

## Vital Ice 360 Green

Date of issue: 10/02/2025

Date last revised: 12/19/2025

## SECTION 1. Identification

## 1.1 Product identification

Product form	Substance
Product name	Vital Ice 360 Green
CAS No.	29118-24-9
Chemical family	Hydrofluoroolefin C3H2F4
Chemical name	trans-1,3,3,3-Tetrafluoroprop-1-ene
Chemical formula	C <sub>3</sub> H <sub>2</sub> F <sub>4</sub>
Synonyms	f-1,3,3,3-Tetrafluoropropene HF0-1234ze(E); R-1234ze(E).
Brand	Pac-Dent, Inc.
Other means of identification	

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

Identified uses	Industrial and professional. Laboratory chemicals; Scientific research and development; Synthesis of substances. Perform risk assessment prior to use
Uses advised against	Consumer use.

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

Company Address	Pac-Dent, Inc. 670 Endeavor Circle, Brea, CA 92821 909-839-0888 info@pac-dent.com www.pac-dent.com
Telephone	
E-mail address Web site	

## 1.4 Emergency telephone number

Emergency number	1-800-424-9300
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## SECTION 2. Hazards Identification

## 2.1 Classification of the substance or mixture

## Classification (GHS-US)

Simple Asphy	H380 - May displace oxygen and cause rapid suffocation. H280 - Contains gas
Liquefied gas	under pressure; may explode if heated.

## 2.2 Label elements

## GHS-US labeling

Hazard pictograms (GHS-US):



GHS04

Signal word (GHS-US)	Warning
Hazard statements (GHS-US)	H280 - Contains gas under pressure; may explode if heated. H380 - May displace oxygen and cause rapid suffocation.
Precautionary statements (GHS-US) Prevention	P280 - Wear protective gloves/eye protection/face protection. P271 - Use only outdoors or in a well-ventilated area. P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
Response	P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention/advice. P305+P357+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P373 - If eye irritation persists: Get medical advice/attention. P336+P317 - Immediately thaw frosty parts with lukewarm water. Do not rub affected area. Get medical help. P308+P373 - IF exposed or concerned: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse.
Storage	P470+P403 - Protect from sunlight. Store in a well-ventilated place.
Disposal	P507 - Dispose of contents/container in accordance with local/regional/national/international regulations.

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Physical Hazards	No further relevant information available
Health Hazards	No further relevant information available
Environmental Hazards	No further relevant information available

**2.3 Other Hazards**

Hazards not otherwise classified May cause frostbite. May displace oxygen and cause rapid suffocation.

**2.4 Unknown Acute Toxicity (GHS US)**

No further relevant information available

**SECTION 3. Composition/Information on Ingredients**
**3.1 Substance**

Name	CAS No.	Concentration (wt%)
trans-1,3,3-Tetraflouropropene	29118-24-9	≥99.5

Concentration is nominal. For the exact product composition, please refer to Pac-Dent technical specifications

**3.2 Mixture**

Not applicable.

**SECTION 4. First Aid Measures**
**4.1 Description Of First Aid Measures**

## General Advice

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area. Keep affected personnel warm and rested. Apply artificial respiration if breathing stopped. Get immediate advice/attention.

## After Inhalation

Remove person to fresh air and keep comfortable for breathing. Keep the affected person warm and at rest. In case of shortness of breath, give oxygen. If not breathing, give artificial respiration. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Get immediate medical advice/attention.

## After Skin Contact

If frostbite or freezing occur, immediately flush with plenty of lukewarm water. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

## After Eye Contact

Remove contact lenses, if present and easy to do. Continue rinsing. Immediately flush eyes thoroughly with water for at least 15 minutes. Get immediate medical advice/attention.

## After Ingestion

Due to its physical form, exposure to this chemical is not likely. Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get immediate medical advice/attention.

## Notes to Physician

No further relevant information available.

**4.2 Most Important Symptoms and Effects, Both Acute and Delayed**

## Symptoms/Injuries

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

## Symptoms/Injuries after skin contact

Contact with the liquid may cause cold burns/frostbite.

## Symptoms/Injuries after eye contact

Direct contact with the liquefied gas may cause severe and possible permanent eye injury due to frostbite from rapid liquid evaporation.

**4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed**

No data available.

**SECTION 5. Firefighting Measures**
**5.1 Extinguishing Media and Method**

## Suitable extinguishing Media

Water spray. Alcohol resistant foam. Carbon dioxide. Dry powder.

## Suitable extinguishing Method

Use extinguishing media appropriate for surrounding fire.

**5.2 Special Hazards Arising from the Substance or Mixture**

## Fire hazard

Thermal decomposition generates: Carbon oxides. Hydrogen fluoride.

## Explosion hazard

Contains gas under pressure; may explode if heated. Use water spray or fog for cooling exposed containers.

