined.
· <b>Explosion limits:</b> Lower:	Not determined.
Upper:	Not determined.
· <b>Vapour pressure at 20 °C:</b>	5,716 hPa
· <b>Density at 20 °C:</b>	1.226 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not determined.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with water at 20 °C:</b>	1.93 g/l
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b> Dynamic at 20 °C:	0.22 mPas
Kinematic:	Not determined.
· <b>Solvent content:</b> VOC (EC)	0.00 %
Solids content:	0.0 %
· <b>9.2 Other information</b>	No further relevant information available.

### 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.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

(Contd. on page 5)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.01.2019

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Trade name: **DUST-PRO DISPOSABLE**

(Contd. of page 4)

- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**  
May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

- |                                       |   |
|---------------------------------------|---|
| · <b>14.1 UN-Number</b>               |   |
| · <b>ADR, IMDG, IATA</b>              | UN3159  |
| · <b>14.2 UN proper shipping name</b> |   |
| · <b>ADR</b>                          | 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a) |
| · <b>IMDG, IATA</b>                   | 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)      |

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-GB-

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.01.2019

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## · 14.3 Transport hazard class(es)

## · ADR, IMDG, IATA



· Class 2.2  
· Label 2.2

· 14.5 Environmental hazards: Not applicable.

· 14.6 Special precautions for user: Not applicable.

· EMS Number: F-C,S-V

· Stowage Category A

· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Not applicable.

## · Transport/Additional information:

## · ADR

· Limited quantities (LQ) 120 ml  
· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

## · IMDG

· Limited quantities (LQ) 120 ml  
· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A), 2.2

### SECTION 15: Regulatory information

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

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I Substance is not listed.

· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

## · Abbreviations and acronyms:

ADR: Accord européen sur le transport 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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

(Contd. on page 7)

GB

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.01.2019

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**Trade name: DUST-PRO DISPOSABLE**

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*PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Press. Gas L: Gases under pressure – Liquefied gas**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*

GB

# Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 10.01.2019

Herziening van: 10.01.2019

## RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

### · 1.1 Productidentificatie

· **Handelsnaam:** DUST-PRO DISPOSABLE

· **Artikelnummer:** 70847-01, 70847-12

· **CAS-nummer:**  
811-97-2

· **EC-nummer:**  
212-377-0

· **1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik**  
Geen verdere relevante informatie verkrijgbaar.

· **Toepassing van de stof / van de bereiding** Laboratoriumchemicaliën

### · 1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad

#### · **Fabrikant/leverancier:**

Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com

Aurion  
Binnenhaven 5  
6709 PD Wageningen  
The Netherlands  
Tel: 31 317 415094  
Fax: 31 317 415955  
email: info@aurion.nl

· **Inlichtingengevende sector:** Product safety department

### · 1.4 Telefoonnummer voor noodgevallen:

ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## RUBRIEK 2: Identificatie van de gevaren

### · 2.1 Indeling van de stof of het mengsel

· **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**



GHS04 gasfles

Press. Gas L H280 Bevat gas onder druk; kan ontploffen bij verwarming.



GHS07

STOT SE 3 H336 Kan slaperigheid of duizeligheid veroorzaken.

### · 2.2 Etiketteringselementen

· **Etikettering overeenkomstig Verordening (EG) nr. 1272/2008**

De stof product is geclassificeerd en geëtiketteerd volgens de CLP-verordening.

(Vervolg op blz. 2)

# Veiligheidsinformatieblad

## volgens 1907/2006/EG, Artikel 31

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Handelsnaam: **DUST-PRO DISPOSABLE**

(Vervolg van blz. 1)

### · Gevarenpictogrammen



GHS04 GHS07

### · Signaalwoord Waarschuwing

### · Gevarenaanduidingen

H280 Bevat gas onder druk; kan ontploffen bij verwarming.

H336 Kan slaperigheid of duizeligheid veroorzaken.

### · Veiligheidsaanbevelingen

P261 Inademing van stof/rook/gas/nevel/damp/spuitnevel vermijden.

P304+P340 NA INADEMING: de persoon in de frisse lucht brengen en ervoor zorgen dat deze gemakkelijk kan ademen.

P312 Bij onwel voelen een ANTIGIFCENTRUM/arts raadplegen.

P405 Achter slot bewaren.

P410+P403 Tegen zonlicht beschermen. Op een goed geventileerde plaats bewaren.

P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.

### · 2.3 Andere gevaren

### · Resultaten van PBT- en zPzB-beoordeling

· PBT: Niet bruikbaar.

· zPzB: Niet bruikbaar.

## RUBRIEK 3: Samenstelling en informatie over de bestanddelen

### · 3.1 Chemische karakterisering: Stoffen

#### · CAS-Nr. omschrijving

811-97-2 1,1,1,2-tetrafluoroethane

#### · Identificatienummer(s)

· EC-nummer: 212-377-0

## RUBRIEK 4: Eerstehulpmaatregelen

### · 4.1 Beschrijving van de eerstehulpmaatregelen

· Na het inademen: Frisse lucht toedienen; bij klachten arts ontbieden.

· Na huidcontact: Over het algemeen is het produkt niet prikkelend voor de huid

· Na oogcontact: Ogen bij geopend ooglid meerdere minuten met stromend water spoelen

· Na inslikken: Als de klachten niet minderen, een arts raadplegen

· 4.2 Belangrijkste acute en uitgestelde symptomen en effecten Geen verdere relevante informatie verkrijgbaar.

· 4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling

Geen verdere relevante informatie verkrijgbaar.

## RUBRIEK 5: Brandbestrijdingsmaatregelen

### · 5.1 Blusmiddelen

· Geschikte blusmiddelen: Brandblusmaatregelen op omgeving afstemmen.

· 5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt

Geen verdere relevante informatie verkrijgbaar.

(Vervolg op blz. 3)

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(Vervolg van blz. 2)

- **5.3 Advies voor brandweertieners**
- **Speciale beschermende kleding:** Geen bijzondere maatregelen nodig.

### RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

- **6.1 Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures** Niet nodig.
- **6.2 Milieuvoorzorgsmaatregelen:** Niet in de riolering/het oppervlaktewater/het grondwater laten terechtkomen.
- **6.3 Insluitings- en reinigingsmethoden en -materiaal:** Geen bijzondere maatregelen noodzakelijk.
- **6.4 Verwijzing naar andere rubrieken**  
 Informatie inzake veilig gebruik - zie hoofdstuk 7.  
 Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.  
 Informatie inzake berging - zie hoofdstuk 13.

### RUBRIEK 7: Hantering en opslag

- **7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**  
 Bij een deskundig gebruik zijn geen bijzondere maatregelen vereist.
- **Informatie m.b.t. brand- en ontploffingsgevaar:** Geen bijzondere maatregelen noodzakelijk.
- **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**
- **Opslag:**
- **Eisen ten opzichte van opslagruimte en tanks:** Op een koele plaats bewaren.
- **Informatie m.b.t. gezamenlijke opslag:** Niet noodzakelijk.
- **Verdere inlichtingen over eisen m.b.t. de opslag:** Koel en droog bewaren in goed gesloten vaten.
- **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

- **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.
- **8.1 Controleparameters**
- **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:** Vervalt.
- **Aanvullende gegevens:** Als basis dienden lijsten die bij opstelling geldig waren.
- **8.2 Maatregelen ter beheersing van blootstelling**
- **Persoonlijke beschermingsvoorzieningen:**
- **Algemene beschermings- en gezondheidsmaatregelen:**  
 Vóór de pauze en aan het einde van werktijd handen wassen.
- **Ademhalingsbescherming:** Niet noodzakelijk.
- **Handbescherming:**  
 Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.  
 Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliën-mengsel afgegeven worden.  
 Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.
- **Handschoenmateriaal**  
 De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant.
- **Doordringingstijd van het handschoenmateriaal**  
 De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.
- **Oogbescherming:** Niet noodzakelijk.

NL

(Vervolg op blz. 4)



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## RUBRIEK 9: Fysische en chemische eigenschappen

### · 9.1 Informatie over fysische en chemische basiseigenschappen

#### · Algemene gegevens

#### · Voorkomen:

Vorm: Gecomprimeerd gas

Kleur: Helder

· Geur: Etherachtig

· Geurdrempelwaarde: Niet bepaald.

· pH-waarde: Niet bepaald.

#### · Toestandsverandering

Smelt-/vriespunt: Niet bepaald.

Beginkookpunt en kooktraject: -26,2 °C

· Vlampunt: Niet bruikbaar.

· Ontvlambaarheid (vast, gas): Niet bepaald.

Niet bruikbaar.

· Ontledingstemperatuur: Niet bepaald.

· Zelfontbrandingstemperatuur: Niet bepaald.

· Ontploffingseigenschappen: Niet bepaald.

#### · Ontploffingsgrenzen:

Onderste: Niet bepaald.

Bovenste: Niet bepaald.

· Dampspanning bij 20 °C: 5.716 hPa

· Dichtheid bij 20 °C: 1,226 g/cm<sup>3</sup>

· Relatieve dichtheid: Niet bepaald.

· Dampdichtheid: Niet bepaald.

· Verdampingssnelheid: Niet bruikbaar.

#### · Oplosbaarheid in/mengbaarheid met

Water bij 20 °C: 1,93 g/l

· Verdelingscoëfficiënt: n-octanol/water: Niet bepaald.

