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

1.1 Product identifier

Trade name Permethrin (1%) Formulation

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

Use of the Sub-: Veterinary product

stance/Mixture

Recommended restrictions

on use

Not applicable

1.3 Details of the supplier of the safety data sheet

Company **MSD**

Walton Manor, Walton

MK7 7AJ Milton Keynes - United Kingdom

Telephone +1-908-740-4000

E-mail address of person

responsible for the SDS

: EHSDATASTEWARD@msd.com

1.4 Emergency telephone number

+1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Serious eye damage, Category 1 H318: Causes serious eye damage. Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.

H350: May cause cancer. Carcinogenicity, Category 1B Short-term (acute) aquatic hazard, Cate-H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Cat-

egory 1

H410: Very toxic to aquatic life with long lasting

effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

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Hazard pictograms :









Signal word : Danger

Hazard statements : H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H350 May cause cancer.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:

P201 Obtain special instructions before use. P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye

protection/ face protection.

Response:

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously

with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P308 + P313 IF exposed or concerned: Get medical advice/

attention.

P391 Collect spillage.

Hazardous components which must be listed on the label:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts Coconut oil diethanolamide

Permethrin (ISO)

Formaldehyde

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

	10.0	1	
Chemical name	CAS-No.	Classification	Concentration
	EC-No.		(% w/w)
	Index-No.		
	Registration number		
Sulfuric acid, mono-C16-18-alkyl	68955-20-4	Flam. Sol. 2; H228	>= 10 - < 20

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esters, sodium salts	273-258-7	Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Chronic 3; H412	
		specific concentration limit Eye Dam. 1; H318 > 55 % Eye Irrit. 2; H319 > 20 - 55 % Skin Irrit. 2; H315 > 55 % STOT SE 3; H335 > 55 % Eye Dam. 1; H318 > 55 % Eye Irrit. 2; H319 > 20 - 55 % Skin Irrit. 2; H315 > 55 % STOT SE 3; H335 > 55 % STOT SE 3; H335 > 55 %	
Coconut oil diethanolamide	68603-42-9 271-657-0	Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 2; H411	>= 3 - < 10
Ethanol#	64-17-5 200-578-6 603-002-00-5	Flam. Liq. 2; H225 Eye Irrit. 2; H319 ——— specific concentration limit Eye Irrit. 2; H319 >= 50 % Eye Irrit. 2; H319 >= 50 %	>= 1 - < 10
Permethrin (ISO)	52645-53-1 258-067-9 613-058-00-2	Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 ——— M-Factor (Acute aquatic toxicity): 10,000 M-Factor (Chronic aquatic toxicity): 10,000	>= 1 - < 2.5

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Formaldehyde	50-00-0 200-001-8 605-001-00-5 01-2119488953-20	Flam. Gas 1B; H221 Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317 Muta. 2; H341 Carc. 1B; H350 STOT SE 3; H335 ——— specific concentration limit Skin Corr. 1B; H314 >= 25 % Skin Irrit. 2; H315 5 - < 25 % Eye Irrit. 2; H319 5 - < 25 % STOT SE 3; H335 >= 5 % SKin Sens. 1A; H317 >= 0.2 %	>= 0.2 - < 1
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For explanation of abbreviations see section 16.

#: Voluntarily-disclosed substance

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical ad-

vice immediately.

When symptoms persist or in all cases of doubt seek medical

advice.

Protection of first-aiders : First Aid responders should pay attention to self-protection,

and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

If inhaled : If inhaled, remove to fresh air.

Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with plenty of water.

Remove contaminated clothing and shoes.

Get medical attention.

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Wash clothing before reuse.

Thoroughly clean shoes before reuse.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water

for at least 15 minutes.

If easy to do, remove contact lens, if worn.

Get medical attention immediately.

If swallowed : If swallowed, DO NOT induce vomiting.

Get medical attention.

Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks : May cause an allergic skin reaction.

Causes serious eye damage.

