1 IDENTIFICATION

Product Name:	Bushman Resistant Roll-On Personal Insect Repellent
Other Names:	Bushman 20% Roll-On, Bushman Repellent Roll-On Personal Insect Repellent.
Chemical Names	Diethyltoluamide (DEET)
Manufacturer's Product Code:	BP75G
Uses:	Personal Insect Repellent
Supplier Name & Address:	Juno Ltd 68 Bond St West, Modialloc, Vic. 3195 Australia
Telephone:	+61 (0)3 9587 8514
Email:	info@junolabs.com.au
Emergency Telephone:	For ambulance, fire, police call: 000. For medical advice call: 13 11 26

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information

2 HAZARDS IDENTIFICATION

Users of the product should refer to the APVMA approved label on the container for advice in relation to use and handling of the product.

The hazard information contained in this SDS is for people handling the product and its ingredients in the manufacturing environment.

Classified as hazardous according to the criteria of the GHS as adopted in Australia. Not a Dangerous Good according to ADG 7.9.

Acute toxicity	Category 4	H302	Harmful if swallowed
Eye irritation/corrosion	Category 2A	H319	Causes serious eye damage
Skin Corrosion irritation	Category 2	H315	Causes skin irritation

Signal Word: Warning

Note: the following statements apply to non-consumers. Consumers should follow the product label for safety advice.

Precautionary Statements

Prevention:

P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves.

Response:

P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330	Rinse mouth.
P337 + P332 + P313	If skin or eye irritation occurs: Get medical attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.

3 COMPOSITION AND INFORMATION ON INGREDIENTS

Substance Name	CAS Number	Concentration
Diethyltoluamide (DEET)	134-62-3	20% w/v
Other proprietary ingredients not individually contributing to hazards		80%

4 FIRST-AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 13 11 26.

First-Aid for handlers other than consumers. Consumers should follow label directions.	
Inhalation	Remove to fresh air. If breathing difficulties are experienced, seek medical attention.
Skin Contact	Product is designed for application onto skin. If irritation develops stop using product. **In manufacturing environment or handling bulk material**: If large amounts on skin wash off with plenty of soap and water. If irritation develops and persists get medical attention.
Eye Contact	Wash continuously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek prompt medical attention.

Ingestion	Give water to drink. Do NOT induce vomiting. Contact a doctor or Poisons Information Centre. Phone 13 11 26.
Special Advice/Treatment:	Treat symptomatically
Symptoms caused by exposure	Irritating to the skin, eyes and mucous membranes.

5 FIRE-FIGHTING MEASURES

Extinguishing Media:	Foam, dry chemical, CO_2 or water spray.
Specific hazards arising from the chemical:	Gases evolved in fire could include carbon monoxide, carbon dioxide and nitrous oxides.
Special protective equipment and precautions for firefighters:	Normal fire-fighting procedures can be used.
Hazchem Code:	3W

6 ACCIDENTAL RELEASE MEASURES

Emergency Procedures: Product is packaged in small containers and intended for application onto skin. Small spills are unlikely to pose significant risk. For large spills Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. See section 8 for suitable protective equipment.

Environmental precautions: Do not allow material to enter waterways or sewer. If large quantities of this material enter the waterways contact the Environmental Protection Authority.

Methods and materials for containment and cleaning up of spill:
In case of **small spill**, Mop or wipe up and if necessary, spread an absorbent material such as soil, sand over the spilled product. **For large spills:** Cover with non-combustible absorbent material (e.g., sand, soil, vermiculite). Shovel material into clean, dry, labelled containers and close lids. See Section 13 for disposal of the absorbent material at a landfill.

Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in air, soil or water; effects on animal, aquatic and plant life; and conformance with environmental and public health regulations.

7 HANDLING AND STORAGE

Precautions for Safe Handling:

Product is designed for application to the skin. Avoid contact with eyes. Use chemical resistant gloves and eye protection in a manufacturing facility.

Conditions for Safe Storage:

Store in dry, well-ventilated area out of reach of children.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational Exposure Limits: Exposure limits have not been established by Safe Work Australia for the components of this product. This section is relevant to non-consumers. Consumers should follow the product label for personal protection advice.