#### · Viscositeit

Dynamisch bij 20 °C: 0,22 mPas

Kinematisch: Niet bepaald.

#### · Oplosmiddelgehalte:

VOC (EG) 0,00 %

Gehalte aan vaste bestanddelen: 0,0 %

· 9.2 Overige informatie: Geen verdere relevante informatie verkrijgbaar.

## RUBRIEK 10: Stabiliteit en reactiviteit

· 10.1 Reactiviteit: Geen verdere relevante informatie verkrijgbaar.

· 10.2 Chemische stabiliteit

· Thermische afbraak / te vermijden omstandigheden: Geen afbraak bij gebruik volgens voorschrift.

· 10.3 Mogelijke gevaarlijke reacties: Geen gevaarlijke reacties bekend.

· 10.4 Te vermijden omstandigheden: Geen verdere relevante informatie verkrijgbaar.

(Vervolg op blz. 5)

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- **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
- **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsproducten bekend.

### RUBRIEK 11: Toxicologische informatie

- **11.1 Informatie over toxicologische effecten**
- **Acute toxiciteit** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Primaire aandoening:**
- **Huidcorrosie/-irritatie** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Ernstig oogletsel/oogirritatie** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Sensibilisatie van de luchtwegen/de huid**  
Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)**
- **Mutageniteit in geslachtscellen** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Kankerverwekkendheid** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Giftigheid voor de voortplanting** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **STOT bij eenmalige blootstelling**  
Kan slaperigheid of duizeligheid veroorzaken.
- **STOT bij herhaalde blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Gevaar bij inademing** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

### RUBRIEK 12: Ecologische informatie

- **12.1 Toxiciteit**
- **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
- **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
- **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.
- **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
- **Verdere ecologische informatie:**
- **Algemene informatie:**  
Waterbezwaarlijkheid (NL): B(4) Weinig schadelijk voor in water levende organismen  
Gevaar voor water klasse 1 (D) (Lijstclassificatie): gevaar voor water klein  
Niet onverdund of in grote hoeveelheden lozen in grondwater, in oppervlaktewater of in de riolering.
- **12.5 Resultaten van PBT- en zPzB-beoordeling**
- **PBT:** Niet bruikbaar.
- **zPzB:** Niet bruikbaar.
- **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 13: Instructies voor verwijdering

- **13.1 Afvalverwerkingsmethoden**
- **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.

### RUBRIEK 14: Informatie met betrekking tot het vervoer

- **14.1 VN-nummer**
- **ADR, IMDG, IATA**

UN3159

(Vervolg op blz. 6)

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<ul style="list-style-type: none"> <li>· <b>14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN</b></li> <li>· <b>ADR</b> 3159 1,1,1,2-TETRAFLUORETHAAN (KOELGAS R 134a)</li> <li>· <b>IMDG, IATA</b> 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)</li> </ul>
<ul style="list-style-type: none"> <li>· <b>14.3 Transportgevaarklasse(n)</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· <b>klasse</b> 2.2</li> <li>· <b>Etiket</b> 2.2</li> </ul>
<ul style="list-style-type: none"> <li>· <b>14.5 Milieugevaren:</b> Niet bruikbaar.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>14.6 Bijzondere voorzorgen voor de gebruiker</b> Niet bruikbaar.</li> <li>· <b>EMS-nummer:</b> F-C,S-V</li> <li>· <b>Stowage Category</b> A</li> </ul>
<ul style="list-style-type: none"> <li>· <b>14.7 Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code</b> Niet bruikbaar.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>Transport/verdere gegevens:</b></li> </ul> <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> <li>· <b>ADR</b></li> <li>· <b>Beperkte hoeveelheden (LQ)</b> 120 ml</li> <li>· <b>Uitgezonderde hoeveelheden (EQ)</b> Code: E1 Grootste netto hoeveelheid per binnenverpakking: 30 ml Grootste netto hoeveelheid per buitenverpakking: 1000 ml</li> </ul> <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b> 120 ml</li> <li>· <b>Excepted quantities (EQ)</b> Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</li> </ul>
<ul style="list-style-type: none"> <li>· <b>VN "Model Regulation":</b> UN 3159 1,1,1,2-TETRAFLUORETHAAN (KOELGAS R 134A), 2.2</li> </ul>

## RUBRIEK 15: Regelgeving

### · 15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

#### · SZW-lijst van kankerverwekkende stoffen

De stof is niet aanwezig.

#### · SZW-lijst van mutagene stoffen

De stof is niet aanwezig.

#### · NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid

De stof is niet aanwezig.

#### · NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling

De stof is niet aanwezig.

(Vervolg op blz. 7)

**Veiligheidsinformatieblad**  
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Herziening van: 10.01.2019

**Handelsnaam: DUST-PRO DISPOSABLE**

(Vervolg van blz. 6)

**· NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding**

*De stof is niet aanwezig.*

**· Richtlijn 2012/18/EU**

**· Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I** De stof is niet aanwezig.

**· Nationale voorschriften:**

**· Gevaarklasse v. water:** Waterbezwaarlijkheid (NL): B(4) Weinig schadelijk voor in water levende organismen

**· 15.2 Chemischeveiligheidsbeoordeling:** Een chemische veiligheidsbeoordeling is niet uitgevoerd.

**RUBRIEK 16: Overige informatie**

*Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van produkteigenschappen en vestigen geen contractuele rechtsbetrekking.*

**· Afkortingen en acroniemen:**

*ADR: Accord européen sur le transport 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*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Press. Gas L: Gassen onder druk – Vloeibaar gemaakt gas*

*STOT SE 3: Specifieke doelorgaantoxiciteit bij eenmalige blootstelling – Categorie 3*

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 10.01.2019

Révision: 10.01.2019

### RUBRIQUE 1: Identification de la substance/du mélange et de la société/l'entreprise

- **1.1 Identificateur de produit**
- **Nom du produit:** DUST-PRO DISPOSABLE
- **Code du produit:** 70847-01, 70847-12
- **No CAS:**  
811-97-2
- **Numéro CE:**  
212-377-0
- **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**  
*Pas d'autres informations importantes disponibles.*
- **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires
- **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**
- **Producteur/fournisseur:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- **Service chargé des renseignements:** Product safety department
- **1.4 Numéro d'appel d'urgence:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### RUBRIQUE 2: Identification des dangers

- **2.1 Classification de la substance ou du mélange**
- **Classification selon le règlement (CE) n° 1272/2008**



GHS04 bouteille à gaz

*Press. Gas L H280 Contient un gaz sous pression; peut exploser sous l'effet de la chaleur.*



GHS07

*STOT SE 3 H336 Peut provoquer somnolence ou vertiges.*

- **2.2 Éléments d'étiquetage**
- **Étiquetage selon le règlement (CE) n° 1272/2008** La substance est classifiée et étiquetée selon le règlement CLP.
- **Pictogrammes de danger**



GHS04 GHS07

- **Mention d'avertissement** Attention
- **Mentions de danger**  
H280 Contient un gaz sous pression; peut exploser sous l'effet de la chaleur.  
H336 Peut provoquer somnolence ou vertiges.

(suite page 2)

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 10.01.2019

Révision: 10.01.2019

**Nom du produit: DUST-PRO DISPOSABLE**

(suite de la page 1)

- **Conseils de prudence**

- P261 Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

- P304+P340 EN CAS D'INHALATION: transporter la personne à l'extérieur et la maintenir dans une position où elle peut confortablement respirer.

- P312 Appeler un CENTRE ANTIPOISON/un médecin en cas de malaise.

- P405 Garder sous clef.

- P410+P403 Protéger du rayonnement solaire. Stocker dans un endroit bien ventilé.

- P501 Éliminer le contenu/récipient conformément à la réglementation locale/régionale/nationale/internationale.

- **2.3 Autres dangers**

- **Résultats des évaluations PBT et vPvB**

- **PBT:** Non applicable.

- **vPvB:** Non applicable.

### RUBRIQUE 3: Composition/informations sur les composants

- **3.1 Caractérisation chimique: Substances**

- **No CAS Désignation**

- 811-97-2 1,1,1,2-tetrafluoroethane

- **Code(s) d'identification**

- **Numéro CE:** 212-377-0

### RUBRIQUE 4: Premiers secours

- **4.1 Description des premiers secours**

- **Après inhalation:** Donner de l'air frais, consulter un médecin en cas de troubles.

- **Après contact avec la peau:** En règle générale, le produit n'irrite pas la peau.

- **Après contact avec les yeux:**

- Rincer les yeux, sous l'eau courante, pendant plusieurs minutes, en écartant bien les paupières.

- **Après ingestion:** Si les troubles persistent, consulter un médecin.

- **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.

- **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**

- Pas d'autres informations importantes disponibles.

### RUBRIQUE 5: Mesures de lutte contre l'incendie

- **5.1 Moyens d'extinction**

- **Moyens d'extinction:** Adapter les mesures d'extinction d'incendie à l'environnement.

- **5.2 Dangers particuliers résultant de la substance ou du mélange**

- Pas d'autres informations importantes disponibles.

- **5.3 Conseils aux pompiers**

- **Équipement spécial de sécurité:** Aucune mesure particulière n'est requise.

### RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

- **6.1 Précautions individuelles, équipement de protection et procédures d'urgence** Pas nécessaire.

