

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

1 Identification

- **Product identifier**
- **Trade name:** Dust-Off Plus Model (DPSA) plus refill
- **Article number:** 70840, 70843, 70844
- **CAS Number:**
75-37-6
- **EC number:**
200-866-1
- **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
- **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**



GHS02 Flame

Flammable Liquids 1

H224 Extremely flammable liquid and vapor.



GHS07

Acute Toxicity - Inhalation 4

H332 Harmful if inhaled.

Specific Target Organ Toxicity - Single Exposure 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**



GHS02 GHS07

- **Signal word** Danger
- **Hazard statements**
Extremely flammable liquid and vapor.
Harmful if inhaled.
May cause drowsiness or dizziness.
- **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 1)

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

Call a poison center/doctor if you feel unwell.

In case of fire: Use CO₂, powder or water spray to extinguish.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 4

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 0

Fire = 4

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**

75-37-6 1,1-difluoroethane

· **Identification number(s)**

· **EC number:** 200-866-1

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

· **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.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 2)

- **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:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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**

· PAC-1:	
	10,000 ppm

· PAC-2:	
	15,000 ppm

· PAC-3:	
	25,000 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **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.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 3)

- **Further information about storage conditions:**
 - Keep receptacle tightly sealed.
 - Do not gas tight seal receptacle.
 - Store in cool, dry conditions in well sealed receptacles.
 - Protect from heat and direct sunlight.
- **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:**
 - Keep away from foodstuffs, beverages and feed.
 - Wash hands before breaks and at the end of work.
- **Breathing equipment:**
 - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **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:**



Tightly sealed goggles

9 Physical and chemical properties

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

Form:	Gaseous
Color:	Clear
Odor:	Ether-like
Odor threshold:	Not determined.
- **pH-value:** Not determined.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 4)

· Change in condition	
Melting point/Melting range:	-117 °C (-178.6 °F)
Boiling point/Boiling range:	-26.5 °C (-15.7 °F)
· Flash point:	<23 °C (<73.4 °F)
· Flammability (solid, gaseous):	Not determined.
· Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	4.9 Vol %
Upper:	20.2 Vol %
· Vapor pressure at 20 °C (68 °F):	5,100 hPa (3.800 mm Hg)
· Density at 20 °C (68 °F):	0.9 g/cm ³ (7.5105 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water at 20 °C (68 °F):	5 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
VOC content:	0.00 %
Solids content:	0.0 %
· 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.

US
(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 5)

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

75-37-6 1,1-difluoroethane

Inhalative	LC50/4 h	977 mg/l (mouse)
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- **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:** Not hazardous for water.

- **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.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

US

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS




Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 6)

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA 	<p style="margin: 0;">UNI030</p>	
<ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR · IMDG, IATA 	<p style="margin: 0;">1,1-Difluoroethane 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a) 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)</p>	
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center; margin-bottom: 10px;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">2.1 Gases 2.1</p>
<ul style="list-style-type: none"> · ADR 	<div style="text-align: center; margin-bottom: 10px;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">2 2F Gases 2.1</p>
<ul style="list-style-type: none"> · IMDG, IATA 	<div style="text-align: center; margin-bottom: 10px;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">2.1 Gases 2.1</p>
<ul style="list-style-type: none"> · Packing group · DOT, ADR, IMDG, IATA 	<p style="margin: 0;">Void</p>	
<ul style="list-style-type: none"> · Environmental hazards: 	<p style="margin: 0;">Not applicable.</p>	
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category · Stowage Code 	<p style="margin: 0;">Warning: Gases 23 2-07 B SW2 Clear of living quarters.</p>	
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code 	<p style="margin: 0;">Not applicable.</p>	
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	<p style="margin: 0;">On passenger aircraft/rail: Forbidden On cargo aircraft only: 150 kg</p>	

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 7)

· ADR	
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152A), 2.1

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

· **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):**

ACTIVE

· **Hazardous Air Pollutants**

Substance is not 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)**

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).

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 8)

· **Hazard pictograms**



GHS02 GHS07

· **Signal word** *Danger*

· **Hazard statements**

Extremely flammable liquid and vapor.

Harmful if inhaled.

May cause drowsiness or dizziness.

· **Precautionary statements**

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

Call a poison center/doctor if you feel unwell.

In case of fire: Use CO2, powder or water spray to extinguish.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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.

· **Contact:**

· **Date of preparation / last revision** 05/09/2022 / -

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

Flammable Liquids 1: Flammable liquids – Category 1

Acute Toxicity - Inhalation 4: Acute toxicity – Category 4

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

(Contd. of page 9)

US

Safety Data Sheet

according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

1 Identification

· **Product identifier**

· **Trade name:** Dust-Off Plus Model (DPSA) plus refill

· **Article number:** 70840, 70843, 70844

· **CAS Number:**

75-37-6

· **EC number:**

200-866-1

· **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**



GHS02 flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

STOT SE 3 H336 May cause drowsiness or dizziness.

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 1)

- **Label elements**

- **GHS label elements**

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

- **Hazard pictograms**



GHS02 GHS07

- **Signal word** *Danger*

- **Hazard statements**

Extremely flammable liquid and vapour.

Harmful if inhaled.

May cause drowsiness or dizziness.

- **Precautionary statements**

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

In case of fire: Use CO₂, powder or water spray for extinction.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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**

75-37-6 1,1-difluoroethane

- **Identification number(s)**

- **EC number:** 200-866-1

4 First Aid Measures

- **Description of first aid measures**

- **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

(Contd. on page 3)

Safety Data Sheet according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 2)

- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **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:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **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:**
Keep container tightly sealed.
Do not seal receptacle gas tight.
Store in cool, dry conditions in well sealed receptacles.

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 3)

- Protect from heat and direct sunlight.
- **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:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **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:**



Tightly sealed goggles

9 Physical and Chemical Properties

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

Form:	Gaseous
Colour:	Clear
Odour:	Ether-like
Odour threshold:	Not determined.
- **pH-value:** Not determined.
- **Change in condition**

Melting point/freezing point:	-117 °C
Initial boiling point and boiling range:	-26.5 °C
- **Flash point:** <23 °C

(Contd. on page 5)

Safety Data Sheet according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 4)

· Flammability (solid, gas):	Not determined.
· Decomposition temperature:	Not determined.
· Auto-ignition temperature:	Not determined.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
Lower:	4.9 Vol %
Upper:	20.2 Vol %
· Vapour pressure at 20 °C:	5,100 hPa
· Density at 20 °C:	0.9 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water at 20 °C:	5 g/l
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solids content:	0.0 %
· 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**

· **LD/LC50 values relevant for classification:**

75-37-6 1,1-difluoroethane

Inhalative LC50/4 h 977 mg/l (mouse)

- **Primary irritant effect:**
- **Skin corrosion/irritation** No irritant effect.
- **Serious eye damage/irritation** No irritating effect.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 5)

· **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:** Not hazardous for water.
- **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.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · UN-Number · ADG, IMDG, IATA | <p style="text-align: center;">UNI030</p> |
| <ul style="list-style-type: none"> · UN proper shipping name · ADG · IMDG, IATA | <p style="text-align: center;">1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)</p> <p style="text-align: center;">1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)</p> |
| <ul style="list-style-type: none"> · Transport hazard class(es) · ADG | <div style="text-align: center;">  </div> |
| <ul style="list-style-type: none"> · Class · Label | <p style="text-align: center;">2 2F Gases.</p> <p style="text-align: center;">2.1</p> |

(Contd. on page 7)

Safety Data Sheet

according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 6)

· **IMDG, IATA**

· **Class** 2.1 Gases.
 · **Label** 2.1

· **Packing group**
 · **ADG, IMDG, IATA** not regulated

· **Environmental hazards:** Not applicable.

· **Special precautions for user** Warning: Gases.
 · **Hazard identification number (Kemler code):** 23
 · **EMS Number:** 2-07
 · **Stowage Category** B
 · **Stowage Code** SW2 Clear of living quarters.

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

· **Transport/Additional information:**

· **ADG**
 · **Limited quantities (LQ)** 0
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity
 · **Transport category** 2
 · **Tunnel restriction code** B/D

· **IMDG**
 · **Limited quantities (LQ)** 0
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity

· **UN "Model Regulation":** UN 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152A), 2.1

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Australian Inventory of Industrial Chemicals**

Substance is listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

Substance is not listed.

· **Australia: Priority Existing Chemicals**

Substance is not listed.

· **GHS label elements**

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

(Contd. on page 8)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 7)

· **Hazard pictograms**



GHS02 GHS07

· **Signal word** *Danger*

· **Hazard statements**

Extremely flammable liquid and vapour.

Harmful if inhaled.

May cause drowsiness or dizziness.

· **Precautionary statements**

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

In case of fire: Use CO2, powder or water spray for extinction.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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.*

· **Seveso category** *P5a FLAMMABLE LIQUIDS*

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** *10 t*

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** *50 t*

· **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.

· **Contact:**

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Flammable liquids – Category 1

Acute Tox. 4: Acute toxicity – Category 4

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

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

1 Identification

- **Product identifier**
- **Trade name:** Dust-Off Plus Model (DPSA) plus refill
- **Article number:** 70840, 70843, 70844
- **CAS Number:**
75-37-6
- **EC number:**
200-866-1
- **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
- **Information department:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids - Category 1

H224 Extremely flammable liquid and vapour.



GHS07

Acute Toxicity (Inhalation) - Category 4

H332 Harmful if inhaled.

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**



GHS02



GHS07

- **Signal word** Danger

- **Hazard statements**

Extremely flammable liquid and vapour.

Harmful if inhaled.

May cause drowsiness or dizziness.

- **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Contd. on page 2)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 1)

Ground and bond container and receiving equipment.
 Use explosion-proof [electrical/ventilating/lighting] equipment.
 Use non-sparking tools.
 Take actions to prevent static discharges.
 Avoid breathing dust/fume/gas/mist/vapours/spray.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves/protective clothing/eye protection/face protection.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 Call a poison center/doctor if you feel unwell.
 In case of fire: Use CO₂, powder or water spray to extinguish.
 Store in a well-ventilated place. Keep container tightly closed.
 Store in a well-ventilated place. Keep cool.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



3 Composition/Information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
75-37-6 1,1-difluoroethane
- **Identification number(s)**
- **EC number: 200-866-1**

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **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.

