

GOAT

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

1.1. Product identifier

Product name : GOAT
 Registration number REACH : Not applicable
 Product type REACH (mixture) : Mixture

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

1.2.1 Relevant identified uses
 Water proofing

1.2.2 Uses advised against
 No uses advised against known

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet
 Intelligent Membranes Ltd.
 Clopton Farm, Lower Road
 Croydon, SG8 0EF, United Kingdom
 ☎ +441223208174
 info@intelligentmembranes.co.uk

1.4. Emergency telephone number

24h/24h (Telephone advice: English) :
 +441223208174

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No

1272/2008 Class	Category	Hazard statements
Eye Irrit.	2	H319: Causes serious eye irritation.

2.2. Label elements



Signal word	Warning
H-statements	
H319	Causes serious eye irritaon.
P-statements	
P280	Wear eye protecon.
P264	Wash hands thoroughly aer handling.
P305 + P351 + P338	IF IN EYES: Rinse caously with water for several minutes. Remove contact lenses, if present and easy to do. Connue rinsing.
P337 + P313	If eye irritaon persists: Get medical advice/aenon.
Supplemental information	
EUH208	Contains: trimethoxyvinylsilane; N-(3-(trimethoxysilyl)propyl)ethylenediamine. May produce an allergic reaction.

2.3. Other hazards

No other hazards known

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

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Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark	M-factors and ATE
limestone	1317-65-3	C<50%		(2)	Cons tuent	
chromium (III) oxide 01-2119433951-39	215-279-6	C<2%		(2)	Cons tuent	
trimethoxyvinylsilane 01-2119513215-52	1308-38-9 215-215-9	0.1%<C<1%	Flam. Liq. 3; H226 Skin Sens. 1B; H317 Acute Tox. 4; H332	(1)(10)	Cons tuent	
3-(trimethoxysilyl)propylamine 01-2119510159-45	13822-56-9 237-51-7	C<2%	Eye Dam. 1; H318 Skin Irrit. 2; H315	(1)(10)	Cons tuent	
N-(3-(trimethoxysilyl)propyl)ethylenediamine 01-2119510159-45	51175-270-8 24-449-3	0.1%<C<1%	Skin Sens. 1; H317 Eye Dam. 1; H318 Skin Irrit. 2; H315	(1)(10)	Cons tuent	

- (1) For H- and EUH-statements in full: see 2.1.2.16
 (2) Substance with a Community workplace exposure limit
 (10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

SECTION 4: First aid measures

4.1. Description of first aid measures

General:

Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

After inhalation:

Remove victim into fresh air. In case of respiratory problems, consult a doctor/medical service.

After skin contact:

If possible, wipe up/dry remove chemical. Then rinse/shower immediately with (lukewarm) water. If irritation persists, consult a doctor/medical service.

After eye contact:

Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult a doctor/medical service.

After ingestion:

Rinse mouth with water. If you feel unwell, consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

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

4.2.1 Acute symptoms

After inhalation:

No effects known.

After skin contact:

No effects known.

After eye contact:

Irritation of the eye tissue.

After ingestion:

No effects known.

4.2.2 Delayed symptoms

No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:

Small fire: Quick-acng ABC powder extinguisher, Quick-acng BC powder extinguisher, Quick-acng class B foam extinguisher, Quick-acng CO2 extinguisher.

Major fire: Class B foam (not alcohol-resistant).

5.1.2 Unsuitable extinguishing media:

Small fire: Water (quick-acng extinguisher, reel); risk of puddle expansion.

Major fire: Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture

Upon combustion CO and CO2 are formed and formation of metal oxides.

5.3. Advice for firefighters

5.3.1 Instructions:

No specific fire-fighting instructions required.

5.3.2 Special protective equipment for fire-fighters:

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Gloves (EN 374). Safety glasses (EN 166). Protective clothing (EN 14605 or EN 13034). Heat/fire exposure: self-contained breathing apparatus Protec (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No naked flames.

6.1.1 Protective equipment for non-emergency personnel

See section 8.2

6.1.2 Protective equipment for emergency responders

Gloves (EN 374). Safety glasses (EN 166). Protective clothing (EN 14605 or EN 13034).

Suitable protective clothing

See section 8.2

6.2. Environmental precautions

Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply.

