



SAFETY DATA SHEET

REVISION DATE JANUARY 2014

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Mosi-guard® *Natural* Extra Spray

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

This is a ready to use insect repellent containing Citriondiol® as the active ingredient.

1.3. Details of the supplier of the safety data sheet

Citrefine International Limited
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1.4. Emergency telephone number


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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Directive 67/548/EEC	EC Regulation 1272/2008
Xi: Irritating to eyes F: Flammable	Hazard Classes and Categories: Eye Irrit. 2 Flammable Liquid Cat. 3
R36: Irritating to eyes	Hazard Statements: H319 H226

2.2 Label Elements

GHS Pictogram	
Signal Word	Warning
Hazard Statement	H319: Causes serious eye irritation H226: Flammable liquid and vapour
Precautionary Statement Prevention	P102, P260
Precautionary Statement Response	P305 + P351 + P338, P301+P312, P271

2.3 Other Hazards

No data available

For full text of all codes see Section 16

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Components of Mosi-guard® Natural Extra Spray:

Component	EC No.	CAS No.*	Classification According to Regulation (EC)1272/2008	Classification according to Directive 67/548EEC	Concentration in substance
Citriodiol®		1245629-80-4	Eye Irrit. 2: H319	R36:Irritating to eyes, Xi	40%
Ethanol	200-578-6	64-17-5	Flam. Liq. 2: H225,	R11: Highly flammable, F	20-40%
Isopropanol	200-661-7	67-63-0	Flam. Liq. 2: H225, Eye Irrit. 2: H319, STOT SE 3: H336	R11:Highly flammable, R36:Irritating to eyes, R67: Vapours may cause drowsiness and dizziness, F, Xi	5-20%

*For further details regarding the CAS number of Citriodiol® please see section 16

4. FIRST AID MEASURES

4.1 Description of first aid measures

General	In case of accident or if you feel unwell, seek medical advice and show the label if possible.
Inhalation	May cause nausea, headache, dizziness and intoxication. Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	May cause discomfort if swallowed. May cause nausea, headache, dizziness and intoxication. Rinse mouth thoroughly. Do not induce vomiting. Seek medical attention if symptoms persist.
Skin contact	Wash skin thoroughly with soap and water. Get medical attention if any discomfort continues.
Eye contact	May irritate eyes. Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water or eye wash solution while lifting the eye lids. Continue to rinse for at least 15 minutes. Contact physician if irritation persists.

4.2 Most important symptoms and effects, both acute and delayed

In cases of ingestion, central nervous system depression

4.3 Indication of any immediate medical attention and special treatment needed

No specific symptoms associated with exposure to this substance

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Dry powder, alcohol resistant foam, carbon dioxide

Unsuitable extinguishing media

Water Jet (Mosi-guard® *Natural* Extra Spray is insoluble in water)

5.2 Special hazards arising from the substance or mixture

As a mixture of organic compounds, combustion of Mosi-guard® *Natural* Extra Spray can produce oxides of carbon.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and a chemical protective suit. Fight fire from a safe distance and stay upwind. Do not allow extinguishing water to reach ground water or sewage system.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, protective equipment and emergency procedures

Use personal protective equipment if required.

6.2 Environmental Procedures

Do not allow product to enter drains or ground water.

6.3 Methods and material for containment and cleaning up

Extinguish all ignition sources. Avoid sparks, flames, heat & smoking. Ventilate. Stop leak if possible without risk. Absorb with sand or other inert absorbent. Collect in containers and seal securely. Containers with collected spillage must be properly labelled with correct contents and hazard symbol.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with eyes, Handle in accordance with good industrial hygiene and safety practices. Wash hands after use.

7.2 Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well ventilated place. Keep away from heat, sparks and open flames.

7.3 Specific end uses

Mosi-guard® *Natural* Extra Spray is a ready to use insect repellent.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control Parameters

Name	Std	LT – ppm	LT – mg/m ³	ST – ppm	ST – mg/m ³
ETHANOL	WEL	1000 ppm	1920 mg/m ³	N/A	N/A
PROPAN-2-OL	WEL	400 ppm	999 mg/m ³	500 ppm	1250 mg/m ³

WEL = Workplace Exposure Limits

8.2 Exposure Controls

Appropriate engineering controls

Provide adequate ventilation to minimise the risk of inhalation of vapours.

Eye/face protection

Use safety glasses or eye protection tested and approved under appropriate government standards, for example EN 166. If handling large amounts a face shield may be more suitable.

