Natural Fuel Cell Aerosol
Safety Data Sheet

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name Natural Fuel Cell Aerosol 500ml
(For Chameleon and Salamander machines)

Product number 4002/GS0007N

1.2. Relevant identified uses of the substance or mixture

Identified Uses Professional use

Uses Advised Against Applications which do not fulfill the above-mentioned purpose.

1.3. Details of the supplier of the safety data sheet

Green Star,
Steenpad 21H,
4797 SG Willemstad,
Netherlands.

Tel: +31 168 473 194
Email: info@green-star.nl (competent person)
Web: https://www.green-star.nl

1.4. Emergency telephone Nos

+31 168 473 194
During office hours: Mon-Fri
09.00-17.00

United States

Poison Centre, ChemTel Inc
Tel: 1 800 255 3924
International: +1 813 248 0585

Section 2: Hazards identification

2.1. Classification of the substance or mixture classification

Classification according to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Section: B.3
Hazard Class: Flammable Aerosol
Category: 1
Hazard Class & Category: Flam. Aerosol 1
Hazard statement: H222

Section: B.5
Hazard Class: Gases under pressure
Category: C
Hazard Class & Category: Press. Gas C
Hazard statement: H280

Additional information
For full text of H-phrases, see Section 16

2.2 Label elements

Labelling according to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Hazard pictograms


GHS02


GHS04

Signal word	Danger
Hazard statements	
H222	Extremely flammable aerosol.
H280	Contains gas under pressure; may explode if heated.
Precautionary statements:	
P210	Keep away from heat, hot surfaces, sparks, naked flames and other ignition sources. Do not smoke.
P211	Do not spray on a naked flame or other ignition source.
P251	Pressurized container. Do not pierce or burn, even after use.
P410+P403	Protect from sunlight. Store in a well-ventilated place.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

2.3 Other hazards

There is no additional information.

Results of PBT and vPvB assessment
Does not contain any substances that are assessed to be PBT or vPvB ≥ 0.1 %

Endocrine disrupting properties
Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0.1 %

Section 3: Composition/information on ingredients

3.1. Substances

Not relevant (mixture).

3.2. Mixtures

This product does not contain (other) ingredients which are classified according to present knowledge of the supplier and contribute to the classification of the product, and hence require reporting in this section.

Substance name	Identifier CAS No	Wt%	GHS Classification	Pictograms	Notes
Propane	*74-98-6*	*25-<50*	*sA OSHA002* *Flam. Gas 1 H220* *Press. Gas C H280*		*U(b)*
Butane	*106-97-8*	*50-<75*	*Flam. Gas 1 H220* *Press. Gas C H280*		*U(b)*

Notes

U(b) The allocation to the group 'compressed gas' is based on the physical state in which the gas is packaged.

Additional information
All percentages given are percentages by weight unless stated otherwise. For full text of H-phrases see Section 16.

Section 4: First aid measure

4.1. Description of first aid measures

General information	Do not leave affected person unattended and remove from the danger area. If unconscious, place in the recovery position. Never give anything by mouth. Remove all contaminated clothing immediately. If case of doubt, or if symptoms persist, seek medical attention immediately.
After inhalation	Provide fresh air. In case of shortness of breath or if breathing has stopped, seek medical attention immediately and administer first aid. In case of respiratory tract irritation, consult a doctor.
After skin contact	Wash off immediately with plenty of soap and water. Thaw frosted parts with lukewarm water. Do not rub affected area. If a rash or skin irritation occurs, seek medical attention.
After eye contact	Rinse eye(s) thoroughly with plenty of clean, fresh water for at least 15 minutes, holding eyelids apart. Remove any contact lenses if present and if this can be done safely. Continue to rinse. If eye irritation persists, consult an eye specialist as soon as possible.
After swallowing	Rinse mouth thoroughly with water if person is conscious. Never give anything by mouth to an unconscious person. If feeling unwell, call a doctor immediately.