6.3. Methods and material for containment and cleaning up

Take up liquid spill into inert absorbent material. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the most relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Observe strict hygiene. Keep container tightly closed.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Storage temperature: 5 °C - 25 °C. Meet the legal requirements.

7.2.2 Keep away from:

Heat sources.

7.2.3 Suitable packaging material:

Plastics.

7.2.4 Non suitable packaging material:

Metal.

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

EU

Inorganic Chromium (III) Compounds (insoluble)	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	2 mg/m ³
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Belgium

Calcium (carbonate de)	Time-weighted average exposure limit	10
Chrome métal et composés inorganiques (à l'exception des composés Cr VI)	8 h Time-weighted average exposure limit 8 h	mg/m ³ 0.5

mg/m³

The Netherlands

anorganische Chroom(II)verbindingen en anorganische Chroom(III)verbindingen (onoplosbaar)	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	0.5
	Short time value (Public occupational exposure limit value)	1 mg/m ³

France

Calcium (carbonate de)	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	10 mg/m ³
Chrome (métal), composés de chrome inorganiques (II) et composés de chrome inorganiques (insolubles) (III)	Time-weighted average exposure limit 8 h (VRI: Valeur réglementaire indicative)	2 mg/m ³

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Germany

Chrom und anorganische Chrom(II) und (III)-Verbindungen (ausgenommen namentlich genannte)	Time-weighted average exposure limit 8 h (TRGS 900)	2 mg/m ³
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UK

(EH40/2005))	Calcium carbonate inhalable dust	Time-weighted average exposure limit 8 h (Workplace exposure limit	10 mg/m ³
(EH40/2005))	Calcium carbonate respirable dust	Time-weighted average exposure limit 8 h (Workplace exposure limit	4 mg/m ³
(EH40/2005))	Chromium (III) compounds (as Cr)	Time-weighted average exposure limit 8 h (Workplace exposure limit	0.5 mg/m ³
(EH40/2005))	Limestone respirable	Time-weighted average exposure limit 8 h (Workplace exposure limit	4 mg/m ³
(EH40/2005))	Limestone total inhalable	Time-weighted average exposure limit 8 h (Workplace exposure limit	10 mg/m ³
(EH40/2005))	Marble respirable	Time-weighted average exposure limit 8 h (Workplace exposure limit	4 mg/m ³
(EH40/2005))	Marble total inhalable	Time-weighted average exposure limit 8 h (Workplace exposure limit	10 mg/m ³

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

If applicable and available it will be listed below.

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 Threshold values

DNEL/DMEL - Workers

trimethoxyvinylsilane

	Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalaon		27.6 mg/m ³	
	Acute systemic effects inhalaon		73.6 mg/m ³	
	Long-term systemic effects dermal		0.91 mg/kg bw/day	

3-(trimethoxysilyl)propylamine

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalaon	7.1 mg/m ³	
	inhalaon Long-term systemic effects dermal	1 mg/kg bw/day	

DNEL/DMEL - General population

trimethoxyvinylsilane

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalaon	6.8 mg/m ³	
	Acute systemic effects inhalaon	54.4 mg/m ³	
	Long-term systemic effects dermal	0.63 mg/kg bw/day	
	Long-term systemic effects oral	0.63 mg/kg bw/day	

3-(trimethoxysilyl)propylamine

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalaon	1.7 mg/m ³	
	inhalaon Long-term systemic effects dermal	0.5 mg/kg bw/day	

PNEC

trimethoxyvinylsilane

Compartment	Value	Remark
Fresh water	0.4 mg/l	
Marine water	0.04 mg/l	
Fresh water (intermittent releases)	1.21 mg/l	
Fresh water sediment	1.5 mg/kg sediment dw	
Marine water sediment	0.15 mg/kg sediment dw	
Spil	0.06 mg/kg soil dw	

3-(trimethoxysilyl)propylamine

Compartment	Value	Remark
Fresh water	0.5 mg/l	
Fresh water (intermittent releases)	2.05 mg/l	
Marine water	0.05 mg/l	
STP	0.81 mg/l	
Fresh water sediment	1.8 mg/kg sediment dw	
Marine water sediment	0.18 mg/kg sediment dw	
Spil	0.069 mg/kg soil dw	
Oral	11.1 mg/kg food	

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N-(3-(trimethoxysilyl)propyl)ethylenediamine.