- **6.2 Précautions pour la protection de l'environnement:**

- Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.

- **6.3 Méthodes et matériel de confinement et de nettoyage:** Aucune mesure particulière n'est requise.

- **6.4 Référence à d'autres rubriques**

- Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.

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Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.  
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

### RUBRIQUE 7: Manipulation et stockage

- **7.1 Précautions à prendre pour une manipulation sans danger**  
Aucune mesure particulière n'est nécessaire en cas de bonne utilisation.
- **Préventions des incendies et des explosions:** Aucune mesure particulière n'est requise.
- **7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**
- **Stockage:**
- **Exigences concernant les lieux et conteneurs de stockage:** Stocker dans un endroit frais.
- **Indications concernant le stockage commun:** Pas nécessaire.
- **Autres indications sur les conditions de stockage:** Stocker au frais et au sec dans des fûts bien fermés.
- **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

### RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

- **Indications complémentaires pour l'agencement des installations techniques:**  
Sans autre indication, voir point 7.
- **8.1 Paramètres de contrôle**
- **Composants présentant des valeurs-seuil à surveiller par poste de travail:** Néant
- **Remarques supplémentaires:**  
Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.
- **8.2 Contrôles de l'exposition**
- **Equipement de protection individuel:**
- **Mesures générales de protection et d'hygiène:** Se laver les mains avant les pauses et en fin de travail.
- **Protection respiratoire:** N'est pas nécessaire.
- **Protection des mains:**  
Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.  
À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.  
Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.
- **Matériau des gants**  
Le choix de gants appropriés ne dépend pas seulement du matériau, mais également d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre.
- **Temps de pénétration du matériau des gants**  
Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.
- **Protection des yeux:** Pas nécessaire.

### RUBRIQUE 9: Propriétés physiques et chimiques

- **9.1 Informations sur les propriétés physiques et chimiques essentielles**
- **Indications générales**
- **Aspect:**
- **Forme:** Gaz comprimé
- **Couleur:** Transparent
- **Odeur:** Genre éther
- **Seuil olfactif:** Non déterminé.

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· valeur du pH:	Non déterminé.
· <b>Changement d'état</b> Point de fusion/point de congélation:	Non déterminé.
Point initial d'ébullition et intervalle d'ébullition:	-26,2 °C
· Point d'éclair	Non applicable.
· <b>Inflammabilité (solide, gaz):</b>	Non déterminé. Non applicable.
· <b>Température de décomposition:</b>	Non déterminé.
· <b>Température d'auto-inflammabilité:</b>	Non déterminé.
· <b>Propriétés explosives:</b>	Non déterminé.
· <b>Limites d'explosion:</b> Inférieure:	Non déterminé.
Supérieure:	Non déterminé.
· <b>Pression de vapeur à 20 °C:</b>	5.716 hPa
· <b>Densité à 20 °C:</b>	1,226 g/cm <sup>3</sup>
· <b>Densité relative</b>	Non déterminé.
· <b>Densité de vapeur:</b>	Non déterminé.
· <b>Taux d'évaporation:</b>	Non applicable.
· <b>Solubilité dans/miscibilité avec l'eau à 20 °C:</b>	1,93 g/l
· <b>Coefficient de partage: n-octanol/eau:</b>	Non déterminé.
· <b>Viscosité:</b> Dynamique à 20 °C:	0,22 mPas
Cinématique:	Non déterminé.
· <b>Teneur en solvants:</b> VOC (CE)	0,00 %
· <b>Teneur en substances solides:</b>	0,0 %
· <b>9.2 Autres informations</b>	Pas d'autres informations importantes disponibles.

### RUBRIQUE 10: Stabilité et réactivité

- **10.1 Réactivité** Pas d'autres informations importantes disponibles.
- **10.2 Stabilité chimique**
- **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.
- **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.
- **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
- **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
- **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

### RUBRIQUE 11: Informations toxicologiques

- **11.1 Informations sur les effets toxicologiques**
- **Toxicité aiguë** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

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- **Effet primaire d'irritation:**
- **Corrosion cutanée/irritation cutanée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Lésions oculaires graves/irritation oculaire**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Sensibilisation respiratoire ou cutanée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Effets CMR (cancérogène, mutagène et toxique pour la reproduction)**
- **Mutagénicité sur les cellules germinales**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Cancérogénicité** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité pour la reproduction**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité spécifique pour certains organes cibles - exposition unique**  
Peut provoquer somnolence ou vertiges.
- **Toxicité spécifique pour certains organes cibles - exposition répétée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Danger par aspiration** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

### RUBRIQUE 12: Informations écologiques

- **12.1 Toxicité**
- **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
- **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
- **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
- **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.
- **Autres indications écologiques:**
- **Indications générales:**  
Catégorie de pollution des eaux 1 (D) (classification selon liste): peu polluant  
Ne pas laisser le produit, non dilué ou en grande quantité, pénétrer la nappe phréatique, les eaux ou les canalisations.
- **12.5 Résultats des évaluations PBT et VPVB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.
- **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

### RUBRIQUE 13: Considérations relatives à l'élimination

- **13.1 Méthodes de traitement des déchets**
- **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.
- **Emballages non nettoyés:**
- **Recommandation:** Evacuation conformément aux prescriptions légales.

### RUBRIQUE 14: Informations relatives au transport

- **14.1 Numéro ONU**
- **ADR, IMDG, IATA** UN3159

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<ul style="list-style-type: none"> <li>· 14.2 Désignation officielle de transport de l'ONU</li> <li>· ADR</li> <li>· IMDG, IATA</li> </ul>	<p>3159 TÉTRAFLUORO-1,1,1,2 ÉTHANE (GAZ RÉFRIGÉRANT R 134a)</p> <p>1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)</p>
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- 14.3 Classe(s) de danger pour le transport
- ADR, IMDG, IATA



<ul style="list-style-type: none"> <li>· Classe</li> <li>· Étiquette</li> </ul>	<p>2.2</p> <p>2.2</p>
---	-----------------------

- 14.5 Dangers pour l'environnement: Non applicable.

<ul style="list-style-type: none"> <li>· 14.6 Précautions particulières à prendre par l'utilisateur</li> <li>· No EMS:</li> <li>· Stowage Category</li> </ul>	<p>Non applicable.</p> <p>F-C,S-V</p> <p>A</p>
---	--

- 14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC Non applicable.

- Indications complémentaires de transport:

<ul style="list-style-type: none"> <li>· ADR</li> <li>· Quantités limitées (LQ)</li> <li>· Quantités exceptées (EQ)</li> </ul>	<p>120 ml</p> <p>Code: E1</p> <p>Quantité maximale nette par emballage intérieur: 30 ml</p> <p>Quantité maximale nette par emballage extérieur: 1000 ml</p>
--	---

<ul style="list-style-type: none"> <li>· IMDG</li> <li>· Limited quantities (LQ)</li> <li>· Excepted quantities (EQ)</li> </ul>	<p>120 ml</p> <p>Code: E1</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 1000 ml</p>
---	---

<ul style="list-style-type: none"> <li>· "Règlement type" de l'ONU:</li> </ul>	<p>UN 3159 TÉTRAFLUORO-1,1,1,2 ÉTHANE (GAZ RÉFRIGÉRANT R 134A), 2.2</p>
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### RUBRIQUE 15: Informations relatives à la réglementation

- 15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement
- Directive 2012/18/UE
- Substances dangereuses désignées - ANNEXE I la substance n'est pas comprise
- 15.2 Évaluation de la sécurité chimique: Une évaluation de la sécurité chimique n'a pas été réalisée.

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**RUBRIQUE 16: Autres informations**

*Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.*

**· Acronymes et abréviations:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route*

*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*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Press. Gas L: Gaz sous pression – Gaz liquéfié*

*STOT SE 3: Toxicité spécifique pour certains organes cibles (exposition unique) – Catégorie 3*

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# Sicherheitsdatenblatt

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### ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

· **1.1 Produktidentifikator**

· **Handelsname:** DUST-PRO DISPOSABLE

· **Artikelnummer:** 70847-01, 70847-12

· **CAS-Nummer:**

811-97-2

· **EG-Nummer:**

212-377-0

· **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**

Keine weiteren relevanten Informationen verfügbar.

· **Verwendung des Stoffes / des Gemisches Laborchemikalien**

· **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**

· **Hersteller/Lieferant:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: info@emsdiasum.com

www.emsdiasum.com

Science Services GmbH

Unterhachinger Str. 75

81737 München Germany

Tel: +49(0)89 18 93 668-0

safety@scienceservices.de

Deutschland: +49 (0)89 19240, 24h Giftnotruf Munchen, www.toxinfo.org

Osterreich: +43 1406 43 43, Gesundheit Osterreich GmbH, 24 h

· **Auskunftgebender Bereich:** Product safety department

· **1.4 Notrufnummer:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

### ABSCHNITT 2: Mögliche Gefahren

· **2.1 Einstufung des Stoffs oder Gemischs**

· **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**



GHS04 Gasflasche

Press. Gas L H280 Enthält Gas unter Druck; kann bei Erwärmung explodieren.



GHS07

STOT SE 3 H336 Kann Schläfrigkeit und Benommenheit verursachen.

· **2.2 Kennzeichnungselemente**

· **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**

Der Stoff ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.