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## 5.3 Advice for firefighters

Firefighting instructions	Thermal decomposition generates: Carbon oxides. Hydrogen fluoride.
Protection during firefighting	Contains gas under pressure; may explode if heated. Use water spray or fog for cooling exposed containers.

## 5.3 Advice for firefighters

Firefighting instructions	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.
Protection during firefighting	Wear gas tight chemically protective clothing in combination with self-contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection".

## 5.4 Further Information

No data available.

## SECTION 6. Accidental release Measures

### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures

General measures	Evacuate unnecessary personnel. Ensure adequate air ventilation. May cause suffocation by reducing oxygen available for breathing. Do not breathe gas, fumes, vapor or spray. Do not touch spilled material.
<b>For non-emergency personnel</b>	Only qualified personnel equipped with suitable protective equipment may intervene.
Emergency procedures	
<b>For emergency responders</b>	Do not attempt to take action without suitable protective equipment. Wear full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure. For further information refer to section 8.
Protective equipments	
Emergency procedures	Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## 6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Notify authorities if product enters sewers or public waters.

## 6.3 Methods and Material for Containment and Cleaning Up

For containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Ventilate area. Clean-up should be dealt with only by qualified personnel familiar with the specific substance.
Other information	For disposal of solid materials or residues refer to section 13.

## 6.4 Reference to other sections

No further relevant information available

## SECTION 7. Handling and Storage

### 7.1 Precautions for Safe Handling

Additional hazards when processed	Pressurized container: Do not pierce or burn, even after use. Close valve after each use and when empty.
Precautions for safe handling	Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe fumes, gas, mist, spray, vapors.
Safe handling of the gas receptacle	Wear personal protective equipment. Avoid contact with skin and eyes. Smoking is forbidden. Securely chain cylinders when in use and protect against physical damage. Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.

### 7.2 Conditions for Safe Storage, Including Any Incompatibilities

Technical measures	Comply with applicable regulations.
Storage conditions	Protect from sunlight. Do not expose to temperatures exceeding 50 °C. Keep container closed when not in use.
Incompatible materials	Refer to Section 10 on Incompatible Materials. Store in dry, cool, well-ventilated area.

### 7.3 Specific End Use(s)

No further relevant information available

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## SECTION 8. Exposure Controls/Personal Protection

## 8.1 Control Parameters

Name	Category	Standard Values
trans-1,3,3,3-Tetraflouropropene	TWA, 8 hours	SUP 1000 ppm
	TWA (WEEL: US. OARS.)	800 ppm
	Worker - inhalation, long-term - systemic	DNEL 3902 mg/m3
	Freshwater	PNEC 0.1 mg/l
	Freshwater - intermittent	PNEC 1 mg/l

## 8.2 Exposure Controls

Hand protection	Protective gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with this product.
Eye protection	Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Skin and body protection	Chemical goggles or safety. Face shield. 29 CFR 1910.1333: Eye and Face Protection. Wear suitable protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Wear OSHA/MSHA approved full or half face pieces (with chemical goggles) respiratory protective equipment for organic vapors. The respirator uses limitations made by OSHA/MSHA or the manufacturer must be observed. For high concentrations, confined areas, and oxygen deficient atmospheres wear air-supplied mask or self-contained breathing apparatus.
Thermal hazard protection	Cold insulating gloves.
Control of environment exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Other Information	Safety shoes.

## SECTION 9. Physical and Chemical Properties

## 9.1 Information on Basic Physical and Chemical Properties

Appearance	Liquefied gas
Color	Colorless
Odor	Slight odor
Odor threshold	No data available
pH	No data available
Molecular mass	114.04
Melting point (°C)	No data available
Freezing point (°C)	No data available
Boiling point (°C)	-19
Critical temperature (°C)	109.4
Critical pressure (MPa)	3.64
Flash point	Not applicable
Relative evaporation rate (butyl acetate = 1)	>1
Flammability (solid, gas)	No data available
Flammability/Explosion limits	No LFL and UFL was assigned at standard testing conditions, 21 °C. Exhibits flame limits at temperatures in excess of 28 °C. LFL: 5.7% (V), UFL: 11.3% (V) at 60 °C
Explosive properties	No data available
Oxidizing properties	No data available
Vapor pressure (bar)	5.27 (@ 26 °C)
Relative liquid density (water = 1)	No data available
Relative gas density (gas = 1)	4
Specific gravity/density	1.16 g/ml (@ 26 °C)
Specific volume (ft <sup>3</sup> /lb)	No data available
Water Solubility	0.373 g/l (@ 20 °C)
Partition coefficient: n-octanol/water	log Pow 1.6
Auto-ignition temperature (°C)	368

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Decomposition temperature	No data available
Viscosity	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available

## 9.2 Other Information

No further relevant information available

## SECTION 10. Stability and Reactivity

### 10.1 Other Information

Stable under recommended transport or storage conditions.