Compartment	Value	Remark
Fresh water	0.05 mg/l	
Fresh water (intermittent releases)	0.072 mg/l	
Marine water	0.005 mg/l	
STP	20 mg/l	
Fresh water sediment	0.181 mg/kg sediment dw	
Marine water sediment	0.018 mg/kg sediment dw	
Soil	0.007 mg/kg soil dw	

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

8.2.2 Individual protection measures, such as personal protective equipment

Observe strict hygiene. Do not eat, drink or smoke during work.

a) Respiratory protection:

Full face mask with filter type A at conc. in air > exposure limit.

b) Hand protection:

Protective gloves against chemicals (EN 374).

c) Eye protection:

Face shield (EN 166).

d) Skin protection:

Protective clothing (EN 14605 or EN 13034).

8.2.3 Environmental exposure controls:

See sections 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Liquid
Viscosity	Viscous
Odour	No data available on odour
Odour threshold	No data available (test not performed)
Colour	Variable in colour, depending on the concentration
Particle size	Not applicable (liquid)
Explosion limits	No data available (test not performed)
Flammability	Not classified as flammable
Log Kow	Not applicable (mixture)
Dynamic viscosity	2000 mPa.s – 10000 mPa.s ; 20 °C
Kinematic viscosity	No data available (test not performed)
Melting point	No data available (test not performed)
Boiling point	No data available (test not performed)
Relative vapour density	No data available (test not performed)
Vapour pressure	No data available (test not performed)
Solubility	Water ; insoluble
Relative density	No data available (test not performed)
Absolute density	No data available (test not performed)
Decomposition temperature	No data available (test not performed)
Auto-ignition temperature	No data available (test not performed)
Flash point	No data available (test not performed)
pH	No data available (test not performed)

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Heat increases the fire hazard.

10.2. Chemical stability

No data available.

10.3. Possibility of hazardous reactions

No data available.

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10.4. Conditions to avoid

Precautionary measures

Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks.

10.5. Incompatible materials

No data available.

10.6. Hazardous decomposition products

Upon combustion CO and CO₂ are formed and formation of metal oxides.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

11.1.1 Test results

Acute toxicity

GOAT

No (test) data on the mixture available

Judgement is based on the relevant ingredients
limestone

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		6450 mg/kg		Rat	Literature study	

chromium (III) oxide

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	> 5000 mg/kg bw		Rat (male / female)	Experimental value	
Dermal						Data waiving	
Inhalation (aerosol)	LC50	OECD 403	> 5.41 mg/l air	4 h	Rat (male / female)	Experimental value	

trimethoxyvinylsilane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	6899 mg/kg bw -		Rat (male / female)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	3158 mg/kg bw -	24 h	Rabbit (female)	Converted value	
Inhalation (vapours)	LC50	Equivalent to OECD 403	16.8 mg/l	4 h	Rat (male / female)	Experimental value	

3-(trimethoxysilyl)propylamine

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	3030 mg/kg bw		Rat (male)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	11458 mg/kg bw	24 h	Rabbit (male)	Experimental value	

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	EPA OPPTS	2295 mg/kg bw		Rat (male / female)	Experimental value	
Dermal	LD50	870.1100 EPA	> 2000 mg/kg bw	24 h	Rabbit (male / female)	Experimental value	
Inhalation (aerosol)	LC50	OPPTS 870.1200	1.49 mg/l air - 2.44 mg/l air	4 h	Rat (male / female)	Experimental value	

Conclusion

Not classified for acute toxicity

Corrosion/irritation

OPPTS 870.1300

GOAT

No (test) data on the mixture available

Classification is based on the relevant ingredients
limestone

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Slightly					Literature	
Skin	irritating	Not irritating				study	
	irritating					Literature	

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chromium (III) oxide

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405	24 h	24; 48; 72 hours	Rabbit	Experimental value	
Skin	Not irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	

trimethoxyvinylsilane

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405	24 h	1; 24; 48; 72 hours	Rabbit	Experimental value	Single treatment
Skin	Not irritating		24 h	24; 48; 72 hours	Rabbit	Experimental value	

3-(trimethoxysilyl)propylamine

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	Equivalent to OECD 405		24; 48; 72 hours	Rabbit	Experimental value	Single treatment
Skin	Irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	without rinsing

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	OECD 405		24; 48; 72 hours	Rabbit	Experimental value	Single treatment
	Slightly irritating		SkinEPA OPPTS4	24; 48; 72 hours	Rabbit	Experimental value	without rinsing
						Literature study	

870.2500

Skin Irritating;
category 2

Classification of this substance is debatable as it does not correspond to the conclusion from the test

Conclusion

Causes serious eye irritation.