(Contd. on page 3)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **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:**
Keep receptacle tightly sealed.
Do not gas tight seal receptacle.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **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.

(Contd. on page 4)

CA

Safety Data Sheet according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 3)

- **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:**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **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:**



Tightly sealed goggles

9 Physical and chemical properties

- | | |
|--|--|
| · Information on basic physical and chemical properties | |
| · General Information | |
| · Appearance: | |
| Form: | Gaseous |
| Color: | Clear |
| Odor: | Ether-like |
| Odor threshold: | Not determined. |
| pH-value: | Not determined. |
| · Change in condition | |
| Melting point/Melting range: | -117 °C |
| Boiling point/Boiling range: | -26.5 °C |
| Flash point: | <23 °C |
| Flammability (solid, gaseous): | Not determined. |
| Decomposition temperature: | Not determined. |
| Auto igniting: | Not determined. |
| Danger of explosion: | Product is not explosive. However, formation of explosive air/vapor mixtures are possible. |

(Contd. on page 5)

CA

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 4)

· Explosion limits:	
Lower:	4.9 Vol %
Upper:	20.2 Vol %
· Vapor pressure at 20 °C:	5,100 hPa
· Density at 20 °C:	0.9 g/cm ³
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with Water at 20 °C:	5 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solids content:	0.0 %
· 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:**

· LD/LC50 values that are relevant for classification:
75-37-6 1,1-difluoroethane
Inhalative LC50/4 h 977 mg/l (mouse)

- **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.

(Contd. on page 6)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 5)

· **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:** Not hazardous for water.
- **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.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|---|--|
| · UN-Number | |
| · DOT/TDG, ADR, IMDG, IATA | UNI030 |
| · UN proper shipping name | |
| · DOT/TDG | 1,1-Difluoroethane |
| · ADR | 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a) |
| · IMDG, IATA | 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a) |
| · Transport hazard class(es) | |
| · DOT/TDG (Transport dangerous goods): | |
|  | |
| · Class | 2.1 Gases |

(Contd. on page 7)

CA

Safety Data Sheet



according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 6)

· Label	2.1
· ADR	
	
· Class	2 2F Gases
· Label	2.1
· IMDG, IATA	
	
· Class	2.1 Gases
· Label	2.1
· Packing group	
· DOT/TDG, ADR, IMDG, IATA	Void
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Gases
· Hazard identification number (Kemler code):	23
· EMS Number:	2-07
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT/TDG	
· Quantity limitations	On passenger aircraft/rail: Forbidden On cargo aircraft only: 150 kg
· ADR	
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152A), 2.1

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

(Contd. on page 8)

CA

Safety Data Sheet according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 7)

· **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):**

ACTIVE

· **Canadian substance listings:**· **Canadian Domestic Substances List (DSL)**

Substance is listed.

· **Canadian Non-Domestic Substances List (NDSL)**

Substance is not 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**

GHS02 GHS07

· **Signal word** Danger· **Hazard statements**

Extremely flammable liquid and vapour.

Harmful if inhaled.

May cause drowsiness or dizziness.

· **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground and bond container and receiving equipment.

Use explosion-proof [electrical/ventilating/lighting] equipment.

Use non-sparking tools.

Take actions to prevent static discharges.

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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

Call a poison center/doctor if you feel unwell.

In case of fire: Use CO₂, powder or water spray to extinguish.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

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

CA

(Contd. on page 9)

Safety Data Sheet
according to HPR, Schedule 1

Printing date 05/09/2022

Reviewed on 05/09/2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 8)

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.

- **Contact:**
- **Date of the latest revision of the safety data sheet** 05/09/2022 / -
- **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)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative

CA

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

Printing date 09.05.2022

Revision: 09.05.2022

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

- **1.1 Product identifier**
- **Trade name:** Dust-Off Plus Model (DPSA) plus refill
- **Article number:** 70840, 70843, 70844
- **CAS Number:**
75-37-6
- **EC number:**
200-866-1
- **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**



flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.



Acute Tox. 4 H332 Harmful if inhaled.

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**



GHS02 GHS07

- **Signal word** Danger
- **Hazard statements**
H224 Extremely flammable liquid and vapour.
H332 Harmful if inhaled.

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 1)

H336 May cause drowsiness or dizziness.

· **Precautionary statements**

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P241 Use explosion-proof [electrical/ventilating/lighting] equipment.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
- P405 Store locked up.
- 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**

75-37-6 1,1-difluoroethane

· **Identification number(s)**

· **EC number:** 200-866-1

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

· **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:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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

· **5.3 Advice for firefighters**

· **Protective equipment:** Mouth respiratory protective device.

GB

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 2)

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** *No special measures required.*
- **6.3 Methods and material for containment and cleaning up:**
*Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.*
- **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.*

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
*Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.*
- **Information about fire - and explosion protection:**
*Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.*
- **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:**
*Keep container tightly sealed.
Do not seal receptacle gas tight.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.*
- **7.3 Specific end use(s)** *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** *No further data; see item 7.*
- **Ingredients with limit values that require monitoring at the workplace:** *Not required.*
- **Additional information:** *The lists valid during the making were used as basis.*
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
*Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.*
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **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.*

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: Dust-Off Plus Model (DPSA) plus refill

(Contd. of page 3)

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:**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form: Gaseous

Colour: Clear

· **Odour:** Ether-like

· **Odour threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/freezing point: -117 °C

Initial boiling point and boiling range: -26.5 °C

· **Flash point:** <23 °C

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

· **Decomposition temperature:** Not determined.

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

· **Explosive properties:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· **Explosion limits:**

Lower: 4.9 Vol %

Upper: 20.2 Vol %

· **Vapour pressure at 20 °C:** 5,100 hPa

· **Density at 20 °C:** 0.9 g/cm³

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

water at 20 °C: 5 g/l

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

· **Viscosity:**

Dynamic: Not determined.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 4)

Kinematic:	Not determined.
Solids content:	0.0 %
· 9.2 Other information	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**
Harmful if inhaled.

- **LD/LC50 values relevant for classification:**

75-37-6 1,1-difluoroethane

Inhalative	LC50/4 h	977 mg/l (mouse)
------------	----------	------------------

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **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.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, 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:** Not hazardous for water.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

(Contd. on page 6)

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

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 5)

· **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.· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· **14.1 UN-Number**· **ADR, IMDG, IATA**

UN1030

· **14.2 UN proper shipping name**· **ADR**

1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)

· **IMDG, IATA**

1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)

· **14.3 Transport hazard class(es)**· **ADR**· **Class**

2 2F Gases.

· **Label**

2.1

· **IMDG, IATA**· **Class**

2.1 Gases.

· **Label**

2.1

· **14.4 Packing group**· **ADR, IMDG, IATA**

not regulated

· **14.5 Environmental hazards:**

Not applicable.

· **14.6 Special precautions for user**

Warning: Gases.

· **Hazard identification number (Kemler code):**

23

· **EMS Number:**

2-07

· **Stowage Category**

B

· **Stowage Code**

SW2 Clear of living quarters.

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

Not applicable.

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 09.05.2022

Revision: 09.05.2022

Trade name: **Dust-Off Plus Model (DPSA) plus refill**

(Contd. of page 6)

· **Transport/Additional information:**

· **ADR**

- **Limited quantities (LQ)** 0
- **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity
- **Transport category** 2
- **Tunnel restriction code** B/D

· **IMDG**

- **Limited quantities (LQ)** 0
- **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity

- **UN "Model Regulation":** UN 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152A), 2.1

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.
- **Seveso category P5a** FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 10 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50 t
- **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 relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Flammable liquids – Category 1

Acute Tox. 4: Acute toxicity – Category 4

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

Veiligheidsinformatieblad volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

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

- **1.1 Productidentificatie**
- **Handelsnaam:** Dust-Off Plus Model (DPSA) plus refill
- **Artikelnummer:** 70840, 70843, 70844
- **CAS-nummer:**
75-37-6
- **EC-nummer:**
200-866-1
- **UFI:** M2T1-P0G9-100Q-SY4H
- **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**



GHS02 vlam

Flam. Liq. 1 H224 Zeer licht ontvlambare vloeistof en damp.



GHS07

Acute Tox. 4 H332 Schadelijk bij inademing.

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

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: Dust-Off Plus Model (DPSA) plus refill

(Vervolg van blz. 1)

Gevarenpictogrammen


GHS02 GHS07

Signaalwoord Gevaar
Gevarenaanduidingen

H224 Zeer licht ontvlambare vloeistof en damp.

H332 Schadelijk bij inademing.

H336 Kan slaperigheid of duizeligheid veroorzaken.

Veiligheidsaanbevelingen

P210 Verwijderd houden van warmte, hete oppervlakken, vonken, open vuur en andere ontstekingsbronnen. Niet roken.

P241 Explosieveilige [elektrische/ventilatie-/verlichtings-]apparatuur gebruiken.

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

P303+P361+P353 BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen [of afdouchen].

P405 Achter slot 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

75-37-6 1,1-difluorethaan

Identificatienummer(s)

EC-nummer: 200-866-1

RUBRIEK 4: Eerstehulpmaatregelen

4.1 Beschrijving van de eerstehulpmaatregelen
Algemene informatie:

Het is mogelijk dat vergiftigingssymptomen pas na vele uren optreden. Om deze reden is medische controle gedurende minstens 48 uur na een ongeval noodzakelijk.

Na het inademen:

Frisse lucht toedienen, eventueel beademing, warmte. Wanneer de klachten niet ophouden, een arts raadplegen.

Bij bewusteloosheid ligging en vervoer in stabiele zijligging.

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.

NL

(Vervolg op blz. 3)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: *Dust-Off Plus Model (DPSA) plus refill*

(Vervolg van blz. 2)

RUBRIEK 5: Brandbestrijdingsmaatregelen

- **5.1 Blusmiddelen**
- **Geschikte blusmiddelen:**
CO₂, bluspoeder of waterstraal. Grotere brand met waterstraal bestrijden of met schuim, dat tegen alcohol bestand is.
- **5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**
Geen verdere relevante informatie verkrijgbaar.
- **5.3 Advies voor brandweerlieden**
- **Speciale beschermende kleding:** Ademhalingstoestel aantrekken.

