

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

#### 1.1. Product identifier

Product form : Substance  
Trade name : CANDELA GENTLCOOL (CRYOGEN)  
IUPAC name : 1,1,1,2-tetrafluoroethane  
EC no : 212-377-0  
CAS No. : 811-97-2

Product code : 1600-00-0190 (675 g)  
166-00-0210 (1000 g)

Formula : C<sub>2</sub>H<sub>2</sub>F<sub>4</sub>  
Synonyms : CC0050  
Product group : Trade product

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

##### 1.2.1. Relevant identified uses

Industrial/Professional use spec. : To provide epidermal protection and comfort when used with compatible Candela aesthetic treatment systems

##### 1.2.2. Uses advised against

No additional information available

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

Only Representative:  
Intertek Analytical Services France  
Campus Industriel Grand  
Chalon Route de Demigny  
Chalon Sur Saone  
France, 71102  
T: +33 (0) 385 99 1280  
F: +33 385 99 12 88  
E-mail: christian.gimenez@intertek.com [direct phone line: +33 (0) 385 99 1274]

Supplier:  
Candela Ibérica S.A.  
"Avda. Castilla 2  
Edificio Europa Bajo  
28831 San Fernando de Henarez"  
Madrid, Spain

#### 1.4. Emergency telephone number

No additional information available

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Liquefied gas H280

Full text of H-phrases: see section 16

##### Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

##### Adverse physicochemical, human health and environmental effects

No additional information available

#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS04

# CANDELA GENTLCOOL (CRYOGEN)

## Safety Data Sheet

according to Regulation (EC) No. 453/2010

Signal word (CLP)	: Warning
Hazard statements (CLP)	: H280 - Contains gas under pressure; may explode if heated
Precautionary statements (CLP)	: P410+P403 - Protect from sunlight. Store in a well-ventilated place

### 2.3. Other hazards

other hazards which do not result in classification	: High exposure may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anesthetic effects and asphyxiation. Contact with liquid may cause frostbite and serious damage to eyes. Increased susceptibility to the effects of this material may be observed on persons with pre-existing disease of the central nervous system and cardiovascular system.
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## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type	: Mono-constituent
Name	: 1,1,1,2-tetrafluoroethane
CAS No.	: 811-97-2
EC no	: 212-377-0
EC index no	:

Name	Product identifier	%	Classification according to Directive 67/548/EEC
1,1,1,2-tetrafluoroethane	(CAS No.) 811-97-2 (EC no) 212-377-0	100	Not classified
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,1,1,2-tetrafluoroethane	(CAS No.) 811-97-2 (EC no) 212-377-0	100	Liquefied gas, H280

Full text of R-, H- and EUH-phrases: see section 16.

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Exposure to high concentrations: If not breathing, give artificial respiration. Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of breathing difficulties administer oxygen. Seek medical advice.
First-aid measures after skin contact	: After contact with skin, wash immediately with plenty of water. (for at least 15 minutes). Remove all contaminated clothing and footwear. Seek medical advice. Treat for frostbite if necessary by gently warming affected area.
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 minutes. Seek medical advice.
First-aid measures after ingestion	: Ingestion is not considered a potential route of exposure.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: Increased adrenals, liver, spleen weight, decreased urine and prostate weight are temporary result of single exposure to near lethal doses of product. Tremors incoordination is temporary effect of repeated exposure to higher concentrations.
Symptoms/injuries after skin contact	: slightly irritant but not relevant for classification.
Symptoms/injuries after eye contact	: Contact with product may cause cold burns or frostbite. slightly irritant but not relevant for classification.
Symptoms/injuries after ingestion	: Ingestion is not considered a potential route of exposure.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should only be used with special caution in situations of emergency life support.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

No additional information available

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: Not flammable at ambient temperature and pressure. Mixture of 60% in air is flammable at lower pressure than 5.5 psi and higher temperature than 177 degree celcius. On combustion, forms: hydrogen fluoride. possibly carbonyl fluoride.
Explosion hazard	: Cylinders may rupture under fire conditions.

### 5.3. Advice for firefighters

Firefighting instructions	: Cool down the cylinders exposed to heat with a water spray.
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Protective equipment for firefighters	: Extra personal protection: complete protective clothing including self-contained breathing apparatus.
Other information	: Contact of welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size, therefore stop all work and ventilate the area before proceeding.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Protective equipment	: Refer to section 8.
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##### 6.1.2. For emergency responders

Protective equipment	: Refer to section 8.
Emergency procedures	: Ventilate affected area. keep away from open flame and hot surfaces.

#### 6.2. Environmental precautions

No additional information available

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Ventilate affected area. Product is heavier than air, attention to the lower levels and enclosed places. keep away from open flame and hot surfaces.
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#### 6.4. Reference to other sections

Refer to sections 8 and 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling	: Avoid contact with skin. Avoid inhalation of product. Avoid mixing with air or use for any purpose above atmospheric pressure.
Handling temperature	: < 52 °C

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage condition(s)	: Store tightly closed in a dry, cool and well-ventilated place. keep away from incompatible materials. keep away from open flame and hot surfaces.
Incompatible materials	: Alkaline earth metals. alkali. Powdered Al, Zn, Be. Strong oxidizing agents. Chlorine (Cl <sub>2</sub> ).
Storage temperature	: < 52 °C