Not classified as irritating to the respiratory system

Not classified as irritating to the skin

Respiratory or skin sensitisation

GOAT

No (test) data on the mixture available

Judgement is based on the relevant ingredients

chromium (III) oxide

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 406			Guinea pig	Experimental value	
Inhalation (dust)	Not sensitizing	Human observation			(female)	Experimental value	

trimethoxyvinylsilane

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	OECD 406			Guinea pig	Experimental value	

3-(trimethoxysilyl)propylamine

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 406			Guinea pig (male / female)	Experimental value	

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	OECD 406			Guinea pig (male / female)	Experimental value	

Conclusion

Not classified as sensitizing for inhalation

Not classified as sensitizing for skin

Specific target organ toxicity

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No (test) data on the mixture available

Judgement is based on the relevant ingredients

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chromium (III) oxide

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (diet)	NOEL		286.2 mg/kg bw/day - 313.7 mg/kg bw/day		No effect	105 week(s)	Rat (male / female)	Experimental value
Dermal								Data
Inhalation (dust)	NOAEL	Equivalent to OECD 413	15 mg/m ³ air		No effect	13 weeks (6h / day, 5 days / week)	Rat (male / female)	waiving Experiment

trimethoxyvinylsilane

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (stomach tube)	NOAEL	OECD 422	62.5 mg/kg bw/day		No effect	6 weeks (daily)	Rat (male / female)	Experimental value
Oral (stomach tube)	LOAEL	OECD 422	250 mg/kg bw/day	Bladder	Histopathological changes	6 weeks (daily)	Rat (male / female)	Experimental value
Inhalation (vapours)	NOAEC	Subchronic toxicity test	mg/kg bw/day		No effect	14 weeks (6h / day, 5 days / week)	Rat (male / female)	Experimental value

3-(trimethoxysilyl)propylamine

100 ppm

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (stomach tube)	NOAEL	OECD 408	100 mg/kg bw/day		No effect	90 day(s)	Rat (male / female)	Experimental value
Oral (stomach tube)	LOAEL	OECD 408	0 mg/kg bw/day - 100 mg/kg bw/day		Histopathology	90 day(s)	Rat (male / female)	Experimental value

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (stomach tube)	NOAEL	Equivalent to OECD 422	≥ 500 mg/kg bw		No effect	28 day(s) - 29 day(s)	Rat (male / female)	Experimental value
Dermal	NOAEL	Subacute toxicity test	≥ 1545 mg/kg bw/day		No effect	9 day(s)	Rat (male / female)	Experimental value
Inhalation (aerosol)	NOAEC	OECD 413	15 mg/m ³ air		No effect	13 weeks (6h / day, 5 days / week)	Rat (male / female)	Experimental value

Conclusion

Not classified for subchronic toxicity

Mutagenicity (in vitro)

GOAT

No (test) data on the mixture available

Judgement is based on the relevant ingredients

chromium (III) oxide

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 476	Chinese hamster ovary (CHO)	No effect	Experimental value	

Result	Method	Test substrate	Effect	Value determination	Chromosome	Remark
Positive with metabolic activation, positive without metabolic activation	OECD 473	CHL/IU cells	aberrations	Experimental value		
Negative with metabolic activation, negative without metabolic activation	OECD 476	Chinese hamster ovary (CHO)		Experimental value		
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value		

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3-(trimethoxysilyl)propylamine

Result Method	Test substrate	Effect	Value	Remark
Negative with metabolic activation, negative without metabolic activation OECD 476	Chinese hamster ovary (CHO)	No effect	determination Read-across	
Negative with metabolic activation, negative without metabolic activation OECD 471	Bacteria (S. typhimurium and E. coli)	No effect	Experimental value	

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Result Method	Test substrate	Effect	Value	Remark
Negative with metabolic activation, negative without metabolic activation Equivalent to OECD 471	Bacteria (S. typhimurium and E. coli)		determination Experimental value	
Negative with metabolic activation, negative without metabolic activation Equivalent to OECD 476	Chinese hamster ovary (CHO)		Experimental value	

Mutagenicity (in vivo)