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**Gefahrenpiktogramme**


GHS04 GHS07

**Signalwort Achtung**
**Gefahrenhinweise**
*H280 Enthält Gas unter Druck; kann bei Erwärmung explodieren.*
*H336 Kann Schläfrigkeit und Benommenheit verursachen.*
**Sicherheitshinweise**
*P261 Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.*
*P304+P340 BEI EINATMEN: Die Person an die frische Luft bringen und für ungehinderte Atmung sorgen.*
*P312 Bei Unwohlsein GIFTINFORMATIONSZENTRUM/Arzt anrufen.*
*P405 Unter Verschluss aufbewahren.*
*P410+P403 Vor Sonnenbestrahlung schützen. An einem gut belüfteten Ort aufbewahren.*
*P501 Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen / internationalen Vorschriften.*
**2.3 Sonstige Gefahren**
**Ergebnisse der PBT- und vPvB-Beurteilung**
**PBT:** Nicht anwendbar.

**vPvB:** Nicht anwendbar.

### ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

**3.1 Chemische Charakterisierung: Stoffe**
**CAS-Nr. Bezeichnung**
*811-97-2 1,1,1,2-Tetrafluorethan*
**Identifikationsnummer(n)**
**EG-Nummer:** 212-377-0

### ABSCHNITT 4: Erste-Hilfe-Maßnahmen

**4.1 Beschreibung der Erste-Hilfe-Maßnahmen**
**Nach Einatmen:** Frischluftzufuhr, bei Beschwerden Arzt aufsuchen.

**Nach Hautkontakt:** Im allgemeinen ist das Produkt nicht hautreizend.

**Nach Augenkontakt:** Augen bei geöffnetem Lidspalt mehrere Minuten mit fließendem Wasser spülen.

**Nach Verschlucken:** Bei anhaltenden Beschwerden Arzt konsultieren.

**4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**
*Keine weiteren relevanten Informationen verfügbar.*
**4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**
*Keine weiteren relevanten Informationen verfügbar.*

### ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

**5.1 Löschmittel**
**Geeignete Löschmittel:** Feuerlöschmaßnahmen auf die Umgebung abstimmen.

**5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**
*Keine weiteren relevanten Informationen verfügbar.*

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- **5.3 Hinweise für die Brandbekämpfung**
- **Besondere Schutzausrüstung:** Keine besonderen Maßnahmen erforderlich.

### ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

- **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**  
Nicht erforderlich.
- **6.2 Umweltschutzmaßnahmen:** Nicht in die Kanalisation/Oberflächenwasser/Grundwasser gelangen lassen.
- **6.3 Methoden und Material für Rückhaltung und Reinigung:** Keine besonderen Maßnahmen erforderlich.
- **6.4 Verweis auf andere Abschnitte**  
Informationen zur sicheren Handhabung siehe Abschnitt 7.  
Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.  
Informationen zur Entsorgung siehe Abschnitt 13.

### ABSCHNITT 7: Handhabung und Lagerung

- **7.1 Schutzmaßnahmen zur sicheren Handhabung**  
Bei sachgemäßer Verwendung keine besonderen Maßnahmen erforderlich.
- **Hinweise zum Brand- und Explosionsschutz:** Keine besonderen Maßnahmen erforderlich.
- **7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
- **Lagerung:**
- **Anforderung an Lagerräume und Behälter:** An einem kühlen Ort lagern.
- **Zusammenlagerungshinweise:** Nicht erforderlich.
- **Weitere Angaben zu den Lagerbedingungen:** In gut verschlossenen Gebinden kühl und trocken lagern.
- **Lagerklasse:**
- **Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV):** -
- **7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

- **Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.
- **8.1 Zu überwachende Parameter**

- **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**

**811-97-2 1,1,1,2-Tetrafluorethan**

AGW	Langzeitwert: 4200 mg/m <sup>3</sup> , 1000 ml/m <sup>3</sup> 8(II);DFG, Y
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- **Zusätzliche Hinweise:** Als Grundlage dienen die bei der Erstellung gültigen Listen.
- **8.2 Begrenzung und Überwachung der Exposition**
- **Persönliche Schutzausrüstung:**
- **Allgemeine Schutz- und Hygienemaßnahmen:** Vor den Pausen und bei Arbeitsende Hände waschen.
- **Atemschutz:** Nicht erforderlich.
- **Handschutz:**  
Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein.  
Aufgrund fehlender Tests kann keine Empfehlung zum Handschuhmaterial für das Produkt / die Zubereitung / das Chemikaliengemisch abgegeben werden.  
Auswahl des Handschuhmaterials unter Beachtung der Durchbruchzeiten, Permeationsraten und der Degradation.

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- **Handschuhmaterial**  
Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich.
- **Durchdringungszeit des Handschuhmaterials**  
Die genaue Durchbruchzeit ist beim Schutzhandschuhhersteller zu erfahren und einzuhalten.
- **Augenschutz:** Nicht erforderlich.

### ABSCHNITT 9: Physikalische und chemische Eigenschaften

#### · 9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

##### · Allgemeine Angaben

##### · Aussehen:

Form: Komprimiertes Gas

Farbe: Klar

· Geruch: Etherartig

· Geruchsschwelle: Nicht bestimmt.

· pH-Wert: Nicht bestimmt.

##### · Zustandsänderung

Schmelzpunkt/Gefrierpunkt: Nicht bestimmt.

Siedebeginn und Siedebereich: -26,2 °C

· Flammpunkt: Nicht anwendbar.

· Entzündbarkeit (fest, gasförmig): Nicht bestimmt.  
Nicht anwendbar.

· Zersetzungstemperatur: Nicht bestimmt.

· Selbstentzündungstemperatur: Nicht bestimmt.

· Explosive Eigenschaften: Nicht bestimmt.

##### · Explosionsgrenzen:

Untere: Nicht bestimmt.

Obere: Nicht bestimmt.

· Dampfdruck bei 20 °C: 5.716 hPa

· Dichte bei 20 °C: 1,226 g/cm<sup>3</sup>

· Relative Dichte: Nicht bestimmt.

· Dampfichte: Nicht bestimmt.

· Verdampfungsgeschwindigkeit: Nicht anwendbar.

##### · Löslichkeit in / Mischbarkeit mit

Wasser bei 20 °C: 1,93 g/l

· Verteilungskoeffizient: n-Octanol/Wasser: Nicht bestimmt.

##### · Viskosität:

Dynamisch bei 20 °C: 0,22 mPas

Kinematisch: Nicht bestimmt.

##### · Lösemittelgehalt:

VOC (EU) 0,00 %

Festkörpergehalt: 0,0 %

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# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

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· **9.2 Sonstige Angaben**

Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 10: Stabilität und Reaktivität

- **10.1 Reaktivität** Keine weiteren relevanten Informationen verfügbar.
- **10.2 Chemische Stabilität**
- **Thermische Zersetzung / zu vermeidende Bedingungen:**  
Keine Zersetzung bei bestimmungsgemäßer Verwendung.
- **10.3 Möglichkeit gefährlicher Reaktionen** Keine gefährlichen Reaktionen bekannt.
- **10.4 Zu vermeidende Bedingungen** Keine weiteren relevanten Informationen verfügbar.
- **10.5 Unverträgliche Materialien:** Keine weiteren relevanten Informationen verfügbar.
- **10.6 Gefährliche Zersetzungsprodukte:** Keine gefährlichen Zersetzungsprodukte bekannt.

### ABSCHNITT 11: Toxikologische Angaben

- **11.1 Angaben zu toxikologischen Wirkungen**
- **Akute Toxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Primäre Reizwirkung:**
- **Ätz-/Reizwirkung auf die Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Schwere Augenschädigung/-reizung** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Sensibilisierung der Atemwege/Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **CMR-Wirkungen (krebserzeugende, erbgutverändernde und fortpflanzungsgefährdende Wirkung)**
- **Keimzell-Mutagenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Karzinogenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Reproduktionstoxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Spezifische Zielorgan-Toxizität bei einmaliger Exposition**  
Kann Schläfrigkeit und Benommenheit verursachen.
- **Spezifische Zielorgan-Toxizität bei wiederholter Exposition**  
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Aspirationsgefahr** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.

### ABSCHNITT 12: Umweltbezogene Angaben

- **12.1 Toxizität**
- **Aquatische Toxizität:** Keine weiteren relevanten Informationen verfügbar.
- **12.2 Persistenz und Abbaubarkeit** Keine weiteren relevanten Informationen verfügbar.
- **12.3 Bioakkumulationspotenzial** Keine weiteren relevanten Informationen verfügbar.
- **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
- **Weitere ökologische Hinweise:**
- **Allgemeine Hinweise:**  
Wassergefährdungsklasse 1 (Listeneinstufung): schwach wassergefährdend  
Nicht unverdünnt bzw. in größeren Mengen in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.
- **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.
- **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

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### ABSCHNITT 13: Hinweise zur Entsorgung

- **13.1 Verfahren der Abfallbehandlung**
- **Empfehlung:** Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.
- **Ungereinigte Verpackungen:**
- **Empfehlung:** Entsorgung gemäß den behördlichen Vorschriften.