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

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

For specialist advice, medical doctors should contact the poison centre.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents	Use water spray or dry chemical extinguishers. Firefighting measures should be appropriate to surroundings.
For safety reasons, unsuitable extinguishing agents	Water jet

5.2 Special hazards arisings from the substance or mixture

Contact with the product can cause burns and/or frostbite.

Hazardous combustion products

Contains gas under pressure: may explode if heated.

5.3 Advice for firefighters

In case of fire and/or explosion, do not inhale fumes. Firefighting measures should be chosen in accordance with surroundings. Collect contaminated firewater separately and do not allow to enter drains or water courses. Fight fire from a safe distance and while taking usual precautions.

Special protective equipment for firefighters
Self-contained breathing apparatus (SCBA) and standard protective clothing for firefighters.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Non-emergency personnel
Remove people to safety and keep away from and upwind of spill/leak. Ventilate affected area.

Emergency personnel
Wear breathing apparatus if exposed to vapours/dust/aerosols/gases. Wear personal protective equipment/face protection.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Collect and dispose of contaminated firewater.

6.3 Methods and materials for containment and cleaning up

Advice on how to contain a spill
Covering of drains.

Other information relating to spills and releases
Place in appropriate containers for disposal. Ventilate affected area.

Reference to other sections

See Section 5 for hazardous combustion products.
See Section 8 for personal protective equipment.
See Section 10 for incompatible materials.
See Section 13 for disposal considerations.

Section 7: Handling and storage

7.1 Precautions for safe handling

Recommended measures to prevent fire as well as aerosol and dust generation
Use local and general ventilation and restrict use to well-ventilated areas only. Ground/bond container and receiving equipment.

Advice on occupational hygiene
Wash hands after use. Do not eat, drink or smoke in work areas. Remove all contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are usually used for food and drink. Keep away from food, drink and animal foodstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Management of associated risks

- Flammability hazards
  Keep away from heat, hot surfaces, sparks, naked flames and other ignition sources. Do not smoke. Take precautionary measures against static discharge. Do not spray on a naked flame or other ignition source. Protect from sunlight.

- Incompatible substances or mixtures
  Keep away from acids, alkalis and oxidizing substances.

Control of effects

- Protect from external exposure such as high temperatures and UV-radiation/sunlight.

Other considerations

- Store in a well-ventilated place. Keep containers tightly sealed.
- Only store in original packaging/containers.

7.3 Specific end use(s)

There is no additional information.

Section 8: Exposure controls/personal protection

8.1. Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
US	n-butane	106-97-8	TLV®			1,000		E	ACGIH® 2022
US	propane	74-98-6	PEL	1,000	1,800				29 CFR 1910.1000
US	propane	74-98-6	TLV®					oxygen, Simple Asp., E	ACGIH® 2022

Notation	
E	explosive
oxygen	adequate oxygen delivery to the tissues is necessary for sustaining life.
Simple Asp.	simple asphyxiants
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours' time-weighted average (unless otherwise specified).

Relevant DNELs/DMELs/PNECs and other threshold levels
No data available.

8.2. Exposure controls

Appropriate engineering controls
General ventilation.

Personal protective equipment

- Eye/face protection
  Use safety goggles with side protection
- Skin protection
  Chemical protective clothing
- Hand protection
  Wear suitable gloves. Suitability not only depends on the material but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

- Type of material
  Nitrile rubber.

- Material thickness
  Use gloves with a minimum material thickness of ≥ 0.38mm

- Breakthrough time of the glove material
  Use gloves with a minimum breakthrough time of the glove material of >480 minutes (permeation level 6).

- Other protection measures
  Take recovery periods for skin regeneration. Use of preventative skin protection e.g. barrier creams or ointments, is recommended. Wash hands thoroughly after use. Provision of eyewash stations and safety showers in the workplace.

Respiratory protection
During spraying, wear suitable respiratory equipment. In poorly ventilated areas, wear respiratory protection. Type: ABEK-P2 (combined filters against gases, vapours and particles, colour code: Brown/Grey/Yellow/Green/White). Observe the OSHA respirator regulations cited in 29 CFR 1910.134 and use NIOSH/MSHA approved respirators.