Respiratory Equipment

Under normal usage conditions respiratory protection will not be necessary. Protection may be required under exceptional circumstances, for example when excessive air contamination exists.

Hand Protection

Wear suitable protective gloves. Gloves selected should meet the standards set out in EN 374. Suitable material would be nitrile rubber.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: Clear liquid Colour: Pale yellow
b) Odour	Characteristic, citrus
c) Odour Threshold	No data available
d) pH	7-9
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	26°C
h) Evaporation rate	No data available
i) Flammability (solid,gas)	No data available
j) Upper/lower flammability or	No data available

explosive limits	
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	0.89-0.93 g/mL at 20°C
n) Solubilities	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Autoignition temperature	No data available
q) Decomposition Temperature	No data available
r) Viscosity	No data available
s) Explosive properties	None of the components of Mosi-guard® <i>Natural</i> extra spray contain functional groups that confer explosive properties.
t) Oxidising properties	None of the components of Mosi-guard® <i>Natural</i> extra spray have the ability to act as an oxidant or reductant.

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available. Product is not expected to react under normal storage conditions.

10.2 Chemical stability

Stable under ambient conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, sparks and open flame

10.5 Incompatible materials

Strong oxidising agents

10.6 Hazardous decomposition products

No data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Endpoint	Value	Test method
a) Acute Toxicity	Citriodiol® Rat LD ₅₀ oral: 2408 mg/kg Rat LD ₅₀ dermal: >2000 mg/kg Rat LC ₅₀ inhalation determined on 40% aerosol spray > 2.06 mg/L: equivalent to >0.83mg/ L Ethanol Rat LD ₅₀ oral: >2000 mg/kg (literature) Mouse LC ₅₀ inhalation: >20 mg/kg 4h (literature) Rabbit LD ₅₀ dermal: >2000 mg/kg (literature) Propan-2-ol Rabbit LD ₅₀ dermal: >2000 mg/kg (literature) Rat LD ₅₀ oral: >2000 mg/kg (literature)	OECD 401 OECD 402 EPA/FIFRA Guideline 81-3 OECD 401 OECD 402 OECD 402
b) Irritation	Citriodiol® Skin – Mild irritant (not sufficient for classification) Eyes – Moderate irritant Ethanol Rabbit: Skin – not irritating (literature) Rabbit: Eye – slightly irritating (literature) Propan-2-ol Rabbit: Skin – not irritating (literature) Rabbit: Eye – irritating (literature)	OECD 404 OECD 405 OECD 404 OECD 405
c) Corrosivity	No study conducted but no components are corrosive and material has a pH between 7-9	
d) Sensitisation	Citriodiol® Non sensitiser Ethanol Guinea pig: not sensitising (literature) Propan-2-ol Guinea pig: not sensitising (literature)	OECD 406 OECD 406 Buehler Test
e) Repeated dose toxicity	Citriodiol® Rat (dermal): NOAEL at 1000 mg/kg day in 28-day study.	OPPTS 870.3200 OECD 410
f) Carcinogenicity	No study conducted. No carcinogenic potential identified in components for which data are available.	
g) Mutagenicity	Citriodiol® Not genotoxic Ethanol Ames Test: not mutagenic (literature) Propan-2-ol Ames Test: not mutagenic (literature)	OECD 471, OECD 473, OECD 474 OECD 471
h) Toxicity for reproduction	No reproductive toxicity and no adverse systemic effects	OPPTS 870.3800

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Endpoint	Value	Test method
Toxicity to fish	Citriodiol®	
	<i>Danio rerio</i> EC ₅₀ : >35mg/L – 96 hours	OECD 203
	Ethanol	
Toxicity to invertebrates	<i>Leuciscus idus</i> LC ₅₀ : >100mg/L – 48hr (literature)	OECD 203
	Propan-2-ol	
	<i>Leuciscus idus melatonus</i> LC ₅₀ : >100mg/L – 48hr (literature)	
Toxicity to algae	Citriodiol®	
	<i>Daphnia Magna</i> EC ₅₀ : >26mg/L – 48 hours	OECD 202
	Ethanol	
Toxicity to algae	<i>Daphnia Magna</i> EC ₅₀ : >100mg/L – 24hr (literature)	OECD 202
	Propan-2-ol	
	<i>Daphnia Magna</i> EC ₅₀ : >100mg/L – 48hr (literature)	
Toxicity to algae	Citriodiol®	
	<i>Pseudokirchneriella</i> EC ₅₀ : >37mg/L – 72 hours	OECD 201
	Ethanol	
Toxicity to algae	<i>Chlorella pyrenoidosa</i> EC ₅₀ : >100mg/L (literature)	OECD 201
	Propan-2-ol	
	<i>Scenedesmus subspicatus</i> EC ₅₀ : >100mg/L – 72hr (literature)	