### ABSCHNITT 14: Angaben zum Transport

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>· <b>14.1 UN-Nummer</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>   | UN3159  |
| <ul style="list-style-type: none"> <li>· <b>14.2 Ordnungsgemäße UN-Versandbezeichnung</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul>                         | 3159 1,1,1,2-TETRAFLUORETHAN (GAS ALS KÄLTEMITTEL R 134a)<br>1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)             |
| <ul style="list-style-type: none"> <li>· <b>14.3 Transportgefahrenklassen</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>  | <div style="text-align: center;">  </div> |
| <ul style="list-style-type: none"> <li>· <b>Klasse</b></li> <li>· <b>Gefahrzettel</b></li> </ul>  | 2.2<br>2.2  |
| <ul style="list-style-type: none"> <li>· <b>14.5 Umweltgefahren:</b></li> </ul>   | Nicht anwendbar.  |
| <ul style="list-style-type: none"> <li>· <b>14.6 Besondere Vorsichtsmaßnahmen für den Verwender</b></li> <li>· <b>EMS-Nummer:</b></li> <li>· <b>Stowage Category</b></li> </ul> | Nicht anwendbar.<br>F-C,S-V<br>A  |
| <ul style="list-style-type: none"> <li>· <b>14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code</b></li> </ul>                               | Nicht anwendbar.  |
| <ul style="list-style-type: none"> <li>· <b>Transport/weitere Angaben:</b></li> </ul>   |   |
| <ul style="list-style-type: none"> <li>· <b>ADR</b></li> <li>· <b>Begrenzte Menge (LQ)</b></li> <li>· <b>Freigestellte Mengen (EQ)</b></li> </ul>                               | 120 ml<br>Code: E1<br>Höchste Nettomenge je Innenverpackung: 30 ml<br>Höchste Nettomenge je Außenverpackung: 1000 ml        |
| <ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul>                            | 120 ml<br>Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml  |

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· <b>UN "Model Regulation":</b>	UN 3159 1,1,1,2-TETRAFLUORETHAN (GAS ALS KÄLTEMITTEL R 134A), 2.2
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### ABSCHNITT 15: Rechtsvorschriften

- **15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch**
- **Richtlinie 2012/18/EU**
- **Namentlich aufgeführte gefährliche Stoffe - ANHANG I** Der Stoff ist nicht enthalten.
- **Nationale Vorschriften:**
- **Wassergefährdungsklasse: WGK 1 (Listeneinstufung):** schwach wassergefährdend.
- **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde nicht durchgeführt.

### ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis.

· **Abkürzungen und Akronyme:**

ADR: Accord européen sur le transport 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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Press. Gas L: Gase unter Druck – verflüssigtes Gas

STOT SE 3: Spezifische Zielorgan-Toxizität (einmalige Exposition) – Kategorie 3

**Scheda di dati di sicurezza**  
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### SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

· **1.1 Identificatore del prodotto**

· **Denominazione commerciale:** DUST-PRO DISPOSABLE

· **Articolo numero:** 70847-01, 70847-12

· **Numero CAS:**

811-97-2

· **Numeri CE:**

212-377-0

· **1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati**

Non sono disponibili altre informazioni.

· **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio

· **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**

· **Produttore/fornitore:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: info@emsdiasum.com

www.emsdiasum.com

Societa Italiana Chimici

Via Rio Nell Ellba 140

00138 Rome, Italy

Tel: 39 06 8800211

Fax: 39 30 06 8815313

Web: www.sichim.com

· **Informazioni fornite da:** Product safety department

· **1.4 Numero telefonico di emergenza:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

### SEZIONE 2: Identificazione dei pericoli

· **2.1 Classificazione della sostanza o della miscela**

· **Classificazione secondo il regolamento (CE) n. 1272/2008**



GHS04 bombola per gas

Press. Gas L H280 Contiene gas sotto pressione; può esplodere se riscaldato.



GHS07

STOT SE 3 H336 Può provocare sonnolenza o vertigini.

· **2.2 Elementi dell'etichetta**

· **Etichettatura secondo il regolamento (CE) n. 1272/2008**

La sostanza è classificata ed etichettata conformemente al regolamento CLP.

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**· Pittogrammi di pericolo**

GHS04 GHS07

**· Avvertenza Attenzione****· Indicazioni di pericolo**

H280 Contiene gas sotto pressione; può esplodere se riscaldato.

H336 Può provocare sonnolenza o vertigini.

**· Consigli di prudenza**

P261 Evitare di respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

P304+P340 IN CASO DI INALAZIONE: trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

P312 Contattare un CENTRO ANTIVELENI/un medico in caso di malessere.

P405 Conservare sotto chiave.

P410+P403 Proteggere dai raggi solari. Conservare in luogo ben ventilato.

P501 Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

**· 2.3 Altri pericoli****· Risultati della valutazione PBT e vPvB**· **PBT:** Non applicabile.· **vPvB:** Non applicabile.**SEZIONE 3: Composizione/informazioni sugli ingredienti****· 3.1 Caratteristiche chimiche: Sostanze****· Numero CAS**

811-97-2 1,1,1,2-tetrafluoroethane

**· Numeri di identificazione**· **Numeri CE:** 212-377-0**SEZIONE 4: Misure di primo soccorso****· 4.1 Descrizione delle misure di primo soccorso**· **Inalazione:** Portare in zona ben areata, in caso di disturbi consultare il medico.· **Contatto con la pelle:** Generalmente il prodotto non è irritante per la pelle.· **Contatto con gli occhi:** Lavare con acqua corrente per alcuni minuti tenendo le palpebre ben aperte.· **Ingestione:** Se il dolore persiste consultare il medico.· **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.· **4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**

Non sono disponibili altre informazioni.

**SEZIONE 5: Misure antincendio****· 5.1 Mezzi di estinzione**· **Mezzi di estinzione idonei:** Adottare provvedimenti antiincendio nei dintorni della zona colpita.· **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.

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- **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
- **Mezzi protettivi specifici:** Non sono richiesti provvedimenti particolari.

### **SEZIONE 6: Misure in caso di rilascio accidentale**

- **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza** Non necessario.
- **6.2 Precauzioni ambientali:** Impedire infiltrazioni nella fognatura/nelle acque superficiali/nelle acque freatiche.
- **6.3 Metodi e materiali per il contenimento e per la bonifica:** Non sono richiesti provvedimenti particolari.
- **6.4 Riferimento ad altre sezioni**  
Per informazioni relative ad un manipolazione sicura, vedere capitolo 7.  
Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.  
Per informazioni relative allo smaltimento vedere Capitolo 13.

### **SEZIONE 7: Manipolazione e immagazzinamento**

- **7.1 Precauzioni per la manipolazione sicura** Per un uso corretto non sono necessari provvedimenti particolari.
- **Indicazioni in caso di incendio ed esplosione:** Non sono richiesti provvedimenti particolari.
- **7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità**
- **Stoccaggio:**
- **Requisiti dei magazzini e dei recipienti:** Conservare in ambiente fresco.
- **Indicazioni sullo stoccaggio misto:** Non necessario.
- **Ulteriori indicazioni relative alle condizioni di immagazzinamento:**  
Conservare in luogo fresco e asciutto in fusti ben chiusi.
- **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

### **SEZIONE 8: Controllo dell'esposizione/protezione individuale**

- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.
- **8.1 Parametri di controllo**
- **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:** Non Necessario.
- **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.
- **8.2 Controlli dell'esposizione**
- **Mezzi protettivi individuali:**
- **Norme generali protettive e di igiene del lavoro:** Lavarsi le mani prima dell'intervallo o a lavoro terminato.
- **Maschera protettiva:** Non necessario.
- **Guanti protettivi:**  
Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.  
A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.  
Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.
- **Materiale dei guanti**  
La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro.
- **Tempo di permeazione del materiale dei guanti**  
Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.
- **Occhiali protettivi:** Non necessario.

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### SEZIONE 9: Proprietà fisiche e chimiche

#### · 9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali

##### · Indicazioni generali

##### · Aspetto:

**Forma:** Gas compresso

**Colore:** Chiaro

· **Odore:** Simile all'etere

· **Soglia olfattiva:** Non definito.

· **valori di pH:** Non definito.

##### · Cambiamento di stato

**Punto di fusione/punto di congelamento:** Non definito.

**Punto di ebollizione iniziale e intervallo di ebollizione:** -26,2 °C

· **Punto di infiammabilità:** Non applicabile.

· **Infiammabilità (solidi, gas):** Non definito.  
Non applicabile.

· **Temperatura di decomposizione:** Non definito.

· **Temperatura di autoaccensione:** Non definito.

· **Proprietà esplosive:** Non definito.

##### · Limiti di infiammabilità:

**Inferiore:** Non definito.

**Superiore:** Non definito.

· **Tensione di vapore a 20 °C:** 5.716 hPa

· **Densità a 20 °C:** 1,226 g/cm<sup>3</sup>

· **Densità relativa** Non definito.

· **Densità di vapore:** Non definito.

· **Velocità di evaporazione** Non applicabile.

· **Solubilità in/Miscibilità con acqua a 20 °C:** 1,93 g/l

· **Coefficiente di ripartizione: n-ottanolo/acqua:** Non definito.

##### · Viscosità:

**Dinamica a 20 °C:** 0,22 mPas

**Cinematica:** Non definito.

##### · Tenore del solvente:

**VOC (CE)** 0,00 %

**Contenuto solido:** 0,0 %

· **9.2 Altre informazioni** Non sono disponibili altre informazioni.

### SEZIONE 10: Stabilità e reattività

· **10.1 Reattività** Non sono disponibili altre informazioni.