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

- **6.1 Persoonlijke voorzorgsmaatregelen, beschermingsmiddelen en noodprocedures**
Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.
- **6.2 Milieuvoorzorgsmaatregelen:** Geen speciale maatregelen noodzakelijk.
- **6.3 InsluTINGS- en reinigingsmethoden en -materiaal:**
Besmet materiaal zoals afval volgens punt 13 verwijderen.
Voor voldoende ventilatie zorgen.
- **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**
Voor goede ventilatie/afzuiging op de werkplaatsen zorgen.
Tanks voorzichtig openen en behandelen.
- **Informatie m.b.t. brand- en ontploffingsgevaar:**
Onststekingsbronnen op afstand houden - niet roken.
Beschermen tegen hitte.
Maatregelen treffen tegen ontlading van statische elektriciteit.
- **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:**
Tanks ondoordringbaar gesloten houden.
Tanks niet gasdicht afsluiten.
Koel en droog bewaren in goed gesloten vaten.
Tegen hitte en directe zonnestralen beschermen.
- **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

- **8.1 Controleparameters**
- **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.
- **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.

(Vervolg op blz. 4)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: Dust-Off Plus Model (DPSA) plus refill

(Vervolg van blz. 3)

- **8.2 Maatregelen ter beheersing van blootstelling**
- **Persoonlijke beschermingsvoorzieningen:**
- **Algemene beschermings- en gezondheidsmaatregelen:**
Verwijderd houden van eet- en drinkwaren.
Vóór de pauze en aan het einde van werktijd handen wassen.
- **Ademhalingsbescherming:**
Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingsstoestel gebruiken.
- **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 chemicaliënmengsel 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:**



Nauw aansluitende veiligheidsbril

RUBRIEK 9: Fysische en chemische eigenschappen

- **9.1 Informatie over fysische en chemische basiseigenschappen**
- **Algemene gegevens**
- **Voorkomen:**

Vorm:	Gasvormig
Kleur:	Helder
Geur:	Etherachtig
Geurdrempelwaarde:	Niet bepaald.
- **pH-waarde:** Niet bepaald.
- **Toestandsverandering**

Smelt-/vriespunt:	-117 °C
Beginkookpunt en kooktraject:	-26,5 °C
- **Vlampunt:** <23 °C
- **Ontvlambaarheid (vast, gas):** Niet bepaald.
- **Ontledingstemperatuur:** Niet bepaald.
- **Zelfontbrandingstemperatuur:** Niet bepaald.
- **Ontploffingseigenschappen:** Het produkt is niet ontploffingsgevaarlijk, maar de vorming van ontploffingsgevaarlijke damp-/luchtmengsels is mogelijk.
- **Ontploffingsgrenzen:**

Onderste:	4,9 Vol %
Bovenste:	20,2 Vol %

(Vervolg op blz. 5)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: *Dust-Off Plus Model (DPSA) plus refill*

(Vervolg van blz. 4)

· Dampspanning bij 20 °C:	5.100 hPa
· Dichtheid bij 20 °C:	0,9 g/cm ³
· Relatieve dichtheid	Niet bepaald.
· Dampdichtheid	Niet bepaald.
· Verdampingsnelheid	Niet bruikbaar.
· Oplosbaarheid in/mengbaarheid met Water bij 20 °C:	5 g/l
· Verdelingscoëfficiënt: n-octanol/water:	Niet bepaald.
· Viscositeit	
Dynamisch:	Niet bepaald.
Kinematisch:	Niet bepaald.
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.
- **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**
Schadelijk bij inademing.

· Indelingsrelevantie LD/LC50-waarden:
75-37-6 1,1-difluorethaan
Inhalatief LC50/4 h 977 mg/l (mouse)

- **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.
- **Aanvullende toxicologische informatie:**
- **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.

(Vervolg op blz. 6)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: **Dust-Off Plus Model (DPSA) plus refill**

(Vervolg van blz. 5)

· **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
Over het algemeen geen gevaar voor water
- **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 terecht komen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.
- **Aanbevolen reinigingsmiddel:** Water, eventueel met toevoeging van reinigingsmiddelen.

RUBRIEK 14: Informatie met betrekking tot het vervoer

- **14.1 VN-nummer**
- **ADR, IMDG, IATA** UNI030
- **14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN**
- **ADR** 1030 1,1-DIFLUORETHAAN (KOELGAS R 152A)
- **IMDG, IATA** 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)
- **14.3 Transportgevarenklasse(n)**
- **ADR**
- 
- **klasse** 2 2F Gassen
- **Etiket** 2.1
- **IMDG, IATA**
- 
- **Class** 2.1 Gassen

(Vervolg op blz. 7)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: Dust-Off Plus Model (DPSA) plus refill

(Vervolg van blz. 6)

· Label	2.1
· 14.4 Verpakkingsgroep: · ADR, IMDG, IATA	Niet van toepassing
· 14.5 Milieugevaren:	Niet bruikbaar.
· 14.6 Bijzondere voorzorgen voor de gebruiker · Gevaarsidentificatienummer (Kemler-getal): · EMS-nummer: · Stowage Category · Stowage Code	Waarschuwing: Gassen 23 2-07 B SW2 Clear of living quarters.
· 14.7 Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code	Niet bruikbaar.
· Transport/verdere gegevens:	
· ADR · Beperkte hoeveelheden (LQ) · Uitgezonderde hoeveelheden (EQ)	0 Code: E0 Niet toegestaan als vrijgestelde hoeveelheid
· Vervoerscategorie · Tunnelbeperkingscode	2 B/D
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	0 Code: E0 Not permitted as Excepted Quantity
· VN "Model Regulation":	UN 1030 1,1-DIFLUORETHAAN (KOELGAS R 152A), 2.1

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.

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

De stof is niet aanwezig.

· **Lijst Zeer Zorgwekkende Stoffen (ZZS)**

De stof is niet aanwezig.

· **Lijst van Potentieel Zeer Zorgwekkende Stoffen**

De stof is niet aanwezig.

· **Richtlijn 2012/18/EU**

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

· **Seveso-categorie P5a ONTVLAMBARE VLOEISTOFFEN**

(Vervolg op blz. 8)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 09.05.2022

Herziening van: 09.05.2022

Handelsnaam: Dust-Off Plus Model (DPSA) plus refill

(Vervolg van blz. 7)

- **Drempelwaarde (ton) voor toepassing van voorschriften voor lagedrempelinrichtingen 10 t**
- **Drempelwaarde (ton) voor toepassing van voorschriften voor hogedrempelinrichtingen 50 t**

· **Richtlijn 2011/65/EU betreffende beperking van het gebruik van bepaalde gevaarlijke stoffen in elektrische en elektronische apparatuur - Bijlage II**

De stof is niet aanwezig.

· **VERORDENING (EU) 2019/1148**

· **Bijlage I - PRECURSOREN VOOR EXPLOSIEVEN WAARVOOR EEN BEPERKING GELDT (Bovengrenswaarde ten behoeve van vergunningverlening op grond van artikel 5, lid 3)**

De stof is niet aanwezig.

· **Bijlage II - PRECURSOREN VOOR EXPLOSIEVEN DIE MOETEN WORDEN GEMELD**

De stof is niet aanwezig.

· **Verordening (EG) nr. 273/2004 inzake drugsprecursoren**

De stof is niet aanwezig.

· **Verordening (EG) Nr. 111/2005 houdende voorschriften voor het toezicht op de handel tussen de Gemeenschap en derde landen in drugsprecursoren**

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 relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Ontvlambare vloeistoffen – Categorie 1

Acute Tox. 4: Acute toxiciteit – Categorie 4

STOT SE 3: Specifieke doelorgaan toxiciteit bij eenmalige blootstelling – Categorie 3

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

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

- **1.1 Identificateur de produit**
- **Nom du produit:** *Dust-Off Plus Model (DPSA) plus refill*
- **Code du produit:** 70840, 70843, 70844
- **No CAS:**
75-37-6
- **Numéro CE:**
200-866-1
- **UFI:** M2T1-P0G9-100Q-SY4H
- **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**



GHS02 flamme

Flam. Liq. 1 H224 Liquide et vapeurs extrêmement inflammables.



GHS07

Acute Tox. 4 H332 Nocif par inhalation.

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**



GHS02 GHS07

- **Mention d'avertissement** *Danger*
- **Mentions de danger**
*H224 Liquide et vapeurs extrêmement inflammables.
H332 Nocif par inhalation.*

(suite page 2)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 1)

H336 Peut provoquer somnolence ou vertiges.

· **Conseils de prudence**

P210 Tenir à l'écart de la chaleur, des surfaces chaudes, des étincelles, des flammes nues et de toute autre source d'inflammation. Ne pas fumer.

P241 Utiliser du matériel [électrique/de ventilation/d'éclairage] antidéflagrant.

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

P303+P361+P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau [ou se doucher].

P405 Garder sous clef.

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**

75-37-6 1,1-difluoroéthane

· **Code(s) d'identification**

· **Numéro CE:** 200-866-1

RUBRIQUE 4: Premiers secours

· **4.1 Description des premiers secours**

· **Remarques générales:**

Les symptômes d'intoxication peuvent apparaître après de nombreuses heures seulement; une surveillance médicale est donc nécessaire au moins 48 heures après un accident.

· **Après inhalation:**

Donner de l'air frais. Assistance respiratoire si nécessaire. Tenir le malade au chaud. Si les troubles persistent, consulter un médecin.

En cas d'inconscience, coucher et transporter la personne en position latérale stable.

· **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:**

CO₂, poudre d'extinction ou eau pulvérisée. Combattre les foyers importants avec de l'eau pulvérisée ou de la mousse résistant à l'alcool.

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

Pas d'autres informations importantes disponibles.

(suite page 3)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 2)

- **5.3 Conseils aux pompiers**
- **Équipement spécial de sécurité:** Porter un appareil de protection respiratoire.

RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

- **6.1 Précautions individuelles, équipement de protection et procédures d'urgence**
Porter un équipement de sécurité. Eloigner les personnes non protégées.
- **6.2 Précautions pour la protection de l'environnement:** Aucune mesure particulière n'est requise.
- **6.3 Méthodes et matériel de confinement et de nettoyage:**
Evacuer les matériaux contaminés en tant que déchets conformément au point 13.
Assurer une aération suffisante.
- **6.4 Référence à d'autres rubriques**
Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.
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**
Veiller à une bonne ventilation/aspiration du poste de travail.
Ouvrir et manipuler les récipients avec précaution.
- **Préventions des incendies et des explosions:**
Tenir à l'abri des sources d'inflammation - ne pas fumer.
Tenir à l'abri de la chaleur.
Prendre des mesures contre les charges électrostatiques.
- **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:**
Tenir les emballages hermétiquement fermés.
Ne pas fermer les emballages de telle sorte qu'ils soient hermétiques aux gaz.
Stocker au frais et au sec dans des fûts bien fermés.
Protéger de la forte chaleur et du rayonnement direct du soleil.
- **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

- **8.1 Paramètres de contrôle**
- **Indications complémentaires pour l'agencement des installations techniques:**
Sans autre indication, voir point 7.
- **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**
- **Équipement de protection individuel:**
- **Mesures générales de protection et d'hygiène:**
Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.
Se laver les mains avant les pauses et en fin de travail.

(suite page 4)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 3)

· **Protection respiratoire:**

En cas d'exposition faible ou de courte durée, utiliser un filtre respiratoire; en cas d'exposition intense ou durable, utiliser un appareil de respiration indépendant de l'air ambiant.

· **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:**



Lunettes de protection hermétiques

RUBRIQUE 9: Propriétés physiques et chimiques

· **9.1 Informations sur les propriétés physiques et chimiques essentielles**

· **Indications générales**

· **Aspect:**

· Forme:	Gazeuse
· Couleur:	Transparent
· Odeur:	Genre éther
· Seuil olfactif:	Non déterminé.

· **valeur du pH:** Non déterminé.

· **Changement d'état**

· Point de fusion/point de congélation:	-117 °C
· Point initial d'ébullition et intervalle d'ébullition:	-26,5 °C

· **Point d'éclair** <23 °C

· **Inflammabilité (solide, gaz):** Non déterminé.

· **Température de décomposition:** Non déterminé.

· **Température d'auto-inflammabilité:** Non déterminé.

· **Propriétés explosives:** Le produit n'est pas explosif; toutefois, des mélanges explosifs vapeur-air peuvent se former.

· **Limites d'explosion:**

· Inférieure:	4,9 Vol %
· Supérieure:	20,2 Vol %

· **Pression de vapeur à 20 °C:** 5.100 hPa

· Densité à 20 °C:	0,9 g/cm ³
· Densité relative	Non déterminé.
· Densité de vapeur:	Non déterminé.
· Taux d'évaporation:	Non applicable.

(suite page 5)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 4)

· Solubilité dans/miscibilité avec l'eau à 20 °C:	5 g/l
· Coefficient de partage: n-octanol/eau:	Non déterminé.
· Viscosité:	
Dynamique:	Non déterminé.
Cinématique:	Non déterminé.
Teneur en substances solides:	0,0 %
· 9.2 Autres informations	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**
Nocif par inhalation.

· Valeurs LD/LC50 déterminantes pour la classification:

75-37-6 1,1-difluoroéthane

Inhalatoire | LC50/4 h | 977 mg/l (souris)

- **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.
- **Indications toxicologiques complémentaires:**
- **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.

(suite page 6)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 5)

· **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:** En général non polluant
- **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.
- **Produit de nettoyage recommandé:** Eau, éventuellement avec des produits de nettoyage

RUBRIQUE 14: Informations relatives au transport

- | | |
|---|--|
| <ul style="list-style-type: none"> · 14.1 Numéro ONU · ADR, IMDG, IATA | <p style="text-align: center;">UN1030</p> |
| <ul style="list-style-type: none"> · 14.2 Désignation officielle de transport de l'ONU · ADR · IMDG, IATA | <p style="text-align: center;">1030 DIFLUORO-1,1 ÉTHANE (GAZ RÉFRIGÉRANT R 152a)</p> <p style="text-align: center;">1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)</p> |
| <ul style="list-style-type: none"> · 14.3 Classe(s) de danger pour le transport · ADR | <div style="text-align: center;">  </div> <p style="text-align: center;">2 2F Gaz.</p> <p style="text-align: center;">2.1</p> |
| <ul style="list-style-type: none"> · IMDG, IATA | <div style="text-align: center;">  </div> <p style="text-align: center;">2.1 Gaz.</p> |

(suite page 7)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 6)

· Label	2.1
· 14.4 Groupe d'emballage	
· ADR, IMDG, IATA	néant
· 14.5 Dangers pour l'environnement:	Non applicable.
· 14.6 Précautions particulières à prendre par l'utilisateur	Attention: Gaz.
· Numéro d'identification du danger (Indice Kemler):	23
· No EMS:	2-07
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC	Non applicable.
· Indications complémentaires de transport:	
· ADR	
· Quantités limitées (LQ)	0
· Quantités exceptées (EQ)	Code: E0 Non autorisé en tant que quantité exceptée
· Catégorie de transport	2
· Code de restriction en tunnels	B/D
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· "Règlement type" de l'ONU:	UN 1030 DIFLUORO-1,1 ÉTHANE (GAZ RÉFRIGÉRANT R 152A), 2.1

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

· **Catégorie SEVESO P5a LIQUIDES INFLAMMABLES**

· **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil bas 10 t**

· **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil haut 50 t**

· **Directive 2011/65/UE relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques – Annexe II**

la substance n'est pas comprise

· **RÈGLEMENT (UE) 2019/1148**

· **Annexe I - PRÉCURSEURS D'EXPLOSIFS FAISANT L'OBJET DE RESTRICTIONS (Valeur limite maximale aux fins de l'octroi d'une licence en vertu de l'article 5, paragraphe 3)**

la substance n'est pas comprise

· **Annexe II - PRÉCURSEURS D'EXPLOSIFS DEVANT FAIRE L'OBJET D'UN SIGNALLEMENT**

la substance n'est pas comprise

(suite page 8)

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

Date d'impression : 09.05.2022

Révision: 09.05.2022

Nom du produit: Dust-Off Plus Model (DPSA) plus refill

(suite de la page 7)

· **Règlement (CE) n° 273/2004 relatif aux précurseurs de drogues**

la substance n'est pas comprise

· **Règlement (CE) n° 111/2005 fixant des règles pour la surveillance du commerce des précurseurs des drogues entre la Communauté et les pays tiers**

la substance n'est pas comprise

· **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

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 relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Liquides inflammables – Catégorie 1

Acute Tox. 4: Toxicité aiguë – Catégorie 4

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

FR

Sicherheitsdatenblatt gemäß 1907/2006/EG, Artikel 31

Druckdatum: 09.05.2022

überarbeitet am: 09.05.2022

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

· 1.1 Produktidentifikator

· **Handelsname:** Dust-Off Plus Model (DPSA) plus refill

· **Artikelnummer:** 70840, 70843, 70844

· **CAS-Nummer:**

75-37-6

· **EG-Nummer:**

200-866-1

· **UFI:** M2T1-P0G9-100Q-SY4H

· **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**



GHS02 Flamme

Flam. Liq. 1 H224 Flüssigkeit und Dampf extrem entzündbar.



GHS07

Acute Tox. 4 H332 Gesundheitsschädlich bei Einatmen.

STOT SE 3 H336 Kann Schläfrigkeit und Benommenheit verursachen.

(Fortsetzung auf Seite 2)

Sicherheitsdatenblatt

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(Fortsetzung von Seite 1)

- **2.2 Kennzeichnungselemente**
- **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**
Der Stoff ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.
- **Gefahrenpiktogramme**



GHS02 GHS07

- **Signalwort Gefahr**
- **Gefahrenhinweise**
H224 Flüssigkeit und Dampf extrem entzündbar.
H332 Gesundheitsschädlich bei Einatmen.
H336 Kann Schläfrigkeit und Benommenheit verursachen.
- **Sicherheitshinweise**
P210 Von Hitze, heißen Oberflächen, Funken, offenen Flammen und anderen Zündquellen fernhalten. Nicht rauchen.
P241 Explosionsgeschützte [elektrische/Lüftungs-/Beleuchtungs-] Geräte verwenden.
P261 Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.
P303+P361+P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen [oder duschen].
P405 Unter Verschluss 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**
75-37-6 Ethylenfluorid
- **Identifikationsnummer(n)**
- **EG-Nummer:** 200-866-1

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

- **4.1 Beschreibung der Erste-Hilfe-Maßnahmen**
- **Allgemeine Hinweise:**
Vergiftungssymptome können erst nach vielen Stunden auftreten, deshalb ärztliche Überwachung mindestens 48 Stunden nach einem Unfall.
- **Nach Einatmen:**
Frischlufzufuhr, gegebenenfalls Atemspende, Wärme. Bei anhaltenden Beschwerden Arzt konsultieren.
Bei Bewusstlosigkeit Lagerung und Transport in stabiler Seitenlage.
- **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.

(Fortsetzung auf Seite 3)

Sicherheitsdatenblatt

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(Fortsetzung von Seite 2)

- **4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**
Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

- **5.1 Löschmittel**
- **Geeignete Löschmittel:**
CO₂, Löschpulver oder Wassersprühstrahl. Größeren Brand mit Wassersprühstrahl oder alkoholbeständigem Schaum bekämpfen.
- **5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**
Keine weiteren relevanten Informationen verfügbar.
- **5.3 Hinweise für die Brandbekämpfung**
- **Besondere Schutzausrüstung:** Atemschutzgerät anlegen.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

- **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**
Schutzausrüstung tragen. Ungeschützte Personen fernhalten.
- **6.2 Umweltschutzmaßnahmen:** Keine besonderen Maßnahmen erforderlich.
- **6.3 Methoden und Material für Rückhaltung und Reinigung:**
Kontaminiertes Material als Abfall nach Abschnitt 13 entsorgen.
Für ausreichende Lüftung sorgen.
- **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**
Für gute Belüftung/Absaugung am Arbeitsplatz sorgen.
Behälter mit Vorsicht öffnen und handhaben.
- **Hinweise zum Brand- und Explosionsschutz:**
Zündquellen fernhalten - nicht rauchen.
Vor Hitze schützen.
Maßnahmen gegen elektrostatische Aufladung treffen.
- **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:**
Behälter dicht geschlossen halten.
Behälter nicht gasdicht verschließen.
In gut verschlossenen Gebinden kühl und trocken lagern.
Vor Hitze und direkter Sonnenbestrahlung schützen.
- **Lagerklasse:**
- **Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV):** -

(Fortsetzung auf Seite 4)

Sicherheitsdatenblatt

gemäß 1907/2006/EG, Artikel 31

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(Fortsetzung von Seite 3)

· **7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

- **8.1 Zu überwachende Parameter**
- **Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.
- **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:** Entfällt.
- **Zusätzliche Hinweise:** Als Grundlage dienen die bei der Erstellung gültigen Listen.