Environmental exposure controls
Take appropriate precautions to avoid uncontrolled release into the environment. Keep away from drains, surface and ground water.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Aerosol (spray aerosol)
Colour	Various
Particle	Not relevant (aerosol)
Odour	Characteristic

Melting/freezing point	-187.6 ˚C at 1,013 hPa calculated value, referring to a component of the mixture
Boiling point/initial boiling point/boiling range	-161.5 °C at 1.013 hPa calculated value referring to a component of the mixture
Flammability	Flammable aerosol in accordance with GHS criteria
Explosive limits	LEL: 5 vol% UEL: 15 vol% calculated value, referring to a component of the mixture
Flash point	-88.6 °C at 1.013 hPa (fluid) calculated value
Evaporation rate	Not determined
Auto-ignition temperature	537 °C (auto-ignition temperature (liquid and gases)) calculated value referring to a component of the mixture
Decomposition temperature	No data available
pH (value)	Not determined
Solubility	Not determined
n-octanol/water (log KOW)	No available information
Vapour pressure	Not determined
Density	Not determined
Vapour density	No available information
Viscosity	Not relevant (aerosol)
Kinematic viscosity	Not relevant
Explosive properties	None
Oxidising properties	None

9.2 Other information

There is no additional information.

Propellant content	100%
Temperature class (USA, acc. to NEC 500)	T1 (maximum permissible surface temperature on the equipment: 450˚C)

Section 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition. If heated, danger of explosion. Gas under pressure. Danger of bursting container.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Do not spray on a naked flame or other ignition source. Keep away from heat.

Hints to prevent fire or explosion
Protect from sunlight.

10.5 Incompatible materials

Oxidizers.

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see Section 5.

Section 11: Toxicological information

11.1 Information on toxicological effects

Test data for the complete mixture are not available.

Classification procedure
The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity	Shall not be classified as acutely toxic.
Skin corrosion/irritation	Shall not be classified as corrosive/irritant to skin
Serious eye damage/eye irritation	Shall not be classified as seriously damaging to the eye or eye irritant
Respiratory or skin sensitisation	Shall not be classified as a respiratory or skin sensitiser
Germ cell mutagenicity	Shall not be classified as germ cell mutagenic
Carcinogenicity	Shall not be classified as carcinogenic
Reproductive toxicity	Shall not be classified as a reproductive toxicant
Specific target organ toxicity – single exposure	Shall not be classified as a specific target organ toxicant-(single exposure)
Specific target organ toxicity – repeated exposure	Shall not be classified as a specific target organ toxicant-(repeated exposure)
Aspiration hazard	Shall not be classified as presenting an aspiration hazard

11.2 Information on other hazards

Endocrine disrupting properties
Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0.1 %

Section 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture

Substance name	CAS No.	Endpoint	Value	Species	Exposure time
Propane	*74-98-6*	*LC50*	*49.9 mg/l*	*Fish*	*96 h*
Propane	*74-98-6*	*EC50*	*19.37 mg/l*	*Algae*	*96 h*
Butane	*106-97-8*	*LC50*	*49.9 mg/l*	*Fish*	*96 h*
Butane	*106-97-8*	*EC50*	*19.37 mg/l*	*Algae*	*96 h*

Biodegradation

The relevant substances of the mixture are readily biodegradable.

12.2 Persistence and degradability

No available data.

12.3 Bioaccumulative potential

No available data.

12.4 Mobility in soil

No available data.

12.5 Results of PBT and vPvB assessment

Does not contain any substances that are assessed to be PBT or vPvB ≥ 0.1 %.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0.1 %.

12.7 Other adverse effects

No available data.

Section 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information
Do not empty into drains. Avoid release to the environment.

Waste treatment of containers/packaging
Completely empty packaging may be recycled. Handle contaminated packaging in the same way as the substance itself.

Remarks
Please adhere to the relevant national or regional policies. Waste should be separated into categories manageable by local or national waste management facilities.

