Tulmar Safety Systems Inc
Safety Data Sheet

SECTION 1. IDENTIFICATION

Product Identifier	Model: Galeo Rearming Kit – 67321-001/003/004
Other Means of Identification	Life Vest / Life Preserver Rearming Kit, UN1013 Class 2.2
Recommended Use	Maintenance, Rearming Kit
Restrictions on Use	Contains 1 unit of small compressed gas cylinder. See Life Preserver, Galeo SDS sheet for details once installed on device (re-armed).
Initial Supplier Identifier	Tulmar Safety Systems Inc
Emergency Telephone Number	CANUTEC 613-996-6666

SECTION 2. HAZARD IDENTIFICATION

Classification	Carbon dioxide CO^2, compressed gas, CAS# 124-38-9, UN1013, Class 2.2 Gases under pressure – Liquefied gas Simple asphyxiant
OSHA/HCS Status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910. 1200) when used in a workplace.
Unusual Hazards	The rearming contains pressurized gas cylinder which may discharge or rupture under extreme temperatures or fire. Carbon dioxide displace air and is asphyxiant in high concentrations.
Other Hazards	See section 5
Label Elements	

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration	Common name / Synonyms	Other identifiers
Carbon dioxide	124-38-9	Compressed	CO^2,	UN1013

SECTION 4. FIRST-AID MEASURES

Description of necessary first aid measures

Inhalation	Provide fresh air and seek medical attention.
Eye contact	Direct exposure to the compressed gas stream may cause frostbite. If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper

and lower eyelids. If irritation, pain, swelling or impact on vision persist, get medical attention as soon as possible.

Skin Contact Can cause frostbite / numbness if in contact to liquified CO^2 or direct exposure to the compressed gas discharge. DO NOT rub the affected area(s) or flush them with water: Quickly remove source of contamination; Carefully cut around clothing that sticks to the skin and remove the rest of the garment. Loosely cover the affected area with a sterile dressing. Immediately seek medical attention.

Ingestion DO NOT induce vomiting, seek medical attention immediately.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media	CO^2 is a nonflammable gas
Unsuitable Extinguishing Media	N/A
Specific Hazards Arising from theProduct	When storing in large quantities, large amount of discharged CO^2 may displace oxygen and cause rapid suffocation. Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	Decomposition products may include the following materials: Carbon dioxide Carbon monoxyde
Special Protective Equipment and Precautions for Fire-Fighters	Use water spray to keep fire-exposed containers cool. Fire-fighters should wear appropriate equipment and self-contained breathing apparatus (SCBA).

SECTION 6. ACCIDENTAL RELEASE MEASURES

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training.
Personal Precautions, Protective Equipment, and Emergency Procedures	Compressed gas, protect against frostbite and ventilate the area. To avoid high concentration of CO^2 in case of accidental release, ventilate room or areas.
Methods for Containment and Cleaning Up	Released CO^2 will ventilate to the outside atmosphere and leave no waste behind other than the life preserver, which can be rearmed for future use.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling	Contains gas under pressure. Do not heat or rupture the CO^2 cylinder. Do not drop or crush packaged kits.
Conditions for Safe Storage	Store in cool dry area away from heat source, open flame, and moisture.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH® TLV®		OSHA PEL	
	TWA	STEL	TWA	STEL
Carbon Dioxide	5,000 ppm	30,000 ppm	5,000 ppm	30, 000 ppm

Notes

Appropriate Engineering Controls	Good general ventilation should be sufficient to control worker exposure to airborne contaminants. Mechanical ventilation discharged to the outside, personal enclosure, remote or automated operation.
Individual Protection Measures	
Eye/Face Protection	Safety glasses should be used when dispensing a cartridge.
Skin Protection	Wear protective gloves. Do not touch a cartridge when discharging as it may cause frost burns.
Respiratory Protection	Air supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed OEL.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Gas at normal temperature and pressure
Colour	Colorless
Molecular Weight	44.01 g/mol
Molecular formula	$C\text{-}O_2$
Melting/freezing point	Sublimation temperature: -79C (-110.2F)
Critical temperature	30.85C (87.5F)
Odour	Odorless
Odour Threshold	N/A
pH	N/A
Melting Point andFreezing Point	N/A
Initial Boiling Point and Boiling Range	N/A
Flash Point	Product does not sustain combustion
Evaporation Rate	N/A
Flammability (solid,gas)	N/A
Upper and Lower Flammability orExplosive Limit	N/A
Vapour Pressure	830 psig at 70F
Vapour Density(air = 1)	1.53 (Air = 1), Liquid Density@BP: Solid Density = 97.5 lb/ft^3 (1562 kg/m^3)
Specific Volume	8.7719 ft^3/lb (m^3/g)