- **8.2 Begrenzung und Überwachung der Exposition**
- **Persönliche Schutzausrüstung:**
- **Allgemeine Schutz- und Hygienemaßnahmen:**
 Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.
 Vor den Pausen und bei Arbeitsende Hände waschen.
- **Atemschutz:**
 Bei kurzzeitiger oder geringer Belastung Atemfiltergerät; bei intensiver bzw. längerer Exposition umluftunabhängiges Atemschutzgerät verwenden.
- **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.
- **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:**



Dichtschließende Schutzbrille

ABSCHNITT 9: Physikalische und chemische Eigenschaften

- **9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften**
- **Allgemeine Angaben**
- **Aussehen:**

Form:	Gasförmig
Farbe:	Klar
Geruch:	Etherartig
Geruchsschwelle:	Nicht bestimmt.
- **pH-Wert:** Nicht bestimmt.
- **Zustandsänderung**

Schmelzpunkt/Gefrierpunkt:	-117 °C
Siedebeginn und Siedebereich:	-26,5 °C
- **Flammpunkt:** <23 °C

(Fortsetzung auf Seite 5)

Sicherheitsdatenblatt

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(Fortsetzung von Seite 4)

· Entzündbarkeit (fest, gasförmig):	Nicht bestimmt.
· Zersetzungstemperatur:	Nicht bestimmt.
· Selbstentzündungstemperatur:	Nicht bestimmt.
· Explosive Eigenschaften:	Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.
· Explosionsgrenzen:	
Untere:	4,9 Vol %
Obere:	20,2 Vol %
· Dampfdruck bei 20 °C:	5.100 hPa
· Dichte bei 20 °C:	0,9 g/cm ³
· Relative Dichte	Nicht bestimmt.
· Dampfdichte	Nicht bestimmt.
· Verdampfungsgeschwindigkeit	Nicht anwendbar.
· Löslichkeit in / Mischbarkeit mit Wasser bei 20 °C:	5 g/l
· Verteilungskoeffizient: n-Octanol/Wasser:	Nicht bestimmt.
· Viskosität:	
Dynamisch:	Nicht bestimmt.
Kinematisch:	Nicht bestimmt.
· Festkörpergehalt:	0,0 %
· 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**
Gesundheitsschädlich bei Einatmen.

· Einstufungsrelevante LD/LC50-Werte:

75-37-6 Ethylenfluorid

Inhalativ	LC50/4 h	977 mg/l (mouse)
-----------	----------	------------------

- **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.

(Fortsetzung auf Seite 6)

Sicherheitsdatenblatt

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(Fortsetzung von Seite 5)

- **Sensibilisierung der Atemwege/Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Zusätzliche toxikologische Hinweise:**
- **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:** Nicht wassergefährdend.
- **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.
- **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

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.
- **Empfohlenes Reinigungsmittel:** Wasser, gegebenenfalls mit Zusatz von Reinigungsmitteln.

ABSCHNITT 14: Angaben zum Transport

- | | |
|---|---|
| <ul style="list-style-type: none"> · 14.1 UN-Nummer · ADR, IMDG, IATA | <p>UNI030</p> |
| <ul style="list-style-type: none"> · 14.2 Ordnungsgemäße UN-Versandbezeichnung · ADR · IMDG, IATA | <p>1030 1,1-DIFLUORETHAN (GAS ALS KÄLTEMITTEL R 152a)
1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)</p> |

(Fortsetzung auf Seite 7)

Sicherheitsdatenblatt

gemäß 1907/2006/EG, Artikel 31

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überarbeitet am: 09.05.2022

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(Fortsetzung von Seite 6)

· 14.3 Transportgefahrenklassen
· ADR


- **Klasse** 2 2F Gase
- **Gefahrzettel** 2.1

· IMDG, IATA


- **Class** 2.1 Gase
- **Label** 2.1

· 14.4 Verpackungsgruppe

- **ADR, IMDG, IATA** entfällt

- **14.5 Umweltgefahren:** Nicht anwendbar.

· 14.6 Besondere Vorsichtsmaßnahmen für den Verwender

- **Achtung: Gase**
- **Nummer zur Kennzeichnung der Gefahr (Kemler-Zahl):** 23
- **EMS-Nummer:** 2-07
- **Stowage Category** B
- **Stowage Code** SW2 Clear of living quarters.

· 14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code Nicht anwendbar.

· Transport/weitere Angaben:

- **ADR**
- **Begrenzte Menge (LQ)** 0
- **Freigestellte Mengen (EQ)** Code: E0
In freigestellten Mengen nicht zugelassen
- **Beförderungskategorie** 2
- **Tunnelbeschränkungscode** B/D

· IMDG

- **Limited quantities (LQ)** 0
- **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity

- **UN "Model Regulation":** UN 1030 1,1-DIFLUORETHAN (GAS ALS KÄLTEMITTEL R 152A), 2.1

DE

(Fortsetzung auf Seite 8)

Sicherheitsdatenblatt

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Druckdatum: 09.05.2022

überarbeitet am: 09.05.2022

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(Fortsetzung von Seite 7)

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.

· **Seveso-Kategorie P5a ENTZÜNDBARE FLÜSSIGKEITEN**

· **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren Klasse 10 t**

· **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der oberen Klasse 50 t**

· **Richtlinie 2011/65/EU zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten – Anhang II**

Der Stoff ist nicht enthalten.

· **VERORDNUNG (EU) 2019/1148**

· **Anhang I - BESCHRÄNKTE AUSGANGSSTOFFE FÜR EXPLOSIVSTOFFE (Oberer Konzentrationsgrenzwert für eine Genehmigung nach Artikel 5 Absatz 3)**

Der Stoff ist nicht enthalten.

· **Anhang II - MELDEPFLICHTIGE AUSGANGSSTOFFE FÜR EXPLOSIVSTOFFE**

Der Stoff ist nicht enthalten.

· **Verordnung (EG) Nr. 273/2004 betreffend Drogenausgangsstoffe**

Der Stoff ist nicht enthalten.

· **Verordnung (EG) Nr. 111/2005 zur Festlegung von Vorschriften für die Überwachung des Handels mit Drogenaustauschstoffen zwischen der Gemeinschaft und Drittländern**

Der Stoff ist nicht enthalten.

· **Nationale Vorschriften:**

· **Wassergefährdungsklasse:** Im allgemeinen nicht wassergefährdend.

· **Sonstige Vorschriften, Beschränkungen und Verbotsverordnungen**

Das Produkt unterliegt der Anlage 2 der Chemikalienverbotsverordnung (ChemVerbotsV) - Anforderungen in Bezug auf die Abgabe

· **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 relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Entzündbare Flüssigkeiten – Kategorie 1

Acute Tox. 4: Akute Toxizität – Kategorie 4

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

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

- **1.1 Identificatore del prodotto**
- **Denominazione commerciale:** Dust-Off Plus Model (DPSA) plus refill
- **Articolo numero:** 70840, 70843, 70844
- **Numero CAS:**
75-37-6
- **Numeri CE:**
200-866-1
- **UFI:** M2T1-P0G9-100Q-SY4H
- **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
- **Società 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**



GHS02 fiamma

Flam. Liq. 1 H224 Liquido e vapori altamente infiammabili.



GHS07

Acute Tox. 4 H332 Nocivo se inalato.

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.

(continua a pagina 2)

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 1)

· **Pittogrammi di pericolo**



GHS02 GHS07

· **Avvertenza Pericolo**

· **Indicazioni di pericolo**

H224 Liquido e vapori altamente infiammabili.

H332 Nocivo se inalato.

H336 Può provocare sonnolenza o vertigini.

· **Consigli di prudenza**

P210 Tenere lontano da fonti di calore, superfici riscaldate, scintille, fiamme e altre fonti di innesco. Vietato fumare.

P241 Utilizzare impianti [elettrici/di ventilazione/d'illuminazione] a prova di esplosione.

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

P303+P361+P353 IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliersi di dosso immediatamente tutti gli indumenti contaminati. Sciacquare la pelle [o fare una doccia].

P405 Conservare sotto chiave.

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**

75-37-6 1,1-difluoroetano

· **Numero/i di identificazione**

· **Numeri CE:** 200-866-1

SEZIONE 4: Misure di primo soccorso

· **4.1 Descrizione delle misure di primo soccorso**

· **Indicazioni generali:**

I sintomi di avvelenamento possono comparire dopo molte ore, per tale motivo è necessaria la sorveglianza di un medico nelle 48 ore successive all'incidente.

· **Inalazione:**

Portare in zona ben areata, praticare eventualmente la respirazione artificiale, tenere al caldo. Se i disturbi persistono consultare il medico.

Se il soggetto è svenuto provvedere a tenerlo durante il trasporto in posizione stabile su un fianco.

· **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.

(continua a pagina 3)

Scheda di dati di sicurezza ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 2)

- **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:**
CO₂, polvere o acqua nebulizzata. Estinguere gli incendi di grosse dimensioni con acqua nebulizzata o con schiuma resistente all'alcool.
- **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.
- **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
- **Mezzi protettivi specifici:** Indossare il respiratore.