May cause cancer.

This product contains a pyrethroid.

Pyrethroid poisoning should not be confused with carbamate

or organophosphate poisoning.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray

Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-

fighting

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod- :

ucts

Chlorine compounds
Carbon oxides

Nitrogen oxides (NOx)

Sulphur oxides Metal oxides

5.3 Advice for firefighters

Special protective equipment :

for firefighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

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Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment. Use water spray to cool unopened containers.

Remove undamaged containers from fire area if it is safe to do

SO.

Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.

Follow safe handling advice (see section 7) and personal pro-

tective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions : Avoid release to the environment.

Prevent further leakage or spillage if safe to do so.

Prevent spreading over a wide area (e.g. by containment or oil

barriers).

Retain and dispose of contaminated wash water.

If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material.

For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absor-

bent.

Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to deter-

mine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust

ventilation.

Advice on safe handling : Do not get on skin or clothing.

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Avoid breathing mist or vapours.

Do not swallow. Do not get in eyes.

Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure as-

sessment

Keep container tightly closed.

Take care to prevent spills, waste and minimize release to the

environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye

flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace.

Wash contaminated clothing before re-use.

The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the

use of administrative controls.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national

regulations.

Advice on common storage : Do not store with the following product types:

Strong oxidizing agents

Self-reactive substances and mixtures

Organic peroxides

Explosives Gases

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	TWA	1,000 ppm 1,920 mg/m3	GB EH40
Permethrin (ISO)	52645-53-1	TWA	80 μg/m3 (OEB 3)	Internal
		Wipe limit	800 μg/100 cm ²	Internal
Formaldehyde	50-00-0	TWA	2 ppm 2.5 mg/m3	GB EH40
	Further inform	nation: Capable of ca	using cancer and/or heritable	e genetic dam-
	age.			
		STEL	2 ppm	GB EH40

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I			2.5 mg/m3	
Ī	Further inform	ation: Capable of ca	using cancer and/or heritable	e genetic dam-
ı	age.			
I		TWA	0.3 ppm	2004/37/EC
			0.37 mg/m3	
	Further inform	ation: Dermal sensit	isation, Carcinogens or muta	igens
I		STEL	0.6 ppm	2004/37/EC
ı			0.74 mg/m3	
I	Further inform	ation: Dermal sensit	isation, Carcinogens or muta	igens

Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
Coconut oil diethano- lamide	Workers	Inhalation	Long-term systemic effects	73.4 mg/m3
	Workers	Skin contact	Long-term systemic effects	4.16 mg/kg bw/day
	Workers	Skin contact	Acute local effects	0.0936 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	21.73 mg/m3
	Consumers	Skin contact	Long-term systemic effects	2.5 mg/kg bw/day
	Consumers	Skin contact	Acute local effects	0.0562 mg/cm2
	Consumers	Ingestion	Long-term systemic effects	6.25 mg/kg bw/day
Polyethylene glycol castor oil	Workers	Inhalation	Long-term systemic effects	16.4 mg/m3
	Workers	Skin contact	Long-term systemic effects	4.67 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2.9 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1.67 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1.67 mg/kg bw/day
Sulfuric acid, mono- C16-18-alkyl esters, sodium salts	Workers	Inhalation	Long-term systemic effects	285 mg/m3
	Workers	Skin contact	Long-term systemic effects	4060 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	85 mg/m3
	Consumers	Skin contact	Long-term systemic effects	2440 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	24 mg/kg bw/day
Ethanol	Workers	Inhalation	Long-term systemic effects	380 mg/m3
	Workers	Skin contact	Long-term systemic	267 mg/kg