12.2 Persistence and degradability

Citriodiol® is readily biodegradable	OECD 301F
Ethanol is readily biodegradable (literature)	OECD 301D
Propan-2-ol is readily biodegradable (literature)	

12.3 Bioaccumulative potential

Bioaccumulation is unlikely as Citriodiol® is readily metabolised in the human body, by microorganisms and in the soil. High BCF values for some components are offset by either the small amounts present or low water solubility.

<u>Component</u>	<u>Bioconcentration factor (BCFWIN)</u>
p-Menthane-3,8-diol	11.47
Isopulegol	79.13
Citronellal	177.5
Citronellol	204.5

Propan-2-ol is not considered to be persistent, bioaccumulating or toxic.
Ethanol – no data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Citriodiol® does not meet the criteria for classification as PBT or vPvB. Propan-2-ol is not considered to be PBT or vPvB.

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of in accordance with local authority regulations

14. TRANSPORT INFORMATION

Symbol for transport



14.1 UN Number

Road	1987
Sea	1987
Air	1987

14.2 UN proper shipping name

Alcohols, N.O.S. (ETHANOL, PROPAN-2-OL)

14.3 Transport hazard class(es)

ADR Class	Class 3: Flammable liquid
ADR Class No.	3
ADR Classification code	F1
RID Class no.	3
IMDG Class no.	3
IATA Class no.	3

14.4 Packing Group

ADR Label No.	3
Hazard No. (ADR)	30
Hazchem code	3Y
Transport Category	3
Tunnel Code	D/E
RID Packing Group	III
IMDG Packing Group	III
EmS No.	F-E,S-D
IATA Packing Group	III

14.5 Environmental hazards

Not classified as environmentally hazardous

14.6 Special precautions for user

No data available

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

Not classified as a marine pollutant and is not intended to be shipped in bulk.

15. REGULATORY INFORMATION

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

Citriodiol® is an active substance for insect repellent products (PT19) currently under review according to the criteria of the European Biocidal Products Directive 98/8/EC; USEPA Reg. No. 84878-3; PMRA Reg. No. 30821.

15.2 Chemical safety assessment

No chemical safety assessment has been carried out for this substance by the supplier.

16. OTHER INFORMATION

Revision Date 20/01/2014

Rev. No. 3

Full text of Hazard Statements

H319 – Causes serious eye irritation

H226 – Flammable liquid and vapour

H336 – May cause drowsiness or dizziness

Full text of Precautionary Statements

P102 – Keep out of reach of children

P260 – Do not breathe vapour/spray

P305 – IF IN EYES:

P313 – Get medical advice/attention.

P351 – Rinse cautiously with water for several minutes.

P337 – If eye irritation persists:

P338 – Remove Contact lenses, if present and easy to do. Continue rinsing.

Combined statements

P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+ P313 – If eye irritation persists get medical advice/attention

CAS Number

42822-86-6 is the CAS No. for the main component in Citriodiol®, p-menthane-3,8-diol (PMD). CAS No. 1245629-80-4 was recently assigned by the ACS for Citriodiol® in its entirety, but has not yet been fully adopted due to the identification and notification of Citriodiol® under 42822-86-6 for purposes of Directive 98/8/EC of the European Parliament. The PMRA in Canada recognize 1245629-80-4 as the CAS No. for Citriodiol®.

Changes

Section 1 Product identifier

Section 3 Product identifier

Section 5 Citriodiol® replaced with Mosi-guard® *Natural* Cream

Section 16 Amended regulations

Bibliography and sources of the data:

For Citriodiol® reported endpoints refer to studies included as part of the dossier submitted under the criteria of Directive 98/8/EC.

Data for propan-2-ol and ethanol sourced from raw material suppliers MSDS.

This Safety Data Sheet has been produced in accordance with Regulation (EC) 1272/2008 amending Regulation (EC) 1907/2006 REACH.

The information contained in this Safety Data Sheet is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This document is designed only as guidance for the safe use, storage and handling of this material. This information relates only to the specific material designated and may not be valid when the material is used in combination with any other materials.