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Woman-Owned Business Enterprise - Founded 1971

Safety Data Sheet (SDS)

Section 1. Identification

Product Name: Rainbow Air Product No.: 4029

Manufacturer: Rainbow Technology Corporation 1-800-637-6047

Contact: Larry Joe Steeley, Jr.

Emergency Phone No. (24 Hrs.): CHEM-TEL 1-800-255-3924

SDS Issue Date: 6/20/2025 **SDS Replaces Date:** 6/2/2025

Section 2. Hazards identification

OSHA/HCS status

: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE AEROSOLS - Category 1 GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms





Signal word : Danger

: Extremely flammable aerosol. **Hazard statements**

Contains gas under pressure; may explode if heated.

Precautionary statements

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

smoking. Do not spray on an open flame or other ignition source. Pressurized

container: Do not pierce or burn, even after use.

Response : Not applicable.

Section 2. Hazards identification

Storage

: Protect from sunlight. Store in a well-ventilated place. Do not expose to temperatures exceeding 50 °C/122 °F.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified

: None known.

Section 3. Composition/information on ingredients

Substance/mixture

Chemical name
Other means of identification

Substance

: 1,1-difluoroethane

: Processing aid

Cleaning Products/Dusting agent

Industrial/Professional use

Ethane, 1,1-difluoro-; Ethane, 1,1-difluoro- (Refrigerant gas R152A);

1,1,1,2-tetrafluoroethane—1,1-difluoroethane—2,3,3,3-tetrafluoropropene; HCFC-152a;

HFC-152a; R152a; R516; R134a—R152a—R1234yf; DIFLUOROETHANE;

Difluoroethane, 1,1-; HFC-152a; HYDROFLUOROCARBON 152A; Difluoroethane

(R152a); Freon-152

Ingredient name	%	Identifiers
1,1-difluoroethane	100	CAS: 75-37-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact

: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion

: Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation

: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact

: Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion

: Do not ingest. If swallowed then seek immediate medical assistance.

Over-exposure signs/symptoms

Eye contact

: Adverse symptoms may include the following: irritation

redness

Section 4. First aid measures

Inhalation : Adverse symptoms may include the following:

respiratory tract irritation

coughing

Skin contact: Adverse symptoms may include the following:

frostbite irritation redness dryness cracking

Ingestion: Adverse symptoms may include the following:

Ingestion Seek medical attention.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed.

The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing

media

Unsuitable extinguishing

media

: Use an extinguishing agent suitable for the surrounding fire.

: None known.

Specific hazards arising from the chemical

: Extremely flammable aerosol. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed.

Hazardous thermal decomposition products

 Decomposition products may include the following materials: carbon dioxide

carbon monoxide halogenated compounds

carbonyl halides

Special protective actions for fire-fighters

: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters

: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment.

Section 6. Accidental release measures eet (SDS)

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, : including any incompatibilities

Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
1,1-difluoroethane	OARS WEEL (United States, 6/2024) TWA 8 hours: 1000 ppm. OSHA PEL Z2 (United States, 2/2013) [Fluoride as dust]
	TWA 8 hours: 2.5 mg/m³. Form: Dust. CAL OSHA PEL (United States, 5/2018) [fluorides]
	TWA 8 hours: 2.5 mg/m³ (as F). OSHA PEL (United States, 5/2018) [Fluorides]
	TWA 8 hours: 2.5 mg/m³ (as F).

Section 8. Exposure controls/personal protection

OSHA PEL 1989 (United States, 3/1989) [Fluorides (as F)] TWA 8 hours: 2.5 mg/m³ (as F). ACGIH TLV (United States, 1/2024) [Fluorides] A4. TWA 8 hours: 2.5 mg/m³ (as F). 1,1-difluoroethane OARS WEEL (United States, 6/2024) TWA 8 hours: 1000 ppm. OSHA PEL Z2 (United States, 2/2013) [Fluoride as dust] TWA 8 hours: 2.5 mg/m³. Form: Dust. CAL OSHA PEL (United States, 5/2018) [fluorides] TWA 8 hours: 2.5 mg/m³ (as F). OSHA PEL (United States, 5/2018) [Fluorides] TWA 8 hours: 2.5 mg/m³ (as F). OSHA PEL 1989 (United States, 3/1989) [Fluorides (as F)] TWA 8 hours: 2.5 mg/m³ (as F). ACGIH TLV (United States, 1/2024) [Fluorides] A4. TWA 8 hours: 2.5 mg/m³ (as F).

Biological exposure indices

Ingredient name	Exposure indices	
1,1-difluoroethane	ACGIH BEI (United States, 1/2024) [fluorides] BEI: 2 mg/l, fluoride [in urine]. Sampling time: prior to shift. BEI: 3 mg/l, fluoride [in urine]. Sampling time: end of shift.	
1,1-difluoroethane	ACGIH BEI (United States, 1/2024) [fluorides] BEI: 2 mg/l, fluoride [in urine]. Sampling time: prior to shift. BEI: 3 mg/l, fluoride [in urine]. Sampling time: end of shift.	

Appropriate engineering controls

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Gas.
Color : Colorless.
Odor : Mild.

Odor threshold : Not available.

pH : Not applicable.