GOAT

No (test) data on the mixture available

Judgement is based on the relevant ingredients
chromium (III) oxide

Result Method	Exposure time	Test substrate	Organ	Value
Negative (Intraperitoneal) trimethoxyvinylsilane	OECD 474	Mouse (male / female)	Bone marrow	determination Experimental value
Negative (Inhalation (vapours)) interval	OECD 489	2 dose(s)/24-hour Rat (male)		determination Experimental value
N-(3-(trimethoxysilyl)propyl)ethylenediamine				
Negative (Intraperitoneal) OECD 474	Equivalent to OECD 474	Mouse (male / female)		determination Experimental value

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

GOAT

No (test) data on the mixture available

Judgement is based on the relevant ingredients
chromium (III) oxide

Route of exposure	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Oral (diet)		Equivalent to OECD 451		105 week(s)	Rat (male / female)	No carcinogenic effect		Experimental value

Conclusion

Not classified for carcinogenicity

Reproductive toxicity

GOAT

No (test) data on the mixture available

Judgement is based on the relevant ingredients
chromium (III) oxide

Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity (Oral (diet))	Equivalent to OECD 414		20 days (gestation daily)	Rat	No effect		Experimental value
Maternal toxicity (Oral (diet))	Equivalent to OECD 414		20 days (gestation daily)	Rat	No effect		Experimental value
Effects on fertility (Oral (diet))	Equivalent to OECD 414			Rat (male / female)	No effect		Experimental value

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trimethoxyvinylsilane

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity (Inhalation (vapours))	NOAEL	EPA OTS 798.435	100 ppm	10 days (gestation, Rat 6h / day)		No effect		Experimental value
Maternal toxicity (Inhalation (vapours))	NOAEL	EPA OTS 798.435	25 ppm	10 days (gestation, Rat 6h / day)		No effect		Experimental value
Effects on fertility (Oral (stomach tube))	NOAEL	OECD 443	≥ 300 mg/kg bw/day		Rat (male / female)	No effect		Experimental value

3-(trimethoxysilyl)propylamine

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	≥ 1000 mg/kg bw/day	14 days (gestation, Rat daily)		No effect	Foetus	Experimental value
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	300 mg/kg bw/day	14 days (gestation, Rat daily)		No effect		Experimental value
Effects on fertility		OECD 443						Experimental value

N-(3-(trimethoxysilyl)propyl)ethylenediamine

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	750 mg/kg bw/day	14 days (gestation, Rat daily)	Rat	No effect	Foetus	Experimental value
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	750 mg/kg bw/day	14 days (gestation, Rat daily)	Rat	No effect		Experimental value
Effects on fertility (Oral (stomach tube))	NOAEL	Equivalent to OECD 422	≥ 500 mg/kg bw/day	28 day(s) - 44 day(s)	Rat (male / female)	No effect		Experimental value

Conclusion

Not classified for reprotoxic or developmental toxicity

Toxicity other effects

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No (test) data on the mixture available

Chronic effects from short and long-term exposure

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Skin rash/inflammaon.

11.2. Information on other hazards

No evidence of endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

GOAT

No (test) data on the mixture available

Judgement of the mixture is based on the relevant ingredients limestone

Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	> 10000 mg/l	96 h	Oncorhynchus mykiss			Literature study
Acute toxicity crustacea	EC5	> 1000 mg/l	48 h	Daphnia magna			Literature study
Toxicity algae and other aquatic plants	EC5	> 200 mg/l	72 h	Desmodesmus subspicatus			Literature study
chromium (III) oxide	0						study
Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	> 10000 mg/l	96 h	Danio rerio	Static system	Fresh water	Experimental value; GLP
Long-term toxicity fish	NOEC	≥ 1000 mg/l	30 day(s)	Danio rerio	Semi-static system	Fresh water	Read-across; GLP
Long-term toxicity aquatic crustacea	NOEC	Equivalent to 3.4 mg/l OECD 211	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value; Reproduction

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trimethoxyvinylsilane

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		191 mg/l	96 h	Oncorhynchus mykiss		Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EC50	EU Method	168.7 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Locomotor effect
Toxicity algae and other aquatic plants	ErC50	C.2	> 89 mg/l	72 h	Pseudokirchneriella	Static system	Fresh water	Experimental value; GLP
	NOEC		> 89 mg/l	72 h	subcapitata Pseudokirchneriella	Static system	Fresh water	Experimental value; GLP
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea	NOEC	OECD 211	28.1 mg/l	21 day(s)	Daphnia magna subcapitata	Semi-static system	Fresh water	Experimental value; GLP
Toxicity aquatic micro-organisms	EC50	OECD 209	> 100 mg/l	3 h	Activated sludge system	Static	Fresh water	Experimental value; Nominal concentration