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			effects	bw/day
	Consumers	Inhalation	Long-term systemic effects	114 mg/m3
Formaldehyde	Workers	Inhalation	Long-term systemic effects	9 mg/m3
	Workers	Inhalation	Long-term local ef- fects	0.375 mg/m3
	Workers	Inhalation	Acute local effects	0.75 mg/m3
	Workers	Skin contact	Long-term systemic effects	240 mg/kg bw/day
	Workers	Skin contact	Long-term local ef- fects	0.037 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	3.2 mg/m3
	Consumers	Inhalation	Long-term local ef- fects	0.1 mg/m3
	Consumers	Skin contact	Long-term systemic effects	102 mg/kg bw/day
	Consumers	Skin contact	Long-term local ef- fects	0.012 mg/cm2
	Consumers	Ingestion	Long-term systemic effects	4.1 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
Coconut oil diethanolamide	Fresh water	0.007 mg/l
	Freshwater - intermittent	0.024 mg/l
	Marine water	0.001 mg/l
	Sewage treatment plant	830 mg/l
	Fresh water sediment	0.195 mg/kg dry weight (d.w.)
	Marine sediment	0.019 mg/kg dry weight (d.w.)
	Soil	0.035 mg/kg dry weight (d.w.)
Polyethylene glycol castor oil	Fresh water	0.000 mg/l
	Freshwater - intermittent	0.0661 mg/l
	Marine water	0.000 mg/l
	Marine water - intermittent	0.00661 mg/l
	Fresh water sediment	0.0129 mg/kg dry weight (d.w.)
	Marine sediment	0.00129 mg/kg dry weight (d.w.)
	Soil	0.00258 mg/kg dry weight (d.w.)
Sulfuric acid, mono-C16-18-alkyl esters, sodium salts	Fresh water	0.02 mg/l
	Marine water	0.002 mg/l
	Sewage treatment plant	550 mg/l
	Fresh water sediment	6.75 mg/kg dry weight (d.w.)
	Marine sediment	0.675 mg/kg dry

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Ī		weight (d.w.)
	Soil	1.35 mg/kg dry
		weight (d.w.)
Ethanol	Fresh water	0.96 mg/l
	Freshwater - intermittent	2.75 mg/l
	Marine water	0.79 mg/l
	Sewage treatment plant	580 mg/l
	Fresh water sediment	3.6 mg/kg dry weight (d.w.)
	Marine sediment	2.9 mg/kg dry weight (d.w.)
	Soil	0.63 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	380 mg/kg food
Formaldehyde	Fresh water	0.44 mg/l
	Freshwater - intermittent	4.44 mg/l
	Marine water	0.44 mg/l
	Sewage treatment plant	0.19 mg/l
	Fresh water sediment	2.3 mg/kg dry weight (d.w.)
	Marine sediment	2.3 mg/kg dry weight (d.w.)
	Soil	0.2 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less guick connections).

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

Minimize open handling.

Personal protective equipment

Eye/face protection : Wear safety glasses with side shields or goggles.

If the work environment or activity involves dusty conditions,

mists or aerosols, wear the appropriate goggles.

Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or

aerosols.

Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving.

Skin and body protection : Work uniform or laboratory coat.

Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable

suits) to avoid exposed skin surfaces.

Filter type

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Use appropriate degowning techniques to remove potentially

contaminated clothing.

Respiratory protection : If adequate local exhaust ventilation is not available or expo-

sure assessment demonstrates exposures outside the rec-

ommended guidelines, use respiratory protection. Equipment should conform to BS EN 14387

: Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid Colour : amber

Odour : No data available
Odour Threshold : No data available

pH : 7.3 - 7.7

Melting point/freezing point : No data available

Initial boiling point and boiling

range

No data available

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Upper explosion limit / Upper

flammability limit

No data available

Lower explosion limit / Lower

flammability limit

No data available

Vapour pressure : No data available

Relative vapour density : No data available

Relative density : No data available

Density : 1.025 - 1.035 g/cm³

Solubility(ies)

Water solubility : No data available Partition coefficient: n- : Not applicable

octanol/water

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic : No data available

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Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information

Flammability (liquids) : No data available

Molecular weight : No data available

Particle size : Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Can react with strong oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of : Inhalation exposure Skin contact