### 10.2 Chemical Stability

The product is stable at normal handling and storage conditions.

### 10.3 Possibility of Hazardous Reactions

Hazardous reactions will not occur under normal transport or storage conditions. Keep away from heat, sparks and flame.

### 10.4 Conditions to Avoid

Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

### 10.5 Incompatible Materials

Alkali metals. Finely divided metals (Al, Zn, Mg). Strong oxidizing agents.

### 10.6 Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

## SECTION 11. Toxicological Information

### 11.1 Information on Toxicological Effects

Name	Category	Standard Values
trans-1,3,3,3-Tetrafluoropropene	LC <sub>50</sub> Inhalation (rat, 4 hours)	207000 ppm, >965 mg/l
	LC <sub>50</sub> Inhalation (mouse, 4 hours)	100000 ppm
	Repeated Dose Toxicity (rat, 13 weeks)	NOEL 5000 ppm
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/irritation	Causes serious eye irritation.	
Respiratory or skin sensitization	No further relevant information available.	
Germ cell mutagenicity	No further relevant information available.	
Carcinogenicity	No further relevant information available.	
Reproductive toxicity	No further relevant information available.	
Specific target organ toxicity – single exposure	May cause drowsiness or dizziness. May cause respiratory irritation.	
Specific target organ toxicity – repeated exposure	No further relevant information available.	
Symptoms/injuries after skin contact	Contact with the liquid may cause cold burns/frostbite.	
Symptoms/injuries after eye contact	Direct contact with the liquefied gas may cause severe and possibly permanent eye injury due to frostbite from rapid liquid evaporation.	
Additional Information	No further relevant information available.	

## SECTION 12. Ecological Information

### 12.1 Toxicity

Name	Category	Standard Values
trans-1,3,3,3-Tetrafluoropropene	NOEC (Algae, 72 hours)	>170 mg/l
	EC <sub>50</sub> (Daphnia magna, 48 hours)	>160 mg/l
	NOEC (Cyprinus carpio, 96 hours)	>117 mg/l

### 12.2 Persistence and Biodegradability

The product is not readily biodegradable.

### 12.3 Bio-accumulative Potential

No further relevant information available.

### 12.4 Mobility in Soil

No further relevant information available.

### 12.5 Results of PBT and vPvB Assessment

This product does not contain any PBT or vPvB substances.

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## 12.6 Other adverse effects

No further relevant information available.

## SECTION 13. Disposal considerations

### 13.1 Waste treatment methods

Waste treatment methods	Remove to an authorized incinerator equipped with an after burner and a flue gas scrubber.
Waste disposal recommendations	Dispose of contents/container in accordance with licensed collector's sorting instructions. Dispose in an approved chemical landfill in accordance with any local, state, or federal regulations.
Additional information	Recycle the material as far as possible.

## SECTION 14. Transport Information

### DOT (Department of Transportation)

#### Transport document description

UN-No. (DOT)	3163
Proper Shipping Name (DOT)	Liquefied gas, n.o.s. (trans-1,3,3,3-Tetrafluoroprop-1-ene) 2.2
Transport hazard class(es) (DOT)	2.2
Hazard labels (DOT)	II
Packing Group	

#### IMDG (Transport by sea)

UN-No. (IMDG)	3163
Proper Shipping Name (IMDG)	Liquefied gas, n.o.s. (trans-1,3,3,3-Tetrafluoroprop-1-ene) 2.2
Class (IMDG)	2.2
Label (s) Packing group	II
Marine Pollutant	No

#### IATA/ICAO (Air transport)

UN-No. (IATA)	3163
Proper Shipping Name (IATA)	Liquefied gas, n.o.s. (trans-1,3,3,3-Tetrafluoroprop-1-ene) 2.2
Class (IATA)	2.2
Label (s) Packing group	II

#### TOG

UN-No. (TOG)	3163
Proper Shipping Name (TOG)	Liquefied gas, n.o.s. (trans-1,3,3,3-Tetrafluoroprop-1-ene) 2.2
Class (TOG)	2.2
Label (s)	II
Packing group	

#### ADR

UN-No. (ADR)	3163
Proper Shipping Name (ADR)	Liquefied gas, n.o.s. (trans-1,3,3,3-Tetrafluoroprop-1-ene)
Class (ADR)	2.2
Label (s)	2.2
Packing group	II

## Further Information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. The transportation information is not intended to convey all specific regulatory data relating to this material.

## SECTION 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for substance or mixture are listed.

### 15.1 US Federal Regulations

United States TSCA (Toxic Substances Control Act) inventory: listed.

## Disclaimer

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precaution. It does not represent any guarantee of the properties of the product nor that the hazard precautions or procedures described are the only ones which exist. Pac-Dent, Inc. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. For additional information, please visit our web site at [www.pac-dent.com](http://www.pac-dent.com)