3-(trimethoxysilyl)propylamine

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	> 934 mg/l	96 h	Danio rerio	Semi-static system	Fresh water	Experimental value; GLP
Acute toxicity crustacea	EC50	OECD 202	331 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value;
Toxicity algae and other aquatic plants	EC50	EU Method	> 1000 mg/l	72 h	Desmodesmus	Static system	Fresh water	GLP Read-across; GLP
Toxicity aquatic micro-organisms	EC10	C.3	13 mg/l	5.75 h	subspicatus Pseudomonas	Static system	Fresh water	Experimental value; GLP

N-(3-(trimethoxysilyl)propyl)ethylenediamine

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	EU Method	597 mg/l	96 h	Danio rerio	Semi-static system	Fresh water	Experimental value; GLP
Acute toxicity crustacea	EC50	C.1 EU	81 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value;
Toxicity algae and other aquatic plants	ErC50	Method C.2	8.8 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Locomotor effect Experimental

OECD 201

subcapitata

value; GLP

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

trimethoxyvinylsilane

Biodegradation water

Method	Value	Duration	Value determination
OECD 301F	51 %; GLP	28 day(s)	Experimental value

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
AOPWIN v1.92	4.458 h	1.5E6 /cm ³	Calculated value

Half-life water (t1/2 water)

Method	Value	Primary degradation/mineralisation	Value determination
OECD 111	< 2.4 h; pH = 7	Primary degradation	Weight of evidence

3-(trimethoxysilyl)propylamine

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
AOPWIN v1.92	3.5 h	1.5E6 /cm ³	Calculated value

Half-life water (t1/2 water)

Method	Value	Primary degradation/mineralisation	Value determination
	2.6 h; pH = 7	Primary degradation	QSAR

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N-(3-(trimethoxysilyl)propyl)ethylenediamine

Biodegradation water

Method	Value	Duration	Value
EU Method C.4-A	39 %; GLP	n 28	determination
Half-life water (t1/2 water)		day(s)	Experimental value
Method	Value	Primary degradation/mineralisation	Value determination
OECD 111	0.025 h - 0.1 h	Primary degradation	Experimental value

Conclusion

Water

Contains non readily biodegradable component(s)

12.3. Bioaccumulative potential

GOAT

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (mixture)			

limestone

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable			

chromium (III) oxide

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (inorganic)			

trimethoxyvinylsilane

BCF fishes

Parameter	Method	Value	Duration	Species	Value
					determination

Log Kow

Method	Remark	Value	Temperature	Value
KOWWIN 1.1			e 20 °C	determination

3-(trimethoxysilyl)propylamine

Log Kow

Method	Remark	Value	Temperature	Value
KOWWIN 0.2			e 20 °C	determination

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Log Kow

Method	Remark	Value	Temperature	Value
KOWWIN-4 - -0.3			e 20 °C	determination

Conclusion

No straightforward conclusion can be drawn based upon the available numerical values

12.4. Mobility in soil

trimethoxyvinylsilane

(log) Koc

Parameter	Method	Value	Value
logKoc	SRC PCKOCWIN v2.0	e	determination

3-(trimethoxysilyl)propylamine

(log) Koc

Parameter	Method	Value	Value
logKoc		2.81	Calculated value

N-(3-(trimethoxysilyl)propyl)ethylenediamine

(log) Koc

Parameter	Method	Value	Value
logKoc	SRC PCKOCWIN v2.0	e 3.5	determination

Calculated value

Conclusion

Contains component(s) with potential for mobility in the soil

Contains component(s) that adsorb(s) into the soil

12.5. Results of PBT and vPvB assessment

Due to insufficient data no statement can be made whether the component(s) fulfil(s) the criteria of PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006.

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties

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GOAT

12.7. Other adverse effects

GOAT

Greenhouse gases

None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

3-(trimethoxysilyl)propylamine

Groundwater

Groundwater pollutant

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Water ecotoxicity pH

pH shi

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Can be considered as non-hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997. The waste code must be assigned by the user, preferably in consultation with the (environmental) authorities concerned.