· **10.2 Stabilità chimica**

· **Decomposizione termica/ condizioni da evitare:** Il prodotto non si decompone se utilizzato secondo le norme.

· **10.3 Possibilità di reazioni pericolose** Non sono note reazioni pericolose.

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- **10.4 Condizioni da evitare** Non sono disponibili altre informazioni.
- **10.5 Materiali incompatibili:** Non sono disponibili altre informazioni.
- **10.6 Prodotti di decomposizione pericolosi:** Non sono noti prodotti di decomposizione pericolosi.

### SEZIONE 11: Informazioni tossicologiche

- **11.1 Informazioni sugli effetti tossicologici**
- **Tossicità acuta** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Irritabilità primaria:**
- **Corrosione/irritazione cutanea** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Lesioni oculari gravi/irritazioni oculari gravi**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Sensibilizzazione respiratoria o cutanea**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)**
- **Mutagenicità delle cellule germinali**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Cancerogenicità** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità per la riproduzione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione singola**  
Può provocare sonnolenza o vertigini.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Pericolo in caso di aspirazione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

### SEZIONE 12: Informazioni ecologiche

- **12.1 Tossicità**
- **Tossicità acquatica:** Non sono disponibili altre informazioni.
- **12.2 Persistenza e degradabilità** Non sono disponibili altre informazioni.
- **12.3 Potenziale di bioaccumulo** Non sono disponibili altre informazioni.
- **12.4 Mobilità nel suolo** Non sono disponibili altre informazioni.
- **Ulteriori indicazioni in materia ambientale:**
- **Ulteriori indicazioni:**  
Pericolosità per le acque classe 1 (D) (Classif. secondo le liste): poco pericoloso  
Non immettere nelle acque freatiche, nei corsi d'acqua o nelle fognature non diluito o in grandi quantità.
- **12.5 Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.
- **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

### SEZIONE 13: Considerazioni sullo smaltimento

- **13.1 Metodi di trattamento dei rifiuti**
- **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.
- **Imballaggi non puliti:**
- **Consigli:** Smaltimento in conformità con le disposizioni amministrative.

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**SEZIONE 14: Informazioni sul trasporto**

· 14.1 Numero ONU · ADR, IMDG, IATA	UN3159
· 14.2 Nome di spedizione dell'ONU · ADR  · IMDG, IATA	3159 1,1,1,2-TETRAFLUOROETANO (GAS REFRIGERANTE R 134a) 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
· 14.3 Classi di pericolo connesso al trasporto · ADR, IMDG, IATA	
	
· Classe · Etichetta	2.2 2.2
· 14.5 Pericoli per l'ambiente:	Non applicabile.
· 14.6 Precauzioni speciali per gli utilizzatori · Numero EMS: · Stowage Category	Non applicabile. F-C,S-V A
· 14.7 Trasporto di rifiuti secondo l'allegato II di MARPOL ed il codice IBC	Non applicabile.
· Trasporto/ulteriori indicazioni:	
· ADR · Quantità limitate (LQ) · Quantità esenti (EQ)	120 ml Codice: E1 Quantità massima netta per imballaggio interno: 30 ml Quantità massima netta per imballaggio esterno: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	120 ml Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3159 1,1,1,2-TETRAFLUOROETANO (GAS REFRIGERANTE R 134A), 2.2

**SEZIONE 15: Informazioni sulla regolamentazione**

- 15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela
- Direttiva 2012/18/UE
- Sostanze pericolose specificate - ALLEGATO I La sostanza non è contenuta
- 15.2 Valutazione della sicurezza chimica: Una valutazione della sicurezza chimica non è stata effettuata.

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**SEZIONE 16: Altre informazioni**

*I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.*

**· Abbreviazioni e acronimi:**

*ADR: Accord européen sur le transport 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*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Press. Gas L: Gas sotto pressione – Gas liquefatto*

*STOT SE 3: Tossicità specifica per organi bersaglio (esposizione singola) – Categoria 3*

IT

# 물질안전보건자료

## GHS에 따라라따

기압점: 2019.01.10

개정: 2019.01.10

### 1 화학제품과 회사에 관한 정보

**제품제품제명**

- **제품명:** DUST-PRO DISPOSABLE
- **상품번호:** 70847-01, 70847-12
- **번호번호번호**  
811-97-2
- **EC 의번호:**  
212-377-0

해당 해당 물질이나 혼합물 관련 권고 및 사용 금지용도 추가적인 정보가 존재하지 않습니다.

- **제품의 권고 용도와 사용 생애를 제한 제한 시험 실험 학품**
- **안전데이터표(Safety Data Sheet) 내 공급 업체 권고 사항 정보**
- **제조사/수입자/유통 업체 정보 정보**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com

Samchang Commercial Co., Ltd.  
Yeo Eui Do  
PO Box 1110  
Seoul, Korea  
Tel: 82 2 703 3040  
Fax: 82 2 717 3298

Daedok Science, Co. Ltd.  
34141 E10 Korea Advanced Institute of Science  
Guseong-Dong, Yuseong-gu, Daejeon,  
Korea  
Phone: 82 42 710 2091  
Fax: 82 42 367 0005  
Website: www.labsmro.com

- **추가적인 정보: 제품 특성, 취급 가능** duct safety department
- **비상 연락 전화번호:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### 2 유해성·위험성

- **순물질 또는 혼합물 분류 분류**



가스 실린더

고압가스 – 액화 가스

H280 고압가스 포함: 가열하면 폭발할 수 있음



특정표적장기 독성 - 1회 노출 – 구분 3 H336 졸음 또는 현기증을 일으킬 수 있음

- **라벨 표기 요소 요소**
- **라벨 라벨 라벨 요소**

본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

(2 쪽에 계속)

# 물질안전보건자료 GHS에 따라라다

기압점: 2019.01.10

개정: 2019.01.10

**제품명: DUST-PRO DISPOSABLE**

(1 쪽부터계속)

**· 그림문자**



GHS04 GHS07

**· 신호어 경고**

**유해** 유해유압용문구

고압가스 포함: 가열하면 폭발할 수 있음

졸음 또는 현기증을 일으킬 수 있음

**· 예방조치** 문구문구

(분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.

흡입하면 신선한 공기가 있는 곳으로 옮기고 호흡하기 쉬운 자세로 안정을 취하십시오.

몸에 이상이 있을 시 독성물질 센터/병원 연락 필요.

잠금장치가 있는 저장장소에 저장하십시오.

직사광선을 피하고 환기가 잘 되는 곳에 보관하십시오.

현지/지역/국가/국제 규정에 따라서 내용물/용기 노출

기타기타 유해성

· PBT(잔류성, 생물농축성, 독성물질) 및 vPvB(고 잔류성, 고 생물농축성 물질)에 해당하지 않음

· PBT(잔류성, 생물농축성, 독성물질)에 해당하지 않음

· vPvB(고 잔류성, 고 생물농축성 물질)에 해당하지 않음

## 3 구성성분의 명칭 및 함유량

· 화학적 특성: 화학물질

· CAS-번호표시

811-97-2 1,1,1,2-tetrafluoroethane

식별식별번호

· EC 의번호: 212-377-0

## 4 응급조치 요령

· 응급조치외용 내용내용

· 흡입했을 때: 신선한 공기를 쉼, 통증이 있을 때는 의료진의 도움을 구한다.

· 피부에 접촉했을 때: 일반적으로 이 제품은 피부에 자극적이지 않다.

· 눈에 눈에 들어갔을 때: 흐르는 물에 눈을 몇분동안 씻어낸다.

· 먹었을 때: 증상이 지속될 경우에는 의사와 상담한다.

기타기타 외용 주의사항:

가장 가장 중요한 응급조치사항에 영향을 미치지 않습니다.

· 즉각적인 의료처치 및 특별처리가 필요함을 시사하는 징후 중 후속적인 정보가 존재하지 않습니다.

## 5 폭발·화재시 대처방법

· 소화제

· 적절한 소화제: 주변 환경에 맞는 화재 진화방법을 사용한다.

· 본 화학물질이나 혼합물에서 발생되는 특별한 위험성은 추가적인 정보가 존재하지 않습니다.

· 소방관에게 대한 대안사항

화재 화재 예방 및 안전을 위한 보호구 및 예방조치: 특별한 조치가 필요없음.

KR

(3 쪽에계속)

**제품명: DUST-PRO DISPOSABLE**

(2 쪽부터 계속)

### 6 누출 사고 시 대처방법

- 개인적 예방조치, 보호장비 및 응급 처치 절차 필요 없음.
- 환경 환경 안전 관리 조치: 하수도망/해수면 위 의 물 / 지하수로 도달 하지 않게 한다.
- 밀폐 밀봉 포장 상태 에서 화재 발생 시 소 재 소 처 별 한 조치 가 필요 없음.
- 식 식 전 섭취 를 삼 자
- 안전 관 리 에 대 한 정보 는 제 7 장 을 참 고 하 시 오.
- 개 인 보 호 장 비 에 대 한 정보 는 제 8 장 을 참 고 하 시 오.
- 쓰 레 기 처 리 에 대 한 정보 는 제 13 장 을 참 고 하 시 오.