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

CANDELA GENTLCOOL (CRYOGEN) (811-97-2)		
EU	Notation	AEL * (DuPont) : 1000 ppm, 8 & 12 hours TWA
1,1,1,2-tetrafluoroethane (811-97-2)		
Austria	MAK (mg/m <sup>3</sup> )	4200 mg/m <sup>3</sup>
Austria	MAK (ppm)	1000 ppm
Austria	MAK Short time value (mg/m <sup>3</sup> )	16800 mg/m <sup>3</sup>
Austria	MAK Short time value (ppm)	4000 ppm
Germany	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	4200 mg/m <sup>3</sup>
Germany	TRGS 900 Occupational exposure limit value (ppm)	1000 ppm
Switzerland	VME (mg/m <sup>3</sup> )	4200 mg/m <sup>3</sup>
Switzerland	VME (ppm)	1000 ppm
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	4240 mg/m <sup>3</sup>
United Kingdom	WEL TWA (ppm)	1000 ppm
Lithuania	IPRV (mg/m <sup>3</sup> )	2000 mg/m <sup>3</sup>
Lithuania	IPRV (ppm)	500 ppm
Lithuania	TPRV (mg/m <sup>3</sup> )	3000 mg/m <sup>3</sup>
Lithuania	TPRV (ppm)	750 ppm
Australia	TWA (mg/m <sup>3</sup> )	4240 mg/m <sup>3</sup>
Australia	TWA (ppm)	1000 ppm

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### 8.2. Exposure controls

Appropriate engineering controls : Provide local exhaust or general room ventilation to minimize vapour concentrations. Mechanical ventilation should be used in low or enclosed places. Monitor the refrigerant concentration to determine vapor concentrations in enclosed work areas or prior to use of torches or other open flames.

Personal protective equipment : Gloves. Protective goggles.



Hand protection : Protective gloves.

Eye protection : Wear chemical splash goggle.

Respiratory protection : Self-contained breathing apparatus (SCBA) is required if a large release occurs.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: liquefied gas.
Colour	: colourless.
odour	: slightly ethereal.
Odour threshold	: No data available
pH	: No data available
Melting point	: No data available
Solidification point	: No data available
Boiling point	: -26.5 °C
Flash point	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosive limits	: No data available
Vapour pressure	: 6.62 bar at 25°C
Relative vapour density at 20 °C	: 3.6 at 25°C; (Air=1)
Relative density	: No data available
Density	: 1.21 g/cm <sup>3</sup> at 25°C
Solubility	: Water: 0.15 g/100ml at 25°C
Log Pow	: No data available
Log Kow	: No data available
Self ignition temperature	: > 743 °C
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

keep away from open flame and hot surfaces.

### 10.5. Incompatible materials

Alkaline earth metals. alkali. Powdered Al, Zn, Be. Strong oxidizing agents. Chlorine.

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### 10.6. Hazardous decomposition products

hydrogen fluoride. possibly carbonyl fluoride.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

#### 1,1,1,2-tetrafluoroethane (811-97-2)

LC50 inhalation rat (ppm)	567000 ppm/4h
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Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

#### 1,1,1,2-tetrafluoroethane (811-97-2)

LC50 fishes	> 450 mg/l 96 hours
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LC50 other aquatic organisms	> 730 mg/l
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EC50 Daphnia	> 980 mg/l 48 hours
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ErC50 (algae)	> 142 mg/l 96 hours
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### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Contaminated with product can be recovered by distillation or removed to a permitted waste disposal facility.

Waste disposal recommendations : Comply with applicable local, national and international regulation.

## SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

### 14.1. UN number

UN-No. : 3159

### 14.2. UN proper shipping name

Proper shipping name : 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A)

Transport document description : UN 3159 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134A), 2.2, (C/E)

### 14.3. Transport hazard class(es)

Class (UN) : 2

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Hazard labels (UN) : 2.2



### 14.4. Packing group

Packing group (UN) : Not applicable

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

#### 14.6.1. Overland transport

Hazard identification number (Kemler No.) : 20

Classification code : 2A

Orange plates :



Tunnel restriction code : C/E

Limited quantities (ADR) : 120 mL

Excepted quantities (ADR) : E1

EAC code : 2TE

#### 14.6.2. Transport by sea

No additional information available

#### 14.6.3. Air transport

No additional information available

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

No Annex XVII restrictions

Contains no REACH candidate substance

Other regulations, restrictions and prohibition regulations : Compliance with following regulations: Regulation (EC) 1907/2006 as amended. Regulation (EC) 1272/2008 as amended. Directive 67/548/EEC as amended. Directive 1999/45/EC as amended.

#### 15.1.2. National regulations

VbF class : A II - Liquids with a flashpoint between 21°C and 55°C

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

Indication of changes : All requirements according to Regulation (EC) No 453/2010 were applied.

Sources of Key data : MSDS.

Abbreviations and acronyms : CAS - Chemical Abstracts Service. CLP - Classification, Labelling and Packaging. CSR - Chemical Safety Report. EC - European Community. EEC - European Economic Community. IARC (International Agency for Research on Cancer). MSDS - Material Safety Data Sheet. Overland transport (ADR). PBT - Persistent, Bioaccumulative and Toxic substance. PEL - Permissible Exposure Level. REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals. SDS - Safety Data Sheet. STEL - Short-Term Exposure Limit. TLV - Threshold Limit Value. TWA - Time Weighted Average. vPvB - Very Persistent and Very Bioaccumulative.

Full text of R-, H- and EUH-phrases:

Liquefied gas	Gases under pressure Liquefied gas
H280	Contains gas under pressure; may explode if heated

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.