13.1.2 Disposal methods

Remove waste in accordance with local and/or national regulations. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).

15 01 02 (plastic packaging).

SECTION 14: Transport information

Road (ADR), Rail (RID), Inland waterways (ADN), Sea (IMDG/IMSBC), Air (ICAO-TI/IATA-DGR)

14.1. UN number

Transport Not subject

14.2. UN proper shipping name

14.3. Transport hazard class(es)

Hazard identification number

Class

Classification code

14.4. Packing group

Packing group

Labels

14.5. Environmental hazards

Environmentally hazardous substance mark

14.6. Special precautions for user

Special provisions

Limited quantities

14.7. Maritime transport in bulk according to IMO instruments

Annex II of MARPOL 73/78

Not applicable, based on available data

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content

> 1 %

Remark

Directive 2012/18/EU (Seveso III)

Not subject to registration according to Directive 2012/18/EU (Seveso III)

REACH Annex XVII - Restriction

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
3-(trimethoxysilyl)propylamine	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to the Regulation	Shall not be used in: ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,

(trimethoxysilyl)propyl

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GOAT

ethylene diamine	<p>Regulation (EC) No 1272/2008:— tricks and jokes, (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8— games for one or more participants, or any article intended to be used as such, even with types A and B, 2.9, 2.10, 2.12, 2.13 categories ornamental aspects, 1 and 2, 2.14 categories 1 and 2, 2.15 types A2. Articles not complying with paragraph 1 shall not be placed on the market. to F;3. Shall not be placed on the market if they contain a colouring agent, unless required for (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on health, safety, or perfume, or both, if they: effects on sexual function and fertility or on— can be used as fuel in decorative oil lamps for supply to the general public, and, development, 3.8 effects other than narcotic— present an aspiration hazard and are labelled with H304, effects, 3.9 and 3.10;4. Decorative oil lamps for supply to the general public shall not be placed on the market (c) hazard class 4.1;unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted (d) hazard class 5.1.by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: “Just a sip of grill lighter may lead to life threatening lung damage”; c) lamp oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.</p>
trimethoxyvinylsilane	<p>Substances classified as flammable gases 1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol category 1 or 2, flammable liquids categories dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following: 1, 2 or 3, flammable solids category 1 or 2, metallic glitter intended mainly for decoration, substances and mixtures which, in contact with water, emit flammable gases, category 1, — artificial snow and frost, 2 or 3, pyrophoric liquids category 1 or — “whoopee” cushions, pyrophoric solids category 1, regardless of — silly string aerosols, whether they appear in Part 3 of Annex VI to — imitation excrement, that Regulation or not.— horns for parties, — decorative flakes and foams, — artificial cobwebs, — stink bombs.</p> <p>2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: “For professional users only”. 3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/ 324/EEC. 4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.</p>

National legislation Belgium

GOAT

No data available

National legislation The Netherlands

GOAT

Waterbeveiligingswet (4): Algemene Beoordelingsmethode (ABM)

National legislation France

GOAT

No data available

National legislation Germany

GOAT WGK

1: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017

limestone

TA-Luft 5.2.1

chromium (III) oxide

TA-Luft 5.2.2/III

trimethoxyvinylsilane

TA-Luft 5.2.5

3-(trimethoxysilyl)propylamine

TA-Luft 5.2.5

N-(3-(trimethoxysilyl)propyl)ethylethylenediamine

TA-Luft 5.2.5

National legislation Austria

GOAT

No data available

National legislation United Kingdom

GOAT

No data available

Other relevant data

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GOAT

GOAT

No data available

chromium (III) oxide

IARC - classification

3: Chromium (III) compounds

3: Chromium and chromium compounds

15.2. Chemical safety assessment

No chemical safety assessment has been conducted for the mixture.

SECTION 16: Other information

Full text of any H- and EUH-statements referred to under section 3:

H226 Flammable liquid and vapour.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

EUH208 Contains a sensitising substance. May produce an allergic reaction.

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
ATE	Acute Toxicity Estimate
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe) Derived Minimal Effect Level
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
NOAEC/NOAEL	No Observed Adverse Effect Concentration/No Observed Adverse Effect Level
NOEC/NOEL	No Observed Effect Concentration/No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process
vPvB	very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from

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