Ingestion Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg

Method: Calculation method

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Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l

Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg

Method: Calculation method

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Acute oral toxicity : LD50 (Rat): 4,010 mg/kg

Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 402

Remarks: Based on data from similar materials

Coconut oil diethanolamide:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 401

Assessment: The substance or mixture has no acute oral tox-

icity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Assessment: The substance or mixture has no acute dermal

toxicity

Ethanol:

Acute oral toxicity : LD50 (Rat): 10,470 mg/kg

Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male): 116.9 mg/l

Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 15,800 mg/kg

Permethrin (ISO):

Acute oral toxicity : LD50 (Rat): 480 - 554 mg/kg

Acute inhalation toxicity : LC50 (Rat): 2.3 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Formaldehyde:

Acute oral toxicity : Acute toxicity estimate: 100 mg/kg

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Method: Expert judgement

Remarks: Based on national or regional regulation.

Acute inhalation toxicity : Acute toxicity estimate (Rat): 100 ppm

Exposure time: 4 h
Test atmosphere: gas
Method: Expert judgement

Acute dermal toxicity : LD50 (Rabbit): 270 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Species : Rabbit

Method : OECD Test Guideline 404

Result : Skin irritation

Remarks : Based on data from similar materials

Coconut oil diethanolamide:

Species : Rabbit

Method : OECD Test Guideline 404

Result : Skin irritation

Remarks : Based on data from similar materials

Ethanol:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Permethrin (ISO):

Species : Rabbit

Result : No skin irritation

Formaldehyde:

Result : Corrosive after 3 minutes to 1 hour of exposure Remarks : Based on national or regional regulation.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Species : Rabbit

Method : OECD Test Guideline 405
Result : Irreversible effects on the eye

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Remarks : Based on data from similar materials

Coconut oil diethanolamide:

Species : Rabbit

Method : OECD Test Guideline 405
Result : Irreversible effects on the eye
Remarks : Based on data from similar materials

Ethanol:

Species : Rabbit

Method : OECD Test Guideline 405

Result : Irritation to eyes, reversing within 21 days

Permethrin (ISO):

Species : Rabbit

Result : No eye irritation

Formaldehyde:

Result : Irreversible effects on the eye Remarks : Based on skin corrosivity.

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

Coconut oil diethanolamide:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

Ethanol:

Test Type : Mouse ear swelling test (MEST)

Exposure routes : Skin contact
Species : Mouse
Result : negative

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Permethrin (ISO):

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

Formaldehyde:

Test Type : Human repeat insult patch test (HRIPT)

Exposure routes : Skin contact
Species : Humans
Result : positive

Assessment : Probability or evidence of high skin sensitisation rate in hu-

mans

Germ cell mutagenicity

Not classified based on available information.

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

Coconut oil diethanolamide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Ethanol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro

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Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Rat

Application Route: Ingestion

Result: negative

Permethrin (ISO):

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Test Type: DNA damage and repair, unscheduled DNA syn-

thesis in mammalian cells (in vitro)

Result: negative

Test Type: Chromosome aberration test in vitro

Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow

cytogenetic test, chromosomal analysis)

Species: Mouse Result: negative

Test Type: Rodent dominant lethal test (germ cell) (in vivo)

Species: Mouse Result: negative

Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Rat

Application Route: Intraperitoneal injection

Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow

cytogenetic test, chromosomal analysis)

Species: Mouse

Application Route: Ingestion

Result: positive

Germ cell mutagenicity- As- : Weight of evidence does not support classification as a germ

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sessment cell mutagen.

Formaldehyde:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: positive

Test Type: In vitro mammalian cell gene mutation test

Result: positive

Test Type: Chromosome aberration test in vitro

Result: positive

Genotoxicity in vivo : Test Type: In vivo mammalian alkaline comet assay

Species: Mouse

Application Route: Inhalation

Result: positive

Germ cell mutagenicity- As-

sessment

Positive result(s) from in vivo mammalian somatic cell muta-

genicity tests.