### 7 취급 및 저장방법

- 취급 취급 취급
- 안전 안전 작업 을 위 한 예 방 조 치 을 바 르 게 사 용 할 경 우 에 는 특 별 한 주 의 가 필 요 없 다.
- 화 재 화 재 방 방 제 방 제 사 대 대 제 에 관 관 관 관 정보 보 별 한 조 치 가 필 요 없 음.
- 혼합 위험성 등 안전 표 지 장 치 장 조건
  - 보관 보관 보관
  - 안전 방 방 장 방 방 방 방 가 운 장 소 에 보 관 한 다.
  - 하 나 의 공 통 공 통 보 관 에 대 한 예 방 조 치 는 필 요 없 음
  - 보 관 조 건 에 관 한 주 가 정 보 정 보 폐 된 용 기 속 에 서 늘 하 고 건 조 하 게 보 관 한 다.
  - 구 체 적 최 종 처 리 자 주 가 적 인 정보 가 존 재 하지 않 습 니 다.

### 8 노출방지 및 개인보호구

- 첨단 시설 디자인 에 대 한 추 가 정 보: 더 이 상 의 자 료 는 없 음. 항 목 7 을 참 고 하 시 오.
- 통 제 통 제 통 제 변수
- |                                    |
|------------------------------------|
| · 화학 물질의 노출기준, 생물학적 노출기준 등:        |
| 811-97-2 1,1,1,2-tetrafluoroethane |
| WEEL (US) 장기간의 값: 1000 ppm         |
- 추 가 정 보 정 보 조 할 당 시 에 유 효 한 목 록 을 기 초 로 사 용 했 다.
- 노출 통 제 통 제 통 제
- 개 인 개 인 개 인 구
- 입 방 적 보 호 조 치 및 위 생 조 치: 휴 식 전 이 나 작 업 이 끝 날 때 마 다 손 을 씻 는 다.
  - 호흡 기 보 호 보 호 불 요 없 음.
  - 보 호 보 호 보 호
- 장갑 제 질 은 제 품 / 원 료 / 조 제 를 투 과 시 키 지 않 아 야 하 고, 내 구 성 이 있 어 야 한 다.
- 테 슷 를 하 지 않 았 기 때 문 에 제 품 / 조 제 / 화 학 혼 합 물 에 적 합 한 장 갑 제 질 에 대 한 추 천 이 없 다.
- 투 과 시 간, 침 투 을 과 저 하 를 고 려 해 서 장 갑 제 료 를 선 택 한 다.
- 장 갑 의 제 료
- 적 합 한 장 갑 의 선 정 은 재 질 차 이 뿐 아 니 라 품 질 기 준 의 차 이 도 고 려 하 여 이 루 어 져 야 하 고 제 조 업 자 에 따 라 서 도 다 르 게 선 정 되 어 야 한 다.
- 장 갑 제 료 의 투 과 시 간 정 확 한 관 통 시 간 은 보 호 장 갑 제 조 자 에 의 하여 인 지 되 고, 준수 되 어 야 한 다.
- 보 호 보 호 보 호 불 요 없 음.

# 물질안전보건자료 GHS에 따라

기압점: 2019.01.10

개정: 2019.01.10

**제품명: DUST-PRO DISPOSABLE**

(3 쪽부터 계속)

## 9 물리화학적 특성

기본 물리화학적 특성에 대한 정보

<b>일반정보</b>	
외형외형의형	압축가스
물량계상태상태	밝은
색:	에테르종류의
냄새냄새냄새	알맞지않다.
· 후각역치	
· pH:	알맞지않다.
· 상태변화	
녹는점/어는점:	맞지않는
초기초기끓는점과 끓는점범위범위	-26.2 °C
· 인화점:	해당사항 없음.
· 인화성고체기체기체	알맞지않다. 해당사항 없음.
분해분해온도	알맞지않다.
· 자기점화:	알맞지않다.
· 폭발위험:	알맞지않다.
인화안화안정폭발폭발폭발위험상한상한	하한
아래로:	알맞지않다.
위로위로위로	알맞지않다.
· 중기압 의경우 20 °C:	5,716 hPa
밀도밀도밀도경우 20 °C:	1.226 g/cm <sup>3</sup>
비중비중비중	알맞지않다.
· 중기밀도:	알맞지않다.
증발증발증발속도	해당사항 없음.
· 용해도:	
물 의경우 20 °C:	1.93 g/l
· n 옥탄올/물 분배계수:	알맞지않다.
점도점도점도	
역학성 의경우 20 °C:	0.22 mPas
동점성:	알맞지않다.
· 용매내용물	
VOC (EU)	0.00 %
고체양함량함량	0.0 %
기타 정보 정보	추가적인 정보가 존재하지 않습니다.

## 10 안정성 및 반응성

- 반응성 추가적인 정보가 존재하지 않습니다.
- 화학적 안정성
- 화학적 안정성 및 유해 반응의 가능성 / 피해 예방 조건 조건에 따라 사용할 경우 해체는 없다
- 유해반응 가능성 위험한 반응으로 알려지지 않았다.
- 피해 예방 조건 조건에 추가적인 정보가 존재하지 않습니다.

(5 쪽에 계속)



# 물질안전보건자료

## GHS에 따라 라다

기압점: 2019.01.10

개정: 2019.01.10

**제품명: DUST-PRO DISPOSABLE**

(5 쪽부터 계속)

**교통 규정/위험성 및 라벨**

- ADR, IMDG, IATA



등급 등급 등급

2.2

- 위험물 라벨라벨

2.2

- 환경적 유해물질:

해당사항 없음.

- 이동시 특별 취급 조치

해당사항 없음.

- EBC 번호 번호

F-C,S-V

- Stowage Category

A

- MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른

벌크 벌크 벌크 운송 운송 운송

해당사항 없음.

- 운송/취급/처분 정보

- ADR

한정 함량 (제한량 유량)

- Excepted quantities (EQ)

120 ml

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

- IMDG

- Limited quantities (LQ)

120 ml

- Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

- UN 번호/위험성/류제

UN 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A), 2.2

### 15 법적 규제 현황

- 산업안전보건법에 의해 규제

제조/제조/제조 금지 물질:

성분이 포함되어 있지 않다

- 허가대상 물질:

성분이 포함되어 있지 않다

- 관리대상 유해물질:

성분이 포함되어 있지 않다

해당 해당 물질 또는 혼합물에 대한 국내 안전보건 규정/환경 규정/법률

- Korean Existing Chemical Inventory

KE-33426

- 화학물질관리법

- 사고대비물질

성분이 포함되어 있지 않다

(7 쪽에 계속)

# 물질안전보건자료

## GHS에 따라라따

기압점: 2019.01.10

개정: 2019.01.10

**제품명: DUST-PRO DISPOSABLE**

(6 쪽부터계속)

**· 금지물질**

성분이포함되어있지않다

**· 제한물질**

성분이포함되어있지않다

**· 유독물질**

성분이포함되어있지않다

**· 허가물질**

성분이포함되어있지않다

**· 라벨 라벨 요소**

본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

**· 그림문자**



GHS04 GHS07

**· 신호어 경고**

**유해**

고압가스 포함: 가열하면 폭발할 수 있음  
 줄음 또는 현기증을 일으킬 수 있음

**· 예방 조치**

(분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.  
 흡입하면 신선한 공기가 있는 곳으로 옮기고 호흡하기 쉬운 자세로 안정을 취하십시오.  
 몸에 이상이 있을 시 독성물질 센터/병원 연락 필요.  
 잠금장치가 있는 저장장소에 저장하십시오.  
 직사광선을 피하고 환기가 잘 되는 곳에 보관하십시오.  
 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출

**· 화학물질 안전성 평가**

화학물질 안전성 평가가 수행되지 않음

### 16 그 밖의 참고사항

이 보고는 우리 지식에 대한 오늘날의 상태에 대하여 평가하고 있다, 하지만 이 보고서는 생산 특성에 관한 보증은 기술하지 않았으며 계약적인 법률 관계에 기반을 두고 있지 않다

최초 작성 일자: 2019.01.10

개정 일자: 1 / 2019.01.10

**· 약어와 두문자어:**

- ADR: Accord européen sur le transport 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
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative



# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 10.01.2019

Revisión: 10.01.2019

### SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

#### · 1.1 Identificador del producto

· **Nombre comercial:** DUST-PRO DISPOSABLE

· **Número del artículo:** 70847-01, 70847-12

· **Número CAS:**

811-97-2

· **Número CE:**

212-377-0

· **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**

No existen más datos relevantes disponibles.

· **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio

#### · 1.3 Datos del proveedor de la ficha de datos de seguridad

· **Fabricante/distribuidor:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: info@emsdiasum.com

www.emsdiasum.com

Aname

C/ Perez Galdos no. 2

28693 Quijorna

Madrid, Spain

Tel: +34.91.816.89.50

Fax: +34.91.816.85.94

email: ventas@aname.es

· **Área de información:** Product safety department

· **1.4 Teléfono de emergencia:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

### SECCIÓN 2: Identificación de los peligros

#### · 2.1 Clasificación de la sustancia o de la mezcla

· **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**



GHS04 bombona de gas

Press. Gas L H280 Contiene gas a presión; peligro de explosión en caso de calentamiento.



GHS07

STOT SE 3 H336 Puede provocar somnolencia o vértigo.

#### · 2.2 Elementos de la etiqueta

· **Etiquetado con arreglo al Reglamento (CE) n° 1272/2008**

La sustancia se ha clasificado y etiquetado de conformidad con el reglamento CLP.

