SAFETY DATA SHEET

1. Identification

Product identifier **Thermacell Butane Cartridge**

Other means of identification

Product code C-15

CAS number 68476-85-7

Recommended use Gas cartridge.

Recommended restrictions Use only per label directions.

Manufacturer/Importer/Supplier/Distributor information

Company name Thermacell Repellents, Inc.

Address 26 Crosby Drive
Bedford, MA 01730
United States

Website www.thermacell.com

Telephone (781) 430-5277

Emergency telephone CHEMTREC: +1-703-527-3887
CCN 19760

2. Hazard identification

Physical hazards	Flammable gases	Category 1
	Gases under pressure	Liquefied gas
	Simple asphyxiants	Category 1
Health hazards	Health hazards not otherwise classified	Category 1

Label elements

Signal word Danger

Hazard statement Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation. Contact with liquefied gas may cause frostbite.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Use only with adequate ventilation.

Response Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage Protect from sunlight. Store in a well-ventilated place.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Supplemental information None.

Other hazards None known.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Petroleum gases, liquified		68476-85-7	100

Constituents

Chemical name	Common name and synonyms	CAS number	%
n-Butane		106-97-8	≤ 60

Constituents

Chemical name	Common name and synonyms	CAS number	%
Isobutane		75-28-5	≤ 40
Propane		74-98-6	≤ 1
1,3-Butadiene		106-99-0	< 0.1
Sulphur		7704-34-9	≤ 150 ppm

Composition comments Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

Skin contact Not likely, due to the form of the product. If frostbite occurs, immerse affected area in warm water (not exceeding 105°F/41°C). Keep immersed for 20 to 40 minutes. Get medical attention immediately.

Eye contact Not likely, due to the form of the product. If frostbite occurs, immediately flush eyes with plenty of warm water (not exceeding 105°F/41°C) for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

Ingestion This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Most important symptoms/effects, acute and delayed Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.

Indication of immediate medical attention and special treatment needed Exposure may aggravate pre-existing respiratory disorders. Provide general supportive measures and treat symptomatically.

General information First aid personnel must be aware of own risk during rescue. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Extremely flammable gas. May form explosive mixtures with air. Gas may travel considerable distance to a source of ignition and flash back. During fire, hazardous combustion products are released that may include: Carbon dioxide.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Remove or isolate all sources of ignition. Do not extinguish a leaking gas fire unless leak can be stopped. Stop leak if you can do so without risk. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Extremely flammable gas. Contents under pressure. Pressurised container may explode when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Stop the flow of material, if this is without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed. For waste disposal, see section 13 of the SDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Contents under pressure. Do not puncture or incinerate container. Do not expose to heat. Protect containers from damage. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO2 = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C. Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Material	Type	Value
Petroleum gases, liquified (CAS 68476-85-7)	STEL	1500 ppm
	TWA	1000 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Material	Type	Value
Petroleum gases, liquified (CAS 68476-85-7)	TWA	1800 mg/m3
		1000 ppm

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)

Material	Type	Value
Petroleum gases, liquified (CAS 68476-85-7)	15 minute	1250 ppm
	8 hour	1000 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles). Applicable for industrial settings only.

Skin protection

Hand protection

Wear protective gloves. Nitrile gloves are recommended. Use gloves with breakthrough time of 15 minutes. Minimum glove thickness 0.6 mm. Applicable for industrial settings only.

Other

Wear suitable protective clothing. Applicable for industrial settings only.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear positive pressure self-contained breathing apparatus (SCBA). Selection and use of respiratory protective equipment should be in accordance with CSA Standard Z94.4. Check with respiratory protective equipment suppliers. Applicable for industrial settings only.

WARNING! Air-purifying respirators do not protect workers in oxygen deficient atmospheres.

Thermal hazards	Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary. Applicable for industrial settings only.
General hygiene considerations	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Gas.
Form	Compressed liquefied gas.
Colour	Colourless.
Odour	Faint disagreeable odor.
Odour threshold	Not determined.
pH	Not applicable. Material is non soluble in water.
Melting point/freezing point	< -180 °C (< -292 °F)
Initial boiling point and boiling range	-1 °C (30.2 °F) (@ 1013 hPa)
Flash point	-40 °C (-40 °F)
Evaporation rate	Property has not been measured.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	8.5 % (@ 1013 hPa)
Explosive limit – upper (%)	1.44 % (@ 1013 hPa)
Vapour pressure	345 kPa (20 °C (68 °F))
Vapour density	2 (Air=1) (15 °C (59 °F))
Relative density	Property has not been measured.
Solubility(ies)	
Solubility (water)	< 0.1 % Insoluble in water.
Partition coefficient (n-octanol/water)	Property has not been measured.
Auto-ignition temperature	410 °C (770 °F) (@ 1013 hPa)
Decomposition temperature	Not applicable as the product is not unstable.
Viscosity	Not applicable for product form.
Other information	
Density	563 kg/m³ (Liquid phase)
Explosive properties	Not explosive.
Kinematic viscosity	Not applicable for product form.
Oxidising properties	Not oxidising.
Particle size	Not applicable for product form.

10. Stability and reactivity

Reactivity	Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	May form explosive mixture with air.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidising agents. Strong acids. Halogens. Nitrates. Nitrites. Chlorites. Inorganic chlorides. Perchlorates.
Hazardous decomposition products	Thermal decomposition of this product can generate carbon monoxide and carbon dioxide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Ingestion	This material is a gas under normal atmospheric conditions and ingestion is unlikely.
Symptoms related to the physical, chemical and toxicological characteristics	Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.

Information on toxicological effects

Acute toxicity	Not expected to be acutely toxic.
Skin corrosion/irritation	Not classified.
Serious eye damage/eye irritation	Not classified.
Respiratory or skin sensitisation	

Canada - British Columbia OELs: Simple asphyxiant

Petroleum gases, liquified (CAS 68476-85-7)	Simple asphyxiant.

Canada - Manitoba OELs Hazard: Asphyxiant

Petroleum gases, liquified (CAS 68476-85-7)	Simple asphyxiant.

Canada - Ontario OELs: Asphyxiant

Petroleum gases, liquified (CAS 68476-85-7)	Simple asphyxiant.

Respiratory sensitisation	Not a respiratory sensitiser.
Skin sensitisation	This product is not expected to cause skin sensitisation.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not relevant, due to the form of the product.
Chronic effects	Exposure over a long period of time may cause central nervous system effects.

12. Ecological information

Ecotoxicity	The product is not expected to be hazardous to the environment.
Persistence and degradability	Not relevant, due to the form of the product.
Bioaccumulative potential	Not relevant, due to the form of the product.
Mobility in soil	Not relevant, due to the form of the product.
Other adverse effects	The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions	Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.
Local disposal regulations	Dispose of in accordance with local regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose in accordance with all applicable regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG

UN number	UN2037
UN proper shipping name	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non refillable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	-
Environmental hazards	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Exempt from classification under Special Provision 107.

IATA

UN number	UN2037
UN proper shipping name	Receptacles, small, containing gas or gas cartridges (flammable), without release device, not refillable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	-
Environmental hazards	No
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Containers less than 1 kg shipped as Limited Quantity.

IMDG

UN number	UN2037
UN proper shipping name	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non refillable
Transport hazard class(es)	
Class	2
Subsidiary risk	-
Packing group	-
Environmental hazards	
Marine pollutant	No
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Exempt from classification under Special Provision 191.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. Regulatory information

Canadian regulations	This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 15-June-2021

Revision date -

Version No. 01

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