Gas Density	0.114 lb/ft^3 (178.6 g/m^3)
Relative Density(water = 1)	N/A
Solubility in Water	N/A
Solubility in OtherLiquids	N/A
Partition Coefficient,n-Octanol / Water (Log Kow)	0.83
Auto-ignition Temperature	N/A
Decomposition Temperature	N/A
Viscosity	N/A

SECTION 10. STABILITY AND REACTIVITY

Reactivity	No specific test data related to reactivity is available for this product or its ingredients.
Chemical Stability	Stable under normal conditions
Possibility of Hazardous Reactions	N/A
Conditions to Avoid	Keep away from heat and sharp objects. May form harmful fumes under fire conditions.
Incompatible Materials	N/A
Hazardous Decomposition Products	The CO^2 will discharge to the atmosphere. Other items in the kit will not be impacted.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

__Inhalation ___Skin contact __Eye contact____Ingestion

Acute Toxicity

LC50	**Not classified**
LD50 (oral)	**Not classified**
LD50 (dermal)	**Not classified**

Notes	
Skin Corrosion / Irritation	**Not a skin irritant**
Serious Eye Damage / Irritation	**May cause mild eye irritation.**
STOT (Specific Target Organ Toxicity) - Single Exposure	**N/A**
Aspiration Hazard	**N/A**
STOT (Specific Target Organ Toxicity) - Repeated Exposure	**N/A**
Respiratory and/or Skin Sensitization	**N/A**

Carcinogenicity: No carcinogenic components identified

Chemical Name	IARC	ACGIH®	OSHA
N/A	N/A	N/A	N/A

Notes

Reproductive Toxicity

Development of Offspring	No reported effects
Sexual Function And Fertility	No reported effects
Effects on or Via Lactation	No reported effects
Germ Cell Mutagenicity	N/A
Interactive Effects	N/A

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	CO2 can be harmful to aquatic life
Persistence and Degradability	N/A

Bioaccumulative Potential

Product / Ingredient name	Log P_{ow}	BCF	Potential
Carbon Dioxide	0.83	-	Low

Mobility in Soil Soil/Water partition coefficient (K_{OC}) Other adverse effects
Other Adverse Effects N/A

SECTION 13. DISPOSAL CONSIDERATIONS

Discharge of Carbon Dioxide	Gradually release in open air.
Disposal of Cylinders and Cartridges	Disposal as per local regulations and in accordance with applicable laws. Larger cylinders with an integrated valve; use a device to empty and recycle. Do not dispose of or recycle cylinders without first checking that all gas has been released.
Disposal of empty cylinders and cartridges	Cartridges with a puncture hole are considered empty and may be recycled

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Technical Name (for N.O.S. entry)	Transport Hazard Class(es)	Packing Instruction IATA
	1013	Nonflammable Gas	Carbon Dioxide	2 (2.2)	CFR 49, 172.101

Special Precautions N/A

Environmental Hazards N/A

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code Limited Quantity (Authorized per 49 CFR 173.306)

Special Notes regarding transportation:

All CO2 filled cartridges less than 114 ml of water capacity offered for ground transportation qualify for the exceptions provided in 49CFR 173.306 so that the proper shipping name of "Limited Quantity" may be used for shipping papers and carton identification labels.

IATA/IACO/FedEx/UPS each have their own unique requirements regarding transportation of CO2 filled cartridges of less than 114ml of water capacity. With a few limited exceptions, cartridges filled with CO2 less than 114ml of water capacity need to be offered as Caron Dioxide UN1013.

49CFR requires that employers shall provide specific training/certification for employees who handle and offer Dangerous Goods for any mode of transportation.

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations SARA 311/312 Hazardous Category: Sudden release of pressure (Yes)
Canada: Listed or exempted

SECTION 16. OTHER INFORMATION

Hazard Rating Systems

NFPA Ratings
Health = 2
Flammability = 0
Reactivity = 0
Special = SA

HMIS Ratings
Health = 1
Flammability = 0
Physical hazards = 3

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