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· **Pictogramas de peligro**

GHS04 GHS07

· **Palabra de advertencia** Atención· **Indicaciones de peligro**

H280 Contiene gas a presión; peligro de explosión en caso de calentamiento.

H336 Puede provocar somnolencia o vértigo.

· **Consejos de prudencia**

P261 Evitar respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

P304+P340 EN CASO DE INHALACIÓN: Transportar a la persona al aire libre y mantenerla en una posición que le facilite la respiración.

P312 Llamar a un CENTRO DE TOXICOLOGÍA/médico si la persona se encuentra mal.

P405 Guardar bajo llave.

P410+P403 Proteger de la luz del sol. Almacenar en un lugar bien ventilado.

P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.

· **2.3 Otros peligros**· **Resultados de la valoración PBT y mPmB**· **PBT:** No aplicable.· **mPmB:** No aplicable.

### SECCIÓN 3: Composición/información sobre los componentes

· **3.1 Caracterización química: Sustancias**· **Denominación N° CAS**

811-97-2 1,1,1,2-tetrafluoroethane

· **Número(s) de identificación**· **Número CE:** 212-377-0

### SECCIÓN 4: Primeros auxilios

· **4.1 Descripción de los primeros auxilios**· **En caso de inhalación del producto:** Suministrar aire fresco. En caso de trastornos, consultar al médico.· **En caso de contacto con la piel:** Por regla general, el producto no irrita la piel.· **En caso de con los ojos:** Limpiar los ojos abiertos durante varios minutos con agua corriente.· **En caso de ingestión:** Consultar un médico si los trastornos persisten.· **4.2 Principales síntomas y efectos, agudos y retardados** No existen más datos relevantes disponibles.· **4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente**  
No existen más datos relevantes disponibles.

### SECCIÓN 5: Medidas de lucha contra incendios

· **5.1 Medios de extinción**· **Sustancias extintoras apropiadas:** Combatir los incendios con medidas adaptados al ambiente circundante.· **5.2 Peligros específicos derivados de la sustancia o la mezcla** No existen más datos relevantes disponibles.

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- **5.3 Recomendaciones para el personal de lucha contra incendios**
- **Equipo especial de protección:** No se requieren medidas especiales.

### SECCIÓN 6: Medidas en caso de vertido accidental

- **6.1 Precauciones personales, equipo de protección y procedimientos de emergencia** No es necesario.
- **6.2 Precauciones relativas al medio ambiente:**  
Evitar que penetre en la canalización /aguas de superficie /agua subterráneas.
- **6.3 Métodos y material de contención y de limpieza:** No se requieren medidas especiales.
- **6.4 Referencia a otras secciones**  
Ver capítulo 7 para mayor información sobre una manipulación segura.  
Ver capítulo 8 para mayor información sobre el equipo personal de protección.  
Para mayor información sobre cómo desechar el producto, ver capítulo 13.

### SECCIÓN 7: Manipulación y almacenamiento

- **7.1 Precauciones para una manipulación segura**  
Si se manipulan correctamente, no se requieren medidas especiales.
- **Prevención de incendios y explosiones:** No se requieren medidas especiales.
- **7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades**
- **Almacenamiento:**
- **Exigencias con respecto al almacén y los recipientes:** Almacenar en un lugar fresco.
- **Normas en caso de un almacenamiento conjunto:** No es necesario.
- **Indicaciones adicionales sobre las condiciones de almacenamiento:**  
Almacenarlo en envases bien cerrados en un lugar fresco y seco.
- **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

### SECCIÓN 8: Controles de exposición/protección individual

- **Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:**  
Sin datos adicionales, ver punto 7.
- **8.1 Parámetros de control**
- **Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:** Nulo.
- **Indicaciones adicionales:** Como base se han utilizado las listas vigentes en el momento de la elaboración.
- **8.2 Controles de la exposición**
- **Equipo de protección individual:**
- **Medidas generales de protección e higiene:** Lavarse las manos antes de las pausas y al final del trabajo.
- **Protección respiratoria:** No es necesario.
- **Protección de manos:**  
El material del guante deberá ser impermeable y resistente al producto / sustancia / preparado.  
Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de sustancias químicas.  
Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.
- **Material de los guantes**  
La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro.
- **Tiempo de penetración del material de los guantes**  
El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.

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· **Protección de ojos:** No es necesario.

## SECCIÓN 9: Propiedades físicas y químicas

### · 9.1 Información sobre propiedades físicas y químicas básicas

#### · Datos generales

#### · Aspecto:

· **Forma:** Gas comprimido

· **Color:** Claro

· **Olor:** Etéreo

· **Umbral olfativo:** No determinado.

· **valor pH:** No determinado.

#### · Cambio de estado

· **Punto de fusión/punto de congelación:** Indeterminado.

· **Punto inicial de ebullición e intervalo de ebullición:** -26,2 °C

· **Punto de inflamación:** No aplicable.

· **Inflamabilidad (sólido, gas):** No determinado.

No aplicable.

· **Temperatura de descomposición:** No determinado.

· **Temperatura de auto-inflamación:** No determinado.

· **Propiedades explosivas:** No determinado.

#### · Límites de explosión:

· **Inferior:** No determinado.

· **Superior:** No determinado.

· **Presión de vapor a 20 °C:** 5.716 hPa

· **Densidad a 20 °C:** 1,226 g/cm<sup>3</sup>

· **Densidad relativa:** No determinado.

· **Densidad de vapor:** No determinado.

· **Tasa de evaporación:** No aplicable.

· **Solubilidad en / miscibilidad con agua a 20 °C:**

1,93 g/l

· **Coefficiente de reparto: n-octanol/agua:** No determinado.

#### · Viscosidad:

· **Dinámica a 20 °C:** 0,22 mPas

· **Cinemática:** No determinado.

#### · Concentración del disolvente:

· **VOC (CE)** 0,00 %

· **Contenido de cuerpos sólidos:** 0,0 %

· **9.2 Otros datos** No existen más datos relevantes disponibles.

## SECCIÓN 10: Estabilidad y reactividad

· **10.1 Reactividad** No existen más datos relevantes disponibles.

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- **10.2 Estabilidad química**
- **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
- **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.
- **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
- **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
- **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

### SECCIÓN 11: Información toxicológica

- **11.1 Información sobre los efectos toxicológicos**
- **Toxicidad aguda** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Efecto estimulante primario:**
- **Corrosión o irritación cutáneas** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Lesiones o irritación ocular graves**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Sensibilización respiratoria o cutánea**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción)**
- **Mutagenicidad en células germinales**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Carcinogenicidad** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad para la reproducción** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad específica en determinados órganos (STOT) – exposición única**  
Puede provocar somnolencia o vértigo.
- **Toxicidad específica en determinados órganos (STOT) – exposición repetida**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Peligro de aspiración** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

### SECCIÓN 12: Información ecológica

- **12.1 Toxicidad**
- **Toxicidad acuática:** No existen más datos relevantes disponibles.
- **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.
- **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
- **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
- **Indicaciones medioambientales adicionales:**
- **Indicaciones generales:**  
Nivel de riesgo para el agua 1 (clasificación de listas): escasamente peligroso para el agua  
En estado no diluido o no neutralizado, no dejar que se infiltre en aguas subterráneas, aguas superficiales o en alcantarillados.
- **12.5 Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.
- **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

### SECCIÓN 13: Consideraciones relativas a la eliminación

- **13.1 Métodos para el tratamiento de residuos**
- **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.

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- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.

### SECCIÓN 14: Información relativa al transporte

· 14.1 Número ONU

· ADR, IMDG, IATA

UN3159

· 14.2 Designación oficial de transporte de las Naciones Unidas

· ADR

3159 1,1,1,2-TETRAFLUOROETANO (GAS REFRIGERANTE R 134a)

· IMDG, IATA

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

· 14.3 Clase(s) de peligro para el transporte

· ADR, IMDG, IATA



· Clase

2.2

· Etiqueta

2.2

· 14.5 Peligros para el medio ambiente:

No aplicable.

· 14.6 Precauciones particulares para los usuarios

No aplicable.

· Número EMS:

F-C,S-V

· Stowage Category

A

· 14.7 Transporte a granel con arreglo al anexo II del Convenio MARPOL y el Código IBC

No aplicable.

· Transporte/datos adicionales:

· ADR

· Cantidades limitadas (LQ)

120 ml

· Cantidades exceptuadas (EQ)

Código: E1

Cantidad neta máxima por envase interior: 30 ml

Cantidad neta máxima por embalaje exterior: 1000 ml

· IMDG

· Limited quantities (LQ)

120 ml

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· "Reglamentación Modelo" de la UNECE:

UN 3159 1,1,1,2-TETRAFLUOROETANO (GAS REFRIGERANTE R 134A), 2.2

ES

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### SECCIÓN 15: Información reglamentaria

- **15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla**
- **Directiva 2012/18/UE**
- **Sustancias peligrosas nominadas - ANEXO I** No contiene la sustancia.
- **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

### SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contractual.

#### · **Abreviaturas y acrónimos:**

ADR: Accord européen sur le transport 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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Press. Gas L: Gases a presión – Gas licuado

STOT SE 3: Toxicidad específica en determinados órganos ( exposición única) – Categoría 3