Carcinogenicity

May cause cancer.

Components:

Permethrin (ISO):

Species : Rat Result : negative

Species : Mouse Result : negative

Formaldehyde:

Species : Rat

Application Route : inhalation (gas)
Exposure time : 28 Months
Result : positive

Carcinogenicity - Assess-

ment

: Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity

Not classified based on available information.

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Effects on foetal develop- : Test Type: Embryo-foetal development

ment Species: Rat

Application Route: Ingestion

Result: negative

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Coconut oil diethanolamide:

Effects on foetal develop-

Test Type: Embryo-foetal development

Species: Rat

Application Route: Ingestion Method: OECD Test Guideline 414

Result: negative

Remarks: Based on data from similar materials

Ethanol:

ment

Test Type: Two-generation reproduction toxicity study Effects on fertility

Species: Mouse

Application Route: Ingestion

Result: negative

Permethrin (ISO):

Effects on fertility Test Type: Two-generation reproduction toxicity study

Species: Rat

Application Route: Ingestion

Result: negative

Effects on foetal develop-

Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: Ingestion

Result: negative

Formaldehyde:

Effects on foetal develop-

ment

ment

Test Type: Embryo-foetal development

Species: Rat

Application Route: inhalation (gas)

Result: negative

STOT - single exposure

Not classified based on available information.

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Assessment May cause respiratory irritation.

Formaldehyde:

Assessment May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

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Repeated dose toxicity

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Species Rat NOAEL 428 mg/kg LOAEL 970 mg/kg Application Route Ingestion Exposure time 90 Days

Coconut oil diethanolamide:

Species Rat

NOAEL :
Application Route :
Exposure time :
Remarks : > 300 mg/kg Ingestion 28 Days

Remarks Based on data from similar materials

NOAEL
Application Route
Exposure time Rat : 50 mg/kg : Skin contact

: 2 yr

Ethanol:

Species Rat

NOAEL 1,730 mg/kg LOAEL 3,200 mg/kg Application Route : 3,200 mg
Exposure time : 3,200 mg Exposure time

Permethrin (ISO):

Species Rat

NOAEL 0.2201 mg/l Application Route Inhalation Exposure time 90 Days

Species Rat

NOAEL 175 mg/kg Application Route Ingestion Exposure time 90 Days

Aspiration toxicity

Not classified based on available information.

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SECTION 12: Ecological information

12.1 Toxicity

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

: LC50 (Danio rerio (zebra fish)): 5.2 mg/l Toxicity to fish

Exposure time: 96 h

aquatic invertebrates

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 2.8 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Based on data from similar materials

Toxicity to algae/aquatic

plants

: ErC50 (Desmodesmus subspicatus (green algae)): 34 mg/l

Exposure time: 72 h

Toxicity to microorganisms NOEC (Pseudomonas putida): 550 mg/l

Exposure time: 18 h

Toxicity to daphnia and other: aquatic invertebrates (Chron-

ic toxicity)

NOEC: 0.204 mg/l Exposure time: 7 d

Species: Ceriodaphnia dubia (water flea)

Remarks: Based on data from similar materials

Coconut oil diethanolamide:

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)): 2.4 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other:

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 3.2 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

ErC50 (Desmodesmus subspicatus (green algae)): > 1 - 10

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

EC10 (Desmodesmus subspicatus (green algae)): > 1 - 10

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

EC10 (Pseudomonas putida): 830 mg/l Toxicity to microorganisms

> Exposure time: 16 h Method: DIN 38 412 Part 8

Toxicity to daphnia and other : NOEC: > 0.01 - 0.1 mg/l

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aquatic invertebrates (Chron-

ic toxicity)

Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Remarks: Based on data from similar materials

Ethanol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 14,200 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Ceriodaphnia dubia (water flea)): 5,012 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

: ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l

Exposure time: 72 h

EC10 (Chlorella vulgaris (Fresh water algae)): 11.5 mg/l

Exposure time: 72 h

Toxicity to microorganisms : EC50 (Protozoa): 5,800 mg/l

Exposure time: 4 h

Toxicity to fish (Chronic tox-

icity)

NOEC: >= 79 mg/l

Exposure time: 100 d

Species: Oryzias latipes (Japanese medaka)

Toxicity to daphnia and other:

aquatic invertebrates (Chron-

aquatic invertebrates (C

ic toxicity)

NOEC: 9.6 mg/l Exposure time: 9 d

Species: Daphnia magna (Water flea)

Permethrin (ISO):

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00079 mg/l

Exposure time: 96 h

Toxicity to daphnia and other:

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0.0001 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.13

ma/l

Exposure time: 72 h

EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0023

mg/l

Exposure time: 72 h

M-Factor (Acute aquatic tox-

icity)

10,000

Toxicity to microorganisms : EC50 : > 1,000 mg/l

Exposure time: 3 h

Toxicity to fish (Chronic tox-

icity)

NOEC: 0.00041 mg/l Exposure time: 35 d

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> Species: Danio rerio (zebra fish) Method: OECD Test Guideline 210

Toxicity to daphnia and other: aquatic invertebrates (Chron-

ic toxicity)

NOEC: 0.0047 µg/l Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

M-Factor (Chronic aquatic

toxicity)

10,000

Formaldehyde:

Toxicity to fish LC50 (Morone saxatilis (striped bass)): 6.7 mg/l

Exposure time: 96 h

Toxicity to daphnia and other:

aquatic invertebrates

EC50 (Daphnia pulex (Water flea)): 5.8 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

ErC50 (Desmodesmus subspicatus (green algae)): 4.89 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to microorganisms EC50 (activated sludge): 19 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC: 1.04 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

12.2 Persistence and degradability

Components:

Sulfuric acid, mono-C16-18-alkyl esters, sodium salts:

Biodegradability Result: Readily biodegradable.

> Biodegradation: 77 % Exposure time: 30 d

Method: OECD Test Guideline 301D

Coconut oil diethanolamide:

Biodegradability Result: Readily biodegradable.

> Biodegradation: 92.5 % Exposure time: 28 d

Method: OECD Test Guideline 301B

Ethanol:

Biodegradability Result: Readily biodegradable.

> Biodegradation: 84 % Exposure time: 20 d

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Permethrin (ISO):

Biodegradability : Result: Not readily biodegradable.

Method: OECD Test Guideline 301F

Formaldehyde:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 99 % Exposure time: 28 d

Method: OECD Test Guideline 301A

12.3 Bioaccumulative potential

Components:

Coconut oil diethanolamide:

Partition coefficient: n-

octanol/water

log Pow: 3.75

Remarks: Calculation

Ethanol:

Partition coefficient: n-

octanol/water

log Pow: -0.35

Permethrin (ISO):

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): 570

Partition coefficient: n-

octanol/water

: log Pow: 4.67

Formaldehyde:

Partition coefficient: n-

octanol/water

: log Pow: 0.35

Remarks: Calculation

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered

to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

0.1% or higher.

12.6 Other adverse effects

Product:

Endocrine disrupting poten-

tial

This substance/mixture does not contain components considered to have endocrine disrupting properties for environment

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according to UK REACH Article 57(f).

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

According to the European Waste Catalogue, Waste Codes

are not product specific, but application specific.

Waste codes should be assigned by the user, preferably in

discussion with the waste disposal authorities.

Do not dispose of waste into sewer.

Contaminated packaging : Empty containers should be taken to an approved waste han-

dling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADN : UN 3082
ADR : UN 3082
RID : UN 3082
IMDG : UN 3082
IATA : UN 3082

14.2 UN proper shipping name

ADN : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Permethrin (ISO))

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Permethrin (ISO))

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Permethrin (ISO))

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Permethrin (ISO))

IATA : Environmentally hazardous substance, liquid, n.o.s.