SEZIONE 6: Misure in caso di rilascio accidentale

- **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza**
Indossare equipaggiamento protettivo. Allontanare le persone non equipaggiate.
- **6.2 Precauzioni ambientali:** Non sono richiesti provvedimenti particolari.
- **6.3 Metodi e materiali per il contenimento e per la bonifica:**
Smaltimento del materiale contaminato conformemente al punto 13.
Provvedere ad una sufficiente areazione.
- **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**
Accurata ventilazione/aspirazione nei luoghi di lavoro.
Aprire e manipolare i recipienti con cautela.
- **Indicazioni in caso di incendio ed esplosione:**
Tenere lontano da fonti di calore, non fumare.
Proteggere dal calore.
Adottare provvedimenti contro cariche elettrostatiche.
- **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:**
Mantenere i recipienti ermeticamente chiusi.
Chiudere i recipienti non a tenuta di gas.
Conservare in luogo fresco e asciutto in fusti ben chiusi.
Proteggere dal calore e dai raggi diretti del sole.
- **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **8.1 Parametri di controllo**
- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.

(continua a pagina 4)

Scheda di dati di sicurezza ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 3)

- **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:**
Tenere lontano da cibo, bevande e foraggi.
Lavarsi le mani prima dell'intervallo o a lavoro terminato.
- **Maschera protettiva:**
Nelle esposizioni brevi e minime utilizzare la maschera; nelle esposizioni più intense e durature indossare l'autorespiratore.
- **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:**



Occhiali protettivi a tenuta

SEZIONE 9: Proprietà fisiche e chimiche

- **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**
- **Indicazioni generali**
- **Aspetto:**
- **Forma:** Gassoso
- **Colore:** Chiaro
- **Odore:** Simile all'etere
- **Soglia olfattiva:** Non definito.
- **valori di pH:** Non definito.
- **Cambiamento di stato**
- **Punto di fusione/punto di congelamento:** -117 °C
- **Punto di ebollizione iniziale e intervallo di ebollizione:** -26,5 °C
- **Punto di infiammabilità:** <23 °C
- **Infiammabilità (solidi, gas):** Non definito.
- **Temperatura di decomposizione:** Non definito.
- **Temperatura di autoaccensione:** Non definito.
- **Proprietà esplosive:** Prodotto non è esplosivo, è tuttavia possibile la formazione di miscele di vapori/aria esplosive.

(continua a pagina 5)

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 4)

· Limiti di infiammabilità:	
Inferiore:	4,9 Vol %
Superiore:	20,2 Vol %
· Tensione di vapore a 20 °C:	5.100 hPa
· Densità a 20 °C:	0,9 g/cm ³
· Densità relativa	Non definito.
· Densità di vapore:	Non definito.
· Velocità di evaporazione	Non applicabile.
· Solubilità in/Miscibilità con acqua a 20 °C:	5 g/l
· Coefficiente di ripartizione: n-ottanolo/acqua:	Non definito.
· Viscosità:	
Dinamica:	Non definito.
Cinematica:	Non definito.
· 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.
- **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**
Nocivo se inalato.

· Valori LD/LC50 rilevanti per la classificazione:		
75-37-6 1,1-difluoroetano		
Per inalazione	LC50/4 h	977 mg/l (mouse)

- **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.
- **Ulteriori dati tossicologici:**
- **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.

(continua a pagina 6)

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 5)

- **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:** Generalmente non pericoloso
- **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.
- **Detergente consigliato:** Acqua eventualmente con l'aggiunta di detersivi.

SEZIONE 14: Informazioni sul trasporto

- | | |
|---|--|
| · 14.1 Numero ONU | |
| · ADR, IMDG, IATA | UN1030 |
| · 14.2 Nome di spedizione dell'ONU | |
| · ADR | 1030 1,1-DIFLUOROETANO (GAS REFRIGERANTE R 152a) |
| · IMDG, IATA | 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a) |
| · 14.3 Classi di pericolo connesso al trasporto | |
| · ADR | |
|  | |
| · Classe | 2 2F Gas |

(continua a pagina 7)


Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 6)

· Etichetta	2.1
· IMDG, IATA	
	
· Class	2.1 Gas
· Label	2.1
· 14.4 Gruppo di imballaggio	
· ADR, IMDG, IATA	non applicabile
· 14.5 Pericoli per l'ambiente:	Non applicabile.
· 14.6 Precauzioni speciali per gli utilizzatori	Attenzione: Gas
· N° identificazione pericolo (Numero Kemler):	23
· Numero EMS:	2-07
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Trasporto di rifiuti secondo l'allegato II di MARPOL ed il codice IBC	Non applicabile.
· Trasporto/ulteriori indicazioni:	
· ADR	
· Quantità limitate (LQ)	0
· Quantità esenti (EQ)	Codice: E0 Vietato al trasporto in quantità esente
· Categoria di trasporto	2
· Codice di restrizione in galleria	B/D
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 1030 1,1-DIFLUOROETANO (GAS REFRIGERANTE R 152A), 2.1

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

· Categoria Seveso P5a **LIQUIDI INFIAMMABILI**

· Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia inferiore 10 t

· Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia superiore 50 t

· Direttiva 2011/65/UE sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche - **Allegato II**

La sostanza non è contenuta

(continua a pagina 8)

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 09.05.2022

Revisione: 09.05.2022

Denominazione commerciale: Dust-Off Plus Model (DPSA) plus refill

(Segue da pagina 7)

· **REGOLAMENTO (UE) 2019/1148**

· **Allegato I - PRECURSORI DI ESPLOSIVI SOGGETTI A RESTRIZIONI (Valore limite superiore ai fini della concessione di licenze a norma dell'articolo 5, paragrafo 3)**

La sostanza non è contenuta

· **Allegato II - PRECURSORI DI ESPLOSIVI SOGGETTI A SEGNALAZIONE**

La sostanza non è contenuta

· **Regolamento (CE) n. 273/2004 relativo ai precursori di droghe**

La sostanza non è contenuta

· **Regolamento (CE) N. 111/2005 recante norme per il controllo del commercio dei precursori di droghe tra la Comunità e i paesi terzi**

La sostanza non è contenuta

· **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

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 relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Liquidi infiammabili – Categoria 1

Acute Tox. 4: Tossicità acuta – Categoria 4

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

IT

물질안전보건자료 GHS에 따라

인쇄일자: 2022.05.09

개정: 2022.05.09

1 화학제품과 회사에 관한 정보

- 제품 식별자
- 제품명: **Dust-Off Plus Model (DPSA) plus refill**
- 상품번호: 70840, 70843, 70844
- CAS-번호
75-37-6
- EC 의번호:
200-866-1
- 해당 순물질이나 혼합물의 관련 하위용도 및 사용금지용도
- 제품의 권고 용도와 사용상의 제한: Dust-Off Plus Model (DPSA) plus refill
- 제품의 권고 용도와 사용상의 제한: 실험실 화학품

- 안전데이터표(Safety Data Sheet)내 공급업체 관련 상세 정보
- 제조자/수입자/유통업자 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 획득 가능: Product safety department
- 비상연락 전화번호:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 유해성·위험성

- 순물질 또는 혼합물의 분류



화염

인화성 액체 - 구분1

H224 극인화성 액체 및 증기



특정표적장기 독성 - 1회 노출- 구분3 H336 졸음 또는 현기증을 일으킬 수 있음

- 라벨표기 요소
- **GHS 라벨 요소** 본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

(2 쪽에계속)

물질안전보건자료 GHS에 따라

인쇄일자: 2022.05.09

개정: 2022.05.09

제품명: Dust-Off Plus Model (DPSA) plus refill

(1 쪽부터계속)

· **GHS 그림문자**



GHS02 GHS07

- **신호어 위험**
- **유해·위험문구**
극인화성 액체 및 증기
줄음 또는 현기증을 일으킬 수 있음
- **예방조치문구**
열·스파크·화염·고열로부터 멀리하시오 - 금연
폭발 방지용 전기·환기·조명·장비를 사용하시오.
분진·흙·가스·미스트·증기·스프레이의 흡입을 피하시오.
피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하시오. 피부를 물로 씻으시오/샤워하시오 .
밀봉하여 저장하시오.
(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하시오.
- **기타 유해성**
- **PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과**
- **PBT(잔류성, 생물농축성, 독성 물질):** 해당사항 없음.
- **vPvB(고 잔류성, 고 생물농축성 물질):** 해당사항 없음.

3 구성성분의 명칭 및 함유량

- **화 학 적 특 성:** 화학물질
- **CAS-번호표시**
75-37-6 1,1-difluoroethane
- **식별 번호**
- **EC 의번호:** 200-866-1

4 응급조치 요령

- **응급조치요령 내용**
- **일 반 적 정보:**
중 독 증 상 은 몇 시 간 이 지 난 뒤 에 발 생 할 수 있 다. 따 라 서 사 고 가 발 생 한 후 에 적 어 도 48 시 간 동 안 은 의 료 진 의 관 찰 을 받 아 야 한 다.
- **흡입했을 때:**
신 선 한 공 기 를 쐬 고, 필 요 할 경 우 에 는 산 소 호 흡 기 의 도 움 을 받 는 다. 환 자 를 따 뜻 하 게 하 고, 증 상 이 지 속 될 경 우 에 는 의 료 진 의 도 움 을 구 한 다.
환 자 가 의 식 을 잃 었 을 경 우 에 는 안 전 한 자 세 에 서 환 자 를 운 반 한 다.
- **피부에 접촉했을 때:** 일 반 적 으 로 이 제 품 은 피 부 에 자 극 적 이 지 않 다.
- **눈에 들어갔을 때:** 흐 르 는 물 에 눈 을 몇 분 동 안 씻 어 낸 다.
- **먹었을 때:** 증 상 이 지 속 될 경 우 에 는 의 사 와 상 담 한 다.
- **기타 의사의 주의사항:**
- **가장 중요한 급·만성 증상 및 영향** 추가적인 정보가 존재하지 않습니다.
- **즉각적인 의료처치 및 특별치료가 필요함을 시사하는 징후** 추가적인 정보가 존재하지 않습니다.