Engineering Controls:

Local exhaust and/or mechanical exhaust recommended. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal Protective Equipment - for manufacturing and bulk handling situation:

Eye and Face Protection:
In the manufacturing environment wear chemical resistant goggles or face shield.

Skin and Body Protection:
Consumer Product is intended for application to skin, hence, protection not required.
In the manufacturing environment wear chemical resistant gloves and coveralls covering arms and legs. Chemical resistant footwear is recommended.

Respiratory Protection:
Not normally required. Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose organic vapour respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

9 PHYSICAL AND CHEMICAL PROPERTIES

physical state/colour	Hazy thixotropic gel with slight bluish tinge	**Product pH**	Not applicable for a gel
odour	Powdery/floral odour when applied to skin.	**kinematic viscosity**	No data found)
melting point/freezing point	Not applicable	**solubility**	Not soluble or miscible in water
boiling point or initial boiling point and boiling range	290 °C (DEET)	**partition coefficient: n-octanol/water (log value)**	No data found
flammability	Not flammable	**vapour pressure**	0.002 mm Hg at 25 °C (DEET)
lower and upper explosion limit/flammability limit	Not applicable	**density and/or relative density**	1.0 @ 22°C
flash point	No data found	**relative vapour density,**	No data found

Auto-ignition temperature	Not applicable	**particle characteristics**	Not applicable
decomposition temperature	No data found		

10 STABILITY AND REACTIVITY

Reactivity: Hydrolyses slowly in the presence of water. Has a solvent effect on most plastics, paints, and varnishes.
Chemical Stability: Stable under normal conditions.
Possibility of hazardous reactions: Not known to polymerise.
Conditions to Avoid: Excessive heat, sparks and flame
Incompatible materials: Oxidising or reducing agents, strong acids and strong alkalis.
Hazardous decomposition products: In fire, carbon monoxide, carbon dioxide and nitrogen oxides may be produced.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity:
Oral: Low toxicity. Estimated LD_{50} 3180 mg/kg.
Inhalation: Not an expected route of exposure due to gel consistency and presentation of product in a roll-on applicator. Low toxicity: Estimated LC_{50} >5 mg/L.
Dermal: Low toxicity. Estimated LD_{50} >2000 mg/kg.
Skin Corrosion/Irritation: The product is intended for application onto skin. Irritating to mucous membranes. Under normal use conditions irritation is not expected. Based on information for active constituent (classified as potentially being a skin irritant Category 2) the product is considered to be potentially irritating to skin.
Eye Damage/Irritation: Based on the components the product is classified as irritating to eyes and mucous membranes.
Sensitisation: Based on the components the product is not classified as a sensitiser.
Germ cell mutagenicity: Based on the components, no effects observed in laboratory animal studies.
Carcinogenicity: Based on the components, not classified as a carcinogen.
Reproductive toxicity: Based on the components, no evidence of reproduction and developmental toxicity in laboratory animals.
Specific Target Organ Toxicity: No data found.
Aspiration Hazard: Based on available data not classified as an aspiration hazard.
Information on possible routes of exposure: Inhalation and dermal.

12 ECOLOGICAL INFORMATION

Ecotoxicity:

Based on information for the active constituent (DEET).

EC_{50} *Daphnia magna*: > 100 mg/L.

LC_{50} (96h) Rainbow trout: > 100 mg/L

LC_{50} (96h) Fathead minnow: >100 mg/L

Persistence and Degradability:

The active constituent (DEET) modelling suggests rapid to moderate degradation. DEET: degraded in the atmosphere photochemically. Biodegradation in soil and water reached, 0% in 28 days.

Bioaccumulation Potential:

DEET: BCFs of 0.8-2.4 measured in carp suggest bioconcentration in aquatic organisms is low.

Mobility in soil:

DEET: expected to have moderate mobility based upon an estimated K_{oc} of 115.

13 DISPOSAL CONSIDERATIONS

Disposal Methods:

Small quantities: small quantities may be disposed of in household garbage. Do not incinerate.

