

SAFETY DATA SHEET

SECTION 1: Product and company identification

a.	Product name	CRYOSPRAY II
	Product Number	EM3027
	Brand	Avantik
b.	Recommended use of	For Laboratory Test and Research purposes only.
	household or other	
	the chemical and	
	restrictions on use	
c.	Company	Avantik
	Address	19 Chapin Road - Building C, Pine Brook, NJ 07058
	Emergency Phone #	· +82 1588-4071 (09·00 - 18·00)
		Monday – Friday (not available on holidays)
	Fax	: +82 43-882-4995

SECTION 2: Hazards identification

a. GHS Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

b. GHS-Labeling



P410+P403 Protect from sunlight. Store in a well-ventilated place.

c. Other hazards which do not result in classification

none

SECTION 3: Composition/Information on ingredients

Component	Common name and synonyms	CAS number	Content (%)
1,1,1,2-Tetrafluoroethane	HFC 134a	811-97-2	90 - 100

SECTION 4: First aid measures

a. In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

b. In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

c. If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

d. If swallowed

Rinse mouth with water. DO NOT induce vomiting. Contact emergency department. Consult a physician.

e. Most important acute symptoms / effects

No information available

General advice

Consult a physician. Show this SDS to the doctor in attendance.

SECTION 5: Firefighting measures

a. Suitable extinguishing media

- Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media which shall not be used for safety reasons

- No information available.

b. Specific hazards arising from the chemical

- May explode if heated. Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.

c. Special protective actions for fire-fighters

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations.
- Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

- a. Personal precautions, protective equipment and emergency procedures
 - Use personal protective equipment.

- Keep unauthorized personnel away.
- Avoid breathing vapors, mist or gas.
- Ensure adequate ventilation.
- Remove all sources of ignition.
- Evacuate personnel to safe areas.
- Beware of vapors accumulating to form explosive concentrations.
- Vapors can accumulate in low areas.

b. Environmental precautions

- Do not be released into the environment.
- Prevent further leakage or spillage if safe to do so.

c. Methods and materials for containment and cleaning up

- Provide adequate ventilation.
- Prevent further leakage or spillage if safe to do so.

SECTION 7: Handling and storage

a. Precautions for safe handling

- Wear personal protective equipment.
- Ensure adequate ventilation.
- Avoid contact with skin, eyes and clothing.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Keep away from open flames, hot surfaces and sources of ignition.
- Keep away from acids.

b. Conditions for safe storage (including any incompatibilities)

- Keep container tightly closed in a dry, cool and well-ventilated place.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Containers may explode when heated.

SECTION 8: Exposure controls/personal protection

a. Control parameters

This product does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

b. Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

c. Personal protective equipment

Respiratory protection

- Use respirators and components tested and approved under appropriate government standards such as NIOSH/MSHA (US) or EN 149 (EU).

Eye protection

- Use a face shield and safety glasses for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU)

Hand protection

- Wear certified chemical safety gloves when the potential for direct contact or exposure to the material is occurred.

Body protection

- Wear lightweight protective clothing.

Hygiene Measures

- Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

a.	Appearance (Form, color, etc.)	Gas, Clear
b.	Odor	Petroleum distillates
C.	Odor Threshold	No information available
d.	рН	No information available
e.	Melting point/freezing point	No data available
f.	Initial boiling point	-26.5°C (-15.7°F)
g.	Flash point	Not applicable
h.	Evaporation rate	No information available
i.	Flammability (solid, gas)	No information available
j.	Upper/lower flammability or	No data available
	Explosive limits	
k.	Vapor pressure	96 psia @ 25℃
I.	Water solubility	Insoluble
m.	Vapor density	3.6 @ 25℃
n.	Relative Density	1.21 (H2O=1)
0.	Partition coefficient:	No data available
	n-octanol/water	
p.	Autoignition temperature	395°C (743°F)
q.	Decomposition temperature	No information available
r.	Viscosity	No information available
S.	Molecular Formula	CH ₂ FCF ₃
t.	Molecular weight	102.03g/mol

SECTION 10: Stability and reactivity

- a. Chemical stability and possibility of hazardous reactions Stable under recommended storage conditions.
- b. Conditions to avoid (eg. Static discharge, shock or vibration, etc) Incompatible products.
 Heat, sparks and flames. Temperatures above 52°C

c. Incompatible materials

Strong oxidizing agents, Metals

d. Hazardous decomposition products

Hydrogen fluoride, Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 11: Toxicological information

a. Information on likely routes of exposure

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May cause skin irritation.