KR

(3 쪽에계속)

물질안전보건자료

GHS에 따라

인쇄일자: 2022.05.09

개정: 2022.05.09

제품명: Dust-Off Plus Model (DPSA) plus refill

(2 쪽부터 계속)

5 폭발·화재시 대처방법

- 소화제
- 적절한 소화제: 이산화탄소, 진화용 석회가루 또는 물방사를 사용하고, 더 큰 화재는 물을 분사하거나 알코올이 함유된 거품으로 끈다.
- 분 화학물질이나 혼합물에서 발생하는 특별 유해성 추가적인 정보가 존재하지 않습니다.
- 소방관에 대한 권고사항
- 화재 진압 시 착용할 보호구 및 예방조치: 호흡보호장비설치.

6 누출 사고 시 대처방법

- 개인적 예방조치, 보호장비 및 응급처치 절차 안전장비 착용하고, 무방비의 사람은 격리시킨다.
- 환경 관련 예방조치: 특별한 조치가 필요없음.
- 밀폐 및 정화 방법과 소재: 항목 13에 따라 오염된 물질을 쓰레기로 처분한다. 충분한 환기가 되도록 한다.
- 타 섹션 참조
안전 관리에 대한 정보는 제7 장을 참고하십시오.
개인 보호장비에 대한 정보는 제8 장을 참고하십시오.
쓰레기 처리에 대한 정보는 제13 장을 참고하십시오.

7 취급 및 저장방법

- 취급:
- 안전 취급을 위한 예방조치
작업장에서는 통풍이 잘 되고/습기 제거가 잘 되게 주의한다.
조심스럽게 용기를 개봉하거나 취급한다.
- 화재 및 폭발 사고 예방대책에 관한 정보:
발화 요소는 멀리 둔다-금연.
열로부터 보호한다.
정전기 충격으로부터 보호한다.
- 혼합위험성 등 안전 저장 조건
- 보관:
- 안전한 저장 방법: 차가운 장소에 보관한다.
- 하나의 공동 보관 시설에 대한 보관 관련 정보: 필요없음
- 보관 조건에 관한 추가적인 정보:
용기를 새지 않게 밀폐한 채 보관한다.
요기를 가스가 새지 않게 밀폐시킨다.
밀폐된 용기속에서 늘하고 건조하게 보관한다.
열이나 직사광선으로부터 보호한다.
- 구체적 최종 사용자 추가적인 정보가 존재하지 않습니다.

8 노출방지 및 개인보호구

- 첨단시설 디자인에 대한 추가정보: 더 이상의 자료는 없음. 항목 7을 참고하십시오.
- 통제 변수
- 화학물질의 노출기준, 생물학적 노출기준 등: 생략
- 추가 정보: 제조할 당시에 유효한 목록을 기초로 사용했다.

(4 쪽에 계속)

물질안전보건자료 GHS에 따라

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(3 쪽부터계속)

- **노출 통제**
- **개인 보호구**
- **일반적보호조치및위생조치:**
 식료품, 음료수와 사료로부터 멀리 떨어져 놓는다.
 휴식 전 이 나 작업이 끝날때마다 손을 씻는다.
- **호흡기 보호:**
 단 시간 또는 경미한 오염의 경우에는 호흡여과기를 사용한다. 심각한 또는 장기간 노출시에는 호흡보호장비를 사용한다.
- **손 보호:**
 장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성이있어야한다.
 테스트를 하지 않았기 때문에 제품 / 조제 / 화학 혼합물에 적합한 장갑재질에 대한 추천이 없다.
 투과 시간, 침투율과 저하를 고려해서 장갑 재료를 선택한다.
- **장갑의재료**
 적합한장갑의선택은재질차이뿐아니라품질기준의차이도고려하여이루어져야하고제조업자에따라서도다르게선정되어야한다.
- **장갑재료의 투과시간** 정확한관통시간은보호장갑제조자에의하여인지되고, 준수되어야한다.
- **눈 보호:**



꼭조이는보안경

9 물리화학적 특성

· 기본 물리 및 화학적 특성에 대한 정보	
· 일반정보	
· 외형	
· 물리적 상태:	가스형태의
· 색:	밝은
· 냄새:	에테르종류의
· 후각역치	알맞지않다.
· pH:	알맞지않다.
· 상태변화	
· 녹는점/어는점:	-117 °C
· 초기 끓는점과 끓는점 범위:	-26.5 °C
· 인화점:	<23 °C
· 인화성(고체, 기체):	알맞지않다.
· 분해 온도:	알맞지않다.
· 자기점화:	알맞지않다.
· 폭발위험:	이제품은폭발위험성이없지만, 폭발가능성이있는증기화합물/공기화합물의형성가능성이있다.
· 인화 또는 폭발 범위의 상한/하한	
· 아래로:	4.9 Vol %
· 위로:	20.2 Vol %
· 증기압 의경우 20 °C:	5,100 hPa
· 밀도 의경우 20 °C:	0.9 g/cm ³
· 비중:	알맞지않다.

(5 쪽에계속)

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(4 쪽부터계속)

· 증기밀도:	알맞지않다.
· 증발 속도:	해당사항 없음.
· 용해도:	
물 의경우 20 °C:	5 g/l
· n 옥탄올/물 분배계수:	알맞지않다.
· 점도:	
역학적:	알맞지않다.
동점성:	알맞지않다.
· 고체의 함량:	0.0 %
· 기타 정보	추가적인 정보가 존재하지 않습니다.

10 안정성 및 반응성

- 반응성 추가적인 정보가 존재하지 않습니다.
- 화학적 안정성
- 화학적 안정성 및 유해 반응의 가능성 / 피해야 할 조건: 규정에따라사용할경우해체는없다
- 유해반응 가능성 위험한반응으로는알려지지않았다.
- 피해야 할 조건 추가적인 정보가 존재하지 않습니다.
- 혼합 금지 물질: 추가적인 정보가 존재하지 않습니다.
- 유해분해물질: 위험성있는분해물들은알려지지않았다.

11 독성에 관한 정보

- 독성학적 영향에 대한 정보
- 급성 독성:

· LD/LC50-수치에 따른 분류:	
75-37-6 1,1-difluoroethane	
흡입의 LC50/4 h	977 mg/l (mouse)

- 일차적 자극 효과:
- 피부 부식성 또는 자극성: 무자극
- 심한 눈 손상 또는 자극성: 무자극.
- 감각화: 민감한영향이없는것으로알려져있다.

12 환경에 미치는 영향

- 독성
- 수생독성: 추가적인 정보가 존재하지 않습니다.
- 지속성 및 분해성 추가적인 정보가 존재하지 않습니다.
- 환경 시스템에서의 행동:
- 생물농축 잠재성 추가적인 정보가 존재하지 않습니다.
- 토양내 이동성 추가적인 정보가 존재하지 않습니다.
- 추가적인 생태학 정보:
- 일반 특징: 일반적으로수질오염이되지않는다
- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.

(6 쪽에계속)

물질안전보건자료 GHS에 따라

인쇄일자: 2022.05.09

개정: 2022.05.09

제품명: Dust-Off Plus Model (DPSA) plus refill



· 기타 부작용 추가적인 정보가 존재하지 않습니다.

(5 쪽부터 계속)

13 폐기시 주의사항

- 폐기물 처리 방법
- 권고: 생활쓰레기와함께처리되어서는안된다. 하수도망으로유입되어서는안된다.
- 비위생적 포장:
- 권고: 당국의지침에입각한쓰레기처리.
- 추천 세정제: 경우에따라서세제가첨가된물

14 운송에 필요한 정보

<ul style="list-style-type: none"> · 유엔 번호 · ADR, IMDG, IATA 	UN1030
<ul style="list-style-type: none"> · UN 적정 선정명 · ADR · IMDG, IATA 	1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a) 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)
<ul style="list-style-type: none"> · 교통 위험 클래스 · ADR 	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> · 등급 · 위험물 라벨 	2 2F 가스 2.1
<ul style="list-style-type: none"> · IMDG, IATA 	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> · Class · Label 	2.1 가스 2.1
<ul style="list-style-type: none"> · 용기등급 · ADR, IMDG, IATA 	누락되다
<ul style="list-style-type: none"> · 환경적 유해물질: 	해당사항 없음.
<ul style="list-style-type: none"> · 이용자 특별 예방조치 · 위험 코드: · EMS-번호: · Stowage Category · Stowage Code 	경고: 가스 23 2-07 B SW2 Clear of living quarters.
<ul style="list-style-type: none"> · MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(bulk) 운송 	해당사항 없음.

(7 쪽에 계속)

물질안전보건자료
GHS에 따라

인쇄일자: 2022.05.09

개정: 2022.05.09

제품명: Dust-Off Plus Model (DPSA) plus refill

(6 쪽부터계속)

· 운 송/추가 정보:	
· ADR	
· 한정 수량 (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· 운송 구분	2
· 터널 제한 코드	B/D
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "모범 규제":	UN 1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152A), 2.1

15 법적 규제현황

· 산업안전보건법에 의한 규제:	
· 제조 등 금지물질:	성분이포함되어있지않다
· 허가대상물질:	성분이포함되어있지않다
· 관리대상유해물질:	성분이포함되어있지않다
· 작업환경측정 대상 유해인자	성분이포함되어있지않다
· 특수건강진단 대상 유해인자	성분이포함되어있지않다
· 해당 수물질 또는 혼합물에 대한 안전, 보건 및 환경 규제/법률 추가적인 정보가 존재하지 않습니다.	
· Korean Existing Chemical Inventory	KE-10545
· 화학물질관리법	
· 사고대비물질	성분이포함되어있지않다
· 금지물질	성분이포함되어있지않다
· 제한물질	성분이포함되어있지않다
· 유독물질	성분이포함되어있지않다
· 허가물질	성분이포함되어있지않다
· 등록 또는 신고 면제대상 화학물질	성분이포함되어있지않다

(8 쪽에계속)

물질안전보건자료 GHS에 따라

인쇄일자: 2022.05.09

개정: 2022.05.09

제품명: Dust-Off Plus Model (DPSA) plus refill

(7 쪽부터 계속)

· ‘21년까지 등록하여야 할 암, 돌연변이, 생식능력 이상을 일으키거나 일으킬 우려가 있는 기존화학물질

성분이 포함되어 있지 않다

· 중점관리물질의 지정

· 표1 중점관리물질(제2조 관련)

성분이 포함되어 있지 않다

· 표2 중점관리물질(제2조 관련)

성분이 포함되어 있지 않다

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

· GHS 그림문자



GHS02 GHS07

· 신호어 위험

· 유해·위험문구

극인화성 액체 및 증기

줄음 또는 현기증을 일으킬 수 있음

· 예방조치문구

열·스파크·화염·고열로부터 멀리하시오 - 금연

폭발 방지용 전기·환기·조명·장비를 사용하시오.