Section 14: Transport information

14.1 UN number or ID number

DOT	UN 1950
IMDG-Code	UN 1950
ICAO-TI	UN 1950

14.2 UN proper shipping name

DOT	Aerosols each not exceeding 1 l capacity
IMDG-Code	AEROSOLS
ICAO-TI	Aerosols, flammable

14.3 Transport hazard class(es)

DOT	2.1
IMDG-Code	2.1
ICAO-TI	2.1

14.4 Packing group Not assigned

14.5 Environmental hazards Non-environmentally hazardous according to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Maritime transport in bulk according to IMO instruments

No available data.

Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT) - additional information

Particulars in the shipper's declaration	UN1950, Aerosols 2.1
Danger label(s)	2.1

Special provisions (SP)	N82
ERG No	126

International Maritime Dangerous Goods Code (IMDG) - additional information

Marine pollutant	-
Danger label(s)	2.1

Special provisions (SP)	63, 190, 277, 327, 344, 381, 959
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 l
EmS	F-D, S-U
Stowage category	-

International Civil Aviation Organization (ICAO-IATA/DGR) - additional information

Danger label(s)	2.1

Special provisions (SP)	A145, A167
Excepted quantities (EQ)	E0
Limited quantities (LQ)	30 kg

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation for the product in question
National Regulations (United States)

Toxic Substance Control Act (TSCA) All ingredients are listed.

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

None of the ingredients are listed.

Specific Toxic Chemical Listings (EPCRA Section 313)

None of the ingredients are listed.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

None of the ingredients are listed.

Clean Air Act

Name of substance	CAS No	Type of registation	Basis for listing	Threshold quantity (lbs)
Butane	*106-97-8*	*Flammable substance*	*f*	*10,000*
Propane	*74-98-6*	*Flammable substance*	*f*	*10,000*

Legend

f	Flammable gas

Right to Know Hazardous Substance List

Cleaning Product Right to Know Act Substance List (CA-RTK)

Name acc. to inventory	CAS No	Functionality	Authoritative Lists
Butane *(containing = 0,1 % butadiene (203- 450-8))*	*106-97-8*		*EC Annex VI CMRs - Cat. 1A* *EC Annex VI CMRs - Cat. 1B*

Toxic or Hazardous Substance List (MA-TURA)

None of the ingredients are listed.

Hazardous Substances List (MN-ERTK)

Name acc. to inventory	CAS No	References	Remarks
Butane	*106-97-8*	*A*	
Alkanes		*N*	
Propane	*74-98-6*	*A, O*	
Alkanes		*N*	
Gases, Simple Asphyxiants		*A*	*Gases*

Legend

A	American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1992-93", available from ACGIH.
Gases	Refers to displacement of air asphyxiation hazard.
N	National Institute for Occupational Safety and Health (NIOSH), "Recommendations for Occupational Safety and Health Standards," Au- gust 1988, available from NIOSH, Publications Dissemination Office, Division of Standards Development and Technology Transfer.
O	Occupational Safety and Health Administration (OSHA), Safety and Health Standards, Code of Federal Regulations, title 29, part 1910, subpart Z, "Toxic and Hazardous Substances, 1990." General information: Minnesota Department of Labor and Industry, Occupational Safety and Health Division.

Hazardous Substance List (NJ-RTK)

Name acc. to inventory	CAS No	Remarks	Classifications
Butane	*106-97-8*		*F4*
Propane	*74-98-6*		*F4*

Legend

F4	Flammable - Fourth Degree

Hazardous Substance List (Chapter 323) (PA-RTK)

Name acc. to inventory	CAS No	Classification
Butane	*106-97-8*	
Propane	*74-98-6*	

Hazardous Substance List (RI-RTK)

Name of substance	CAS No	References
Butane	*106-97-8*	*T, F*
Propane	*74-98-6*	*T*

Legend
F Flammability (NFPA®)
T Toxicity (ACGIH®)

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

None of the ingredients are listed.