(Permethrin (ISO))

14.3 Transport hazard class(es)

Class Subsidiary risks

ADN : 9 **ADR** : 9

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 RID
 : 9

 IMDG
 : 9

 IATA
 : 9

14.4 Packing group

ADN

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

ADR

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

RID

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo : 964

aircraft)

Packing instruction (LQ) : Y964
Packing group : III

Labels : Miscellaneous

IATA (Passenger)

Packing instruction (passen- : 964

ger aircraft)

Packing instruction (LQ) : Y964
Packing group : III

Labels : Miscellaneous

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

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IATA (Passenger)

Environmentally hazardous yes

IATA (Cargo)

Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

: Not applicable for product as supplied. Remarks

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)

UK REACH List of restrictions (Annex 17) Conditions of restriction for the fol-

lowing entries should be considered:

Number on list 3

Number on list 28: Formaldehyde

Number on list 72: Formaldehyde

UK REACH List of restrictions (Annex 17) Substance(s) or mixture(s) are listed

> here according to their appearance in the regulation, irrespective of their use/purpose or the conditions of the restriction. Please refer to the conditions in corresponding Regulation to determine whether an entry is applicable to the placing on the market or

not.

UK REACH Candidate list of substances of very high Not applicable

concern (SVHC) for Authorisation

The Persistent Organic Pollutants Regulations (retained Not applicable

Regulation (EU) 2019/1021 as amended for Great Brit-

Regulation (EC) on substances that deplete the ozone Not applicable

layer UK REACH List of substances subject to authorisation

Not applicable (Annex XIV)

GB Export and import of hazardous chemicals - Prior Permethrin (ISO)

Informed Consent (PIC) Regulation

Control of Major Accident Hazards Regulations 2015 (COMAH)

Quantity 2 Quantity 1 E1

ENVIRONMENTAL 100 t 200 t **HAZARDS**

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Other regulations:

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information : Items where changes have been made to the previous version

are highlighted in the body of this document by two vertical

lines.

Full text of H-Statements

H221 : Flammable gas.

H225 : Highly flammable liquid and vapour.

H228 : Flammable solid.
H301 : Toxic if swallowed.
H302 : Harmful if swallowed.
H311 : Toxic in contact with skin.

H314 : Causes severe skin burns and eye damage.

H315 : Causes skin irritation.

H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.

H330 : Fatal if inhaled. H332 : Harmful if inhaled.

H335 : May cause respiratory irritation. H341 : Suspected of causing genetic defects.

H350 : May cause cancer. H400 : Very toxic to aquatic life.

H410 : Very toxic to aquatic life with long lasting effects.
 H411 : Toxic to aquatic life with long lasting effects.
 H412 : Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox. : Acute toxicity

Aquatic Acute : Short-term (acute) aquatic hazard Aquatic Chronic : Long-term (chronic) aquatic hazard

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Carc. : Carcinogenicity
Eye Dam. : Serious eye damage

Eye Irrit. : Eye irritation
Flam. Gas : Flammable gases
Flam. Liq. : Flammable liquids
Flam. Sol. : Flammable solids
Muta. : Germ cell mutagenicity

Skin Corr. : Skin corrosion
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation

STOT SE : Specific target organ toxicity - single exposure

2004/37/EC : Europe. Directive 2004/37/EC on the protection of workers

from the risks related to exposure to carcinogens or mutagens

at work

GB EH40 : UK. EH40 WEL - Workplace Exposure Limits

2004/37/EC / STEL : Short term exposure limit 2004/37/EC / TWA : Long term exposure limit

GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA -European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association: IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI -Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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Further information

Sources of key data used to compile the Safety Data Sheet

Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

cy, http://echa.europa.eu/

Classification of the mixture: Classification procedure:

Eye Dam. 1	H318	Calculation method
Skin Sens. 1	H317	Calculation method
Carc. 1B	H350	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

GB / EN