Melting point/freezing point : -117°C (-178.6°F)

Boiling point or initial : -24.7°C (-12.5°F)

boiling point and boiling range

Flash point : Not applicable.

Evaporation rate : Not available.

Flammability : Not available.

Lower and upper explosion : Lower: 3.7%

limit/flammability limit : Upper: 18%

Vapor pressure : 514.6 kPa (3859.68 mm Hg)

Relative vapor density : 2.4 [Air = 1]

Relative density : 0.95

Density : 0.9 g/cm³

Solubility in water : 3.2 g/l

Partition coefficient: n- : 1.13

octanol/water

Auto-ignition temperature : Not available. **Decomposition temperature** : Not available.

Section 9. Physical and chemical properties and safety characteristics

Heat of combustion : -18491700 J/kg

: Dynamic (room temperature): Not available. **Viscosity**

Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.

Particle characteristics

Median particle size : Not applicable.

Aerosol product

Type of aerosol : Spray

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous

reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame).

Incompatible materials : No specific data.

Hazardous decomposition

products

: Under normal conditions of storage and use, hazardous decomposition products should

not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Conclusion/Summary [Product] : Not available.

Skin corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product] : Not available.

Respiratory corrosion/irritation

Not available.

: Not available. **Conclusion/Summary [Product]**

Respiratory or skin sensitization

Not available.

Section 11. Toxicological information

Skin

Conclusion/Summary [Product] : Not available.

Respiratory

Conclusion/Summary [Product] : Not available.

Germ cell mutagenicity

Not available.

Conclusion/Summary [Product] : Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] : Not available.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation: Exposure to decomposition products may cause a health hazard. Serious effects may

be delayed following exposure.

Skin contact: Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion: Do not ingest. If swallowed then seek immediate medical assistance.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:

irritation redness

Inhalation : Adverse symptoms may include the following:

respiratory tract irritation

coughing

Section 11. Toxicological information

Skin contact: Adverse symptoms may include the following:

frostbite irritation redness dryness cracking

Ingestion: Adverse symptoms may include the following:

Ingestion Seek medical attention.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate

effects

: Not available.

Potential delayed effects

: Not available.

Long term exposure

Potential immediate

: Not available.

effects

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] : Not available.

General : No known significant effects or critical hazards.
 Carcinogenicity : No known significant effects or critical hazards.
 Mutagenicity : No known significant effects or critical hazards.
 Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

N/A

Section 12. Ecological information

Toxicity

Not available.

Conclusion/Summary [Product]: Not available.

Persistence and degradability

Not available.

Conclusion/Summary [Product] : Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
1,1-difluoroethane	1.13		Low
1,1-difluoroethane	1.13		Low

Section 12. Ecological information

Mobility in soil

Soil/Water partition coefficient

: 19.8789 Koc

Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN1030	UN1030	UN1030	UN1030	UN1030
UN proper shipping name	(1,1-difluoroethane)	(1,1-difluoroethane)	(1,1-difluoroethane)	(1,1-difluoroethane)	(1,1-difluoroethane)
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

Additional information

DOT Classification : **Special provisions** Ground Under DOT Exemption DOT SP11516

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous

Goods Regulations: 2.13-2.17 (Class 2).

IATA : Special provisions Cargo Aircraft Only

Special precautions for user : Transport within user's premises: always transport in closed containers that are

upright and secure. Ensure that persons transporting the product know what to do in the

event of an accident or spillage.

Transport in bulk according: Not available. to IMO instruments

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act (CAA) 112 regulated flammable substances: 1,1-difluoroethane

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112

: Not listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602

: Not listed

Class I Substances

Clean Air Act Section 602

Class II Substances

: Not listed

DEA List I Chemicals

: Not listed

(Precursor Chemicals)

DEA List II Chemicals

: Not listed

(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : FLAMMABLE AEROSOLS - Category 1

GASES UNDER PRESSURE - Compressed gas

Composition/information on ingredients

Name	%	Classification
1,1-difluoroethane		FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas

State regulations

Massachusetts : The following components are listed: DIFLUOROETHANE

New York : None of the components are listed.

New Jersey : The following components are listed: 1,1-DIFLUOROETHANE

Pennsylvania : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Ingredient name	Status
HFC-152a	Annex F, Group I

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 15. Regulatory information

Inventory list

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Eurasian Economic Union: Russian Federation inventory: All components are listed or exempted.

Japan : Japan inventory (CSCL): All components are listed or exempted.

Japan inventory (ISHL): Not determined.

New Zealand : All components are listed or exempted. **Philippines** : All components are listed or exempted. Republic of Korea : All components are listed or exempted. : All components are listed or exempted. **Taiwan Thailand** : All components are listed or exempted. Turkey : All components are listed or exempted. **United States** : All components are active or exempted. **Viet Nam** : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Classification	Justification
5 ,	On basis of test data
GASES UNDER PRESSURE - Compressed gas	On basis of test data

History

Date of printing : 6/2/2025 Date of issue/Date of : 6/2/2025

revision

Date of previous issue : No previous validation

Version : 1

Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

DOT = Department of Transportation

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

IMO = International Maritime Organization

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

as modified by the Protocol of 1978. ("Marpol" = marine pollution)

N/A = Not available

SGG = Segregation Group

TDG = Transportation of Dangerous Goods

UN = United Nations

: Not available.

References

V Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.