Industry or sector specific available guidance(s) NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	*/*	*None*
Health	*0*	*No significant risk to health*
Flammability	*4*	*Material that rapidly or completely vaporizes at atmospheric pressure and normal ambient temperature or that is readily dispersed in air and burns readily.*
Physical hazard	*0*	*Material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive.*
Personal protection	*-*	

NFPA® 704
National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	*4*	*Material that rapidly or completely vaporizes at atmospheric pressure and normal ambient temperature or that is readily dispersed in air and burns readily.*
Health	*0*	*Material that, under emergency conditions, would offer no hazard beyond that of ordinary combustible material*
Instability	*0*	*Material that is normally stable, even under fire conditions*
Special hazard		

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

Section 16: Other information

Abbreviations and acronyms

- **29 CFR 1910.1000**: 29 CFR 1910.1000, Tables Z-1, Z-2, Z-3 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits).
- **49 CFR US DOT**: 49 CFR U.S. Department of Transportation.
- **ACGIH®**: American Conference of Governmental Industrial Hygienists.
- **ACGIH® 2022**: From ACGIH®, 2022 TLVs® and BEIs® Book. Copyright 2022. Reprinted with permission. Information on the proper use of the TLVs® and BEIs®: https://www.acgih.org/science/tlv-bei-guidelines/policies-procedures-presentations/tlv-bei-policy-statement/
- **CAS**: Chemical Abstracts Service (division of the American Chemical Society) that maintains the most comprehensive list of chemical substances.
- **DGR**: Dangerous Goods Regulations (see IATA/DGR)
- **DMEL**: Derived Minimal Effect Level
- **DNEL**: Derived No-Effect Level
- **DOT**: Department of Transportation (USA)
- **EC50**: Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval.
- **EmS**: Emergency Schedule
- **ERG No**: Emergency Response Guidebook - Number
- **Flam. Gas**: Flammable Gas
- **GHS**: Globally Harmonised System of Classification and Labelling of Chemicals, developed by the United Nations.
- **IATA**: International Air Transport Association
- **IATA/DGR**: Dangerous Goods Regulation (DGR) for air transport (IATA)
- **ICAO**: International Civil Aviation Organization
- **ICAO-TI**: Technical instructions for the safe transport of dangerous goods by air
- **IMDG**: International Maritime Code for Dangerous Goods
- **IMDG-Code**: International Maritime Code for Dangerous Goods
- **LC50**: Lethal concentration, 50 %: The LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval.
- **LEL**: Lower explosion limit (LEL)
- **NFPA®**: National Fire Protection Association (United States)
- **NPCA-HMIS® III**: National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition.
- **OSHA**: Occupational Safety and Health Administration (United States)
- **PBT**: Persistent, Bioacummulative and Toxic
- **PEL**: Permissable exposure limit
- **PNEC**: Predicted No-effect Concentration.
- **Ppm**: Parts per million
- **Press. Gas**: Gas under pressure
- **RTECS**: Registry of Toxic Effects of Chemical Substances (NIOSH database with toxicological information)
- **sA**: Simple asphyxiants
- **STEL**: Short-term exposure limit
- **TLV®**: Threshold Limit Values
- **TWA**: Time-weighted average
- **UEL**: Upper explosion limit (UEL)
- **vPvB**: Very Persistent and Very Bioaccumulative

Further information

Key literature references and sources for data
OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for air transport (IATA).

Classification procedure
Physical and chemical properties: the classification is based on tested mixture.
Health hazards, environmental hazards: the method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in Sections 2 and 3)

H220	Extremely flammable gas
H222	Extremely flammable aerosol
H280	Contains gas under pressure: may explode if heated.
OSHA002	May displace oxygen and cause rapid suffocation.

Other information
The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. It only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

LEGAL DISCLAIMER

The information presented herein is accurate to the best of our knowledge. Le Maitre Ltd will not be held liable for any inaccuracy, non-concurrency or incompleteness of the information provided. We disclaim liability for any injury, damage, direct or indirect loss, consequential or economic loss or any other loss occasioned by any use of, the product not in conformity with the instructions herein.

If you have purchased the product for supply to a third party, it is your responsibility to take all necessary steps to ensure that any person handling and using the product is provided with the information in this sheet.