Eyes Causes serious eye irritation.

b. Delayed and immediate effects and also chronic effects from short and long term exposure Acute toxicity

Oral : LD50 Not listed

Dermal : LD50 Not listed

Inhalation : 1500 g/m³ (Rat) 4 h

Skin corrosion/irritation : No information available

Serious eye damage/eye irritation : No information available

Respiratory sensitization : No information available

Skin sensitization : No information available

Carcinogenicity :

Component	Cas No.	IARC	NTP	ACGIH	OSHA
1,1,1,2-Tetrafluoroethane	811-97-2	Not listed	Not listed	Not listed	Not listed

Germ cell mutagenicity : No information available

Reproductive toxicity : Experiments have shown reproductive toxicity effects on laboratory animals **Specific target organ toxicity (single exposure):** None known

Specific target organ toxicity (single exposure). None known

Specific target organ toxicity (repeated exposure): None known

Aspiration hazard : No information available

Other Adverse Effects : Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

SECTION 12: Ecological information

- a. Aquatic and terrestrial ecotoxicity : No data available.
- **b.** Persistence and degradability : No data available.
- c. Bioaccumulative potential : No data available.
- d. Mobility in soil : No data available.
- e. Hazardous to the ozone layer

40 CFR 98 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of February 5, 2016: Ozone depletion potential: 0. (Ozone depletion potential relative to R11= 1.0. Scientific assessment of ozone: 1989.) /From table/ Baxter V, Fairchild P; Oak Ridge National Laboratory Review No. 3 (1990).

SECTION 13: Disposal considerations

a. Disposal methods

Chemical waste generators must determine whether a discarded chemical is classified as hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

b. Disposal precaution (included disposal methods of contaminated container and package)

Dispose of contents and container according to the description in accordance with relevant regulations.

SECTION 14: Transport information

a. UN	Number.
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- b. UN proper shipping name 1,1,1,2-TETRAFLUOROETHANE
- c. Transport hazard class Class 2.2
- d. Packing group (if applicable)
- e. Marine pollutant (yes/no) No
- f. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

3159

- Emergency Schedule for FIRE: No data available
- Emergency Schedule for SPILLAGE: No data available
- g. DOT

a.

- Proper Shipping Name: CONSUMER COMMODITY
- Hazard Class: 9
- 49 CFR § 173.167 (a)(1)

SECTION 15: Regulatory information

U.S. Federal Regulations	
TSCA 12(b)	
SARA 313	Not applicable
SARA 311/312 Hazardous Categorizat	ion
Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No
Clean Water Act	Not applicable
Clean Air Act	Not applicable
OSHA	Not applicable
CERCLA	Not applicable
California Proposition 65	This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ) :	Ν
DOT Marine Pollutant	Ν
DOT Severe Marine Pollutant	Ν

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

b. Other international Regulations

Mexico – Grade

No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR WHMIS Hazard Class A compressed gases



SECTION 16: Other information

a. Created By

GangDong Group Co., Ltd (GD GROUP)

- b. Creation Date 15-June-2021
- c. Revision Date
- (1) / 06-June-2022 06-June-2022
- **d. Print Date** 06
- e. Revision Summary
 - This document has been updated to comply with the Korea Occupational Safety and Health Act (KOSHA) Article 110 and the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labelling of Chemicals.
 - The above information provided on this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication.
 - The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered as a warranty or quality specification.
 - The above information in believed to be correct but does not purport to be all inclusive and shall be used only as a guide.
 - Revision (1) occurred due to the modification of changing company information.