분진·흙·가스·미스트·증기·스프레이의 흡입을 피하시오.

피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하시오. 피부를 물로 씻으시오/샤워하시오 .

밀봉하여 저장하시오.

(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하시오.

· 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

· 담당자:

· 최초 작성일자: 2022.05.09

· 개정 횟수 및 최종 개정일자: 1 / 2022.05.09

· 약어와 두문자어:

ADR: Accord relatif au transport international 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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 09.05.2022

Revisión: 09.05.2022

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

· 1.1 Identificador del producto

· **Nombre comercial:** *Dust-Off Plus Model (DP5A) plus refill*

· **Número del artículo:** 70840, 70843, 70844

· **Número CAS:**
75-37-6

· **Número CE:**
200-866-1

· **UFI:** M2T1-P0G9-100Q-SY4H

· **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**



GHS02 llama

Flam. Liq. 1 H224 Líquido y vapores extremadamente inflamables.



GHS07

Acute Tox. 4 H332 Nocivo en caso de inhalación.

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.

(se continua en página 2)

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

fecha de impresión 09.05.2022

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Nombre comercial: **Dust-Off Plus Model (DPSA) plus refill**

(se continua en página 1)

· **Pictogramas de peligro**

GHS02 GHS07

· **Palabra de advertencia Peligro**· **Indicaciones de peligro**

H224 Líquido y vapores extremadamente inflamables.

H332 Nocivo en caso de inhalación.

H336 Puede provocar somnolencia o vértigo.

· **Consejos de prudencia**

P210 Mantener alejado del calor, de superficies calientes, de chispas, de llamas abiertas y de cualquier otra fuente de ignición. No fumar.

P241 Utilizar material [eléctrico/ de ventilación/iluminación] antideflagrante.

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

P303+P361+P353 EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitar inmediatamente toda la ropa contaminada. Enjuagar la piel con agua [o ducharse].

P405 Guardar bajo llave.

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**

75-37-6 1,1-difluoroetano

· **Número(s) de identificación**· **Número CE:** 200-866-1

SECCIÓN 4: Primeros auxilios

· **4.1 Descripción de los primeros auxilios**· **Instrucciones generales:**

Los síntomas de intoxicación pueden presentarse después de muchas horas, por lo que se requiere una supervisión médica durante un mínimo de 48 horas después del accidente.

· **En caso de inhalación del producto:**

Suministrar aire fresco; eventualmente hacer respiración artificial, calor. Si los trastornos persisten, consultar al médico.

Las personas desmayadas deben tenderse y transportarse de lado con la suficiente estabilidad.

· **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.

(se continua en página 3)

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

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(se continua en página 2)

- **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:**
CO₂, polvo extintor o chorro de agua rociada. Combatir incendios mayores con chorro de agua rociada o espuma resistente al alcohol.
- **5.2 Peligros específicos derivados de la sustancia o la mezcla** No existen más datos relevantes disponibles.
- **5.3 Recomendaciones para el personal de lucha contra incendios**
- **Equipo especial de protección:** Colocarse la protección respiratoria.

SECCIÓN 6: Medidas en caso de vertido accidental

- **6.1 Precauciones personales, equipo de protección y procedimientos de emergencia**
Llevar puesto equipo de protección. Mantener alejadas las personas sin protección.
- **6.2 Precauciones relativas al medio ambiente:** No se requieren medidas especiales.
- **6.3 Métodos y material de contención y de limpieza:**
Desechar el material contaminado como vertido según ítem 13.
Asegurar suficiente ventilación.
- **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**
Asegurar suficiente ventilación /aspiración en el puesto de trabajo.
Abrir y manejar el recipiente con cuidado.
- **Prevención de incendios y explosiones:**
Mantener alejadas las fuentes de encendido. No fumar.
Proteger del calor.
Tomar medidas contra las cargas electrostáticas.
- **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:**
Mantener el recipiente cerrado herméticamente.
No cerrar el recipiente estanco al gas.
Almacenarlo en envases bien cerrados en un lugar fresco y seco.
Proteger del calor y de la luz directa del sol.
- **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

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(se continua en página 4)

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

fecha de impresión 09.05.2022

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Nombre comercial: **Dust-Off Plus Model (DPSA) plus refill**

(se continua en página 3)

SECCIÓN 8: Controles de exposición/protección individual

· 8.1 Parámetros de control

· Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:

Sin datos adicionales, ver punto 7.

· 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:

Mantener alejado de alimentos, bebidas y alimentos para animales.

Lavarse las manos antes de las pausas y al final del trabajo.

· Protección respiratoria:

Si la exposición va a ser breve o de poca intensidad, colocarse una máscara respiratoria. Para una exposición más intensa o de mayor duración, usar un aparato de respiración autónomo.

· 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.

· Protección de ojos:



Gafas de protección herméticas

SECCIÓN 9: Propiedades físicas y químicas

· 9.1 Información sobre propiedades físicas y químicas básicas

· Datos generales

· Aspecto:

Forma:	Gaseiforme
--------	------------

Color:	Claro
--------	-------

Olor:	Etéreo
-------	--------

Umbral olfativo:	No determinado.
------------------	-----------------

valor pH:	No determinado.
-----------	-----------------

· Cambio de estado

Punto de fusión/punto de congelación:	-117 °C
---------------------------------------	---------

Punto inicial de ebullición e intervalo de ebullición:	-26,5 °C
--	----------

Punto de inflamación:	<23 °C
-----------------------	--------

Inflamabilidad (sólido, gas):	No determinado.
-------------------------------	-----------------

Temperatura de descomposición:	No determinado.
--------------------------------	-----------------

(se continua en página 5)

Ficha de datos de seguridad

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(se continua en página 4)

· Temperatura de auto-inflamación:	No determinado.
· Propiedades explosivas:	El producto no es explosivo; sin embargo, pueden formarse mezclas explosivas de vapor / aire.
· Límites de explosión:	
Inferior:	4,9 Vol %
Superior:	20,2 Vol %
· Presión de vapor a 20 °C:	5.100 hPa
· Densidad a 20 °C:	0,9 g/cm ³
· Densidad relativa	No determinado.
· Densidad de vapor	No determinado.
· Tasa de evaporación:	No aplicable.
· Solubilidad en / miscibilidad con agua a 20 °C:	5 g/l
· Coefficiente de reparto: n-octanol/agua:	No determinado.
· Viscosidad:	
Dinámica:	No determinado.
Cinemática:	No determinado.
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.
- **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**
Nocivo en caso de inhalación.

· **Valores LD/LC50 (dosis letal /dosis letal = 50%) relevantes para la clasificación:**

75-37-6 1,1-difluoroetano

Inhalatorio LC50/4 h 977 mg/l (mouse)

- **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.

(se continua en página 6)

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

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(se continua en página 5)

- **Indicaciones toxicológicas adicionales:**
- **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:** Por regla general, no es peligroso para el agua
- **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.
- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.
- **Producto de limpieza recomendado:** Agua, eventualmente añadiendo productos de limpieza.

SECCIÓN 14: Información relativa al transporte

- | | |
|--|---|
| · 14.1 Número ONU | |
| · ADR, IMDG, IATA | UN1030 |
| · 14.2 Designación oficial de transporte de las Naciones Unidas | |
| · ADR | 1030 1,1-DIFLUORETANO (GAS REFRIGERANTE R 152a) |
| · IMDG, IATA | 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a) |

(se continua en página 7)

Ficha de datos de seguridad

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Nombre comercial: Dust-Off Plus Model (DPSA) plus refill

(se continua en página 6)

· **14.3 Clase(s) de peligro para el transporte**

· **ADR**

· **Clase** 2 2F Gases
 · **Etiqueta** 2.1

· **IMDG, IATA**



· **Class** 2.1 Gases
 · **Label** 2.1

· **14.4 Grupo de embalaje**

· **ADR, IMDG, IATA** suprimido

· **14.5 Peligros para el medio ambiente:** No aplicable.

· **14.6 Precauciones particulares para los usuarios** Atención: Gases

· **Número de identificación de peligro (Número Kemler):** 23
 · **Número EMS:** 2-07
 · **Stowage Category** B
 · **Stowage Code** SW2 Clear of living quarters.

· **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)** 0
 · **Cantidades exceptuadas (EQ)** Código: E0
 No se permite como cantidad exceptuada
 · **Categoría de transporte** 2
 · **Código de restricción del túnel** B/D

· **IMDG**
 · **Limited quantities (LQ)** 0
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity

· **"Reglamentación Modelo" de la UNECE:** UN 1030 1,1-DIFLUORETANO (GAS REFRIGERANTE R 152A), 2.1

ES

(se continua en página 8)

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

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Nombre comercial: **Dust-Off Plus Model (DPSA) plus refill**

(se continua en página 7)

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.
- **Categoría Seveso P5a LÍQUIDOS INFLAMABLES**
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel inferior 10 t**
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel superior 50 t**

- **Directiva 2011/65/UE sobre restricciones a la utilización de determinadas sustancias peligrosas en aparatos eléctricos y electrónicos - Anexo II**

No contiene la sustancia.

- **REGLAMENTO (UE) 2019/1148**

- **Anexo I - PRECURSORES DE EXPLOSIVOS RESTRINGIDOS (Valor límite superior a efectos de la concesión de licencias con arreglo al artículo 5, apartado 3)**

No contiene la sustancia.

- **Anexo II - PRECURSORES DE EXPLOSIVOS NOTIFICABLES**

No contiene la sustancia.

- **Reglamento (CE) no 273/2004 sobre precursores de drogas**

No contiene la sustancia.

- **Reglamento (CE) N o 111/2005 por el que establecen normas para la vigilancia del comercio de precursores de drogas entre la Comunidad y terceros países**

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:**

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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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Líquidos inflamables – Categoría 1

Acute Tox. 4: Toxicidad aguda – Categoría 4

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