Large quantities: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. Do not incinerate. Note Section 8 when disposing of large quantities.

14 TRANSPORT INFORMATION

Not classified as Dangerous Goods for Transport by Road and Rail within Australia according to the criteria of ADG 7.9

15 REGULATORY INFORMATION

Poison Scheduling:	Not Scheduled
APVMA Registration No:	69554
Montreal Protocol (Ozone depleting substances) https://www.environment.gov.au/protection/ozone/montreal-protocol	Does not contain an ozone depleting substance
The Stockholm Convention (Persistent Organic Pollutants) http://chm.pops.int/Home/tabid/2121/Default.aspx	Does not contain a POP
The Rotterdam Convention (Prior Informed Consent) http://www.pic.int/TheConvention/Chemicals/AnnexIIIChemicals	Not a chemical included in Annex III
Basel Convention (Hazardous Waste)	The Basel Convention may be triggered when disposing of this product as a waste. See

	Annex 1 Categories of Wastes to be Controlled.
International Convention for the Prevention of Pollution from Ships (MARPOL)	Human health: See section 11. Bioaccumulation & Biodegradation: see section 12. Aquatic toxicity: See section 12. Interference with other uses of the sea: none known

16 OTHER RELEVANT INFORMATION

Glossary:

ADG	Australian Code for the Transport of Dangerous Goods by Road & Rail
AS/NZS	Australian Standard/New Zealand Standard
BCF:	**Bioconcentration Factor -** a measure for the characterization of the accumulation of a chemical in an organism. It is defined as the concentration of a chemical in an organism (plants, microorganisms, animals) divided by the concentration in a reference compartment (e.g. food, surrounding water).
CAS Number:	Unique Chemical Abstracts Service Registry Number
EC_{50}:	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species).
ErC_{50}	The concentration of test substance which results in a 50 percent reduction in growth rate.
Explosive Limits:	The range of concentrations (% by volume in air) of a flammable gas or vapour that can result in an explosion for ignition in a confined space.
GHS:	Globally Harmonized System of classification and labelling of chemicals (GHS)
Hazchem Code:	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HCIS:	Hazardous Chemical Information System (http://hcis.safeworkaustralia.gov.au/HazardousChemical)
IARC:	International Agency for Research on Cancer
IDLH:	Immediately dangerous to life or health (**IDLH**) is **defined** by the US National Institute for Occupational Safety and Health (NIOSH)
K_{oc}	The organic carbon partition coefficient (mL soil water /g organic carbon)**.**
LC_{50}:	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population.
LC_{50}	The dose of a chemical that will kill 50% of the test animals receiving it.
NTP:	National Toxicology Program (USA)
pH:	Measure of how acidic or alkaline a material is using a 1 - 14 scale. pH 1 is strongly acidic and pH 14 strongly alkaline
P_{ow}:	The octanol-water partition coefficient. Commonly used to indicate potential the fate of chemicals in the environment

SDS:	Safety Data Sheet
STEL:	Short term exposure limit (STEL) means the time-weighted average maximum airborne concentration of a substance calculated over a 15 minute period.
SWA:	Safe Work Australia.
TWA:	8-hour Time-weighted average (TWA) means the maximum average airborne concentration of a substance when calculated over an eight-hour working day, for a five-day working week.
WEL	Workplace exposure limit
WES:	Workplace exposure standard
UN Number:	United Nations Dangerous Goods Number

References:
Safe Work Australia Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (2023). The exposure standards comply with the Australian Workplace Exposure Standards and Australian Workplace Exposure Limits for Airborne Contaminants. The Dangerous Goods Classification complies with the Australian Code for the Transport of Dangerous Goods by Road & Rail Edition 7.9, 2024. Other information from ChemIDPlus and linked databases and the European Chemicals Agency Classification and Labelling database. Component SDSs.

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Disclaimer
This Safety Data Sheet (SDS) has been prepared in compliance with the Safe Work Australia Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice).. The information in this SDS should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. 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 precautions. It does not represent any guarantee of the properties of the product. Juno Limited shall not be held liable for any damage resulting from handling or from contact with the above product.

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