

ACCORDING TO COMMISSION REGULATION (EU) 2020/878 and UK REACH

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name	GMS Marking fluid.
Contains	Ethanol; molybdenum trioxide; ammonium trioxovanadate; 2-butoxyethanol; solvent naphtha (petroleum), light, aromatic; condensation products of dimerised fatty acids, C18- unsaturated, with N,N-dimethyl-1,3- propanediamine and 1,3-propanediamine.

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

Identified Use(s)	For the electrolytic chemical etching of metals
Uses Advised Against	Restricted to professional users. Not recommended for use on titanium, plastics, or aluminium substrates. Not for private (household) purposes.

1.3 Details of the supplier of the safety data sheet

Manufacturer/supplier	Pryor Marking Technology Ltd.
Address of manufacturer	Global HQ: Egerton Street Sheffield UK S1 4JX
Telephone	+44 (0) 114 276 6044
Fax	+44 (0) 114 276 6890
E-mail address of competent person responsible	info@pryormarking.com
Office hours	08:30-17:00

1.4 Emergency telephone number

+44 (0) 114 276 6044 (English)
Monday to Thursday, 08:30-17:30 GMT
Friday, 08:30-15:30 GMT

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No. 1272/2008 (CLP) and GB CLP

Flam Liq. 2	H225
Acute Tox. 4	H302
Skin Sens. 1A	H317
Eye Irrit. 2	H319
STOT SE 3	H335
Muta. 1B	H340
Carc. 1B	H350
Repr. 2	H361
STOT RE 2	H373
Aquatic Chronic 3	H412

2.1.2 Additional information

See section 16 for full text of Hazard Statements

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP) and GB CLP

Product Name GMS Marking fluid.

Hazard Pictograms



GHS02



GHS07



GHS08

Signal Word(s) Danger

Hazard Statement(s)

H225: Highly flammable liquid and vapour
H302: Harmful if swallowed
H317: May cause an allergic skin reaction
H319: Causes serious eye irritation
H335: May cause respiratory irritation
H340: May cause genetic defects
H350: May cause cancer
H361: Suspected of damaging fertility or the unborn child (oral)
(developmental toxicity)
H373: May cause damage to organs through prolonged or repeated exposure (respiratory tract, inhalation)
H412: Harmful to aquatic life with long lasting effects

Precautionary Statement(s)

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe fumes/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/eye protection/face protection/ hearing protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P330 Rinse mouth.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all

contaminated clothing. Rinse skin with water [or shower].
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use foam, water spray, CO₂, or dry powder to extinguish.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/national regulation.

Supplementary Hazard Information (EU) EUH066 'Repeated exposure may cause skin dryness or cracking'.

Hazard determining component(s) Ethanol
Molybdenum trioxide
Ammonium trioxovanadate
2-butoxyethanol
Solvent naphtha (petroleum), light, aromatic
Condensation products of dimerised fatty acids, C18- unsaturated, with N,N-dimethyl-1,3- propanediamine and 1,3-propanediamine

Special labelling of certain mixtures Restricted to professional users.

2.3 Other hazards

May form explosive peroxides. This mixture does not contain substances that are PBT or vPvB. This mixture does not cause endocrine disruption.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Ingredient	CAS No. / EC No. / Index No.	REACH Registration No.	%W/W	Classification according to Regulation EC 1272/2008 (CLP)	SCL/ M-factor/ ATE/ Particle Characteristics
Ethanol	64-17-5 / 200-578-6 / 603-002-00-5	-	≥60 - <70	Flam. Liq. 2 H225	WEL
Molybdenum trioxide	1313-27-5 / 215-204-7 / 042-001-00-9	-	≥30 - <40	Carc. 2 H351 Eye Irrit. 2 H319 STOT SE 3 H335	WEL
Ammonium trioxovanadate	7803-55-6 / 232-261-3 / -	-	≥2 - <7	Acute Tox. 3 H301 Eye Irrit. 2 H319 Acute Tox. 4 H332 Repr. 2 H361 (oral) (developmental toxicity) STOT RE 1 H372 (Respiratory track) (inhalation) Aquatic Chronic 2 H411	-
Mica	12001-26-2 / 601-648-2 / -	-	<7	Not classified	WEL
2-butoxyethanol	111-76-2 / 203-905-0 /	-	≥0.5 - <2	Acute Tox. 3 H331 Acute Tox. 4 H302	Inhalation: ATE = 3 mg/L

	603-014-00-0			Skin Irrit. 2 H315 Eye Irrit. 2 H319	(Vapours) Oral: ATE = 1200 mg/kg bw (-) WEL
Ethyl acetate	141-78-6 / 205-500-4 / 607-022-00-5	-	≥0.5 - <2	Flam. Liq. 2 H225 Eye Irrit. 2 H319 STOT SE 3 H336	EUH066 WEL
Solvent naphtha (petroleum), light, aromatic	64742-95-6 / 265-199-0 / 649-356-00-4	-	≥0.3 - <1	Carc. 1B H350 Muta. 1B H340 Asp. Tox. 1 H304	WEL
Condensation products of dimerised fatty acids, C18- unsaturated, with N,N-dimethyl- 1,3- propanediamine and 1,3- propanediamine	162627-17-0 / 605-296-0 /	-	≥0.3 - <1	Skin Sens. 1A H317	-
Methanol	67-56-1 / 200-578-6 / 603-001-00-X	-	<0.3	Flam. Liq. 2 H225 Acute Tox. 3 H331 Acute Tox. 3 H311 Acute Tox. 3 H301 STOT SE 1 H370	STOT SE 1; H370: C≥10 % STOT SE 2; H371: 3 % ≤ C<10 % WEL

For full text of H Statements see section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes	If symptoms occur, consult a doctor. Show this safety data sheet to the doctor in attendance.
Following inhalation	May cause respiratory irritation. Remove person to fresh air and keep comfortable for breathing. If symptoms occur: Get medical advice/attention.
Following skin contact (or hair contact)	Highly flammable liquid and vapour. May cause an allergic skin reaction. Take off immediately all contaminated clothing. Rinse skin with water [or shower]. If skin irritation or rash occurs: Get medical advice/attention.
Following eye contact	Causes serious eye irritation. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Following ingestion	Harmful if swallowed. Call a POISON CENTER/doctor if you feel unwell.
Self-protection of the first aider	Ensure that you are wearing the appropriate personal protective equipment according to the incident, injury, and surroundings.

4.2 Most important symptoms and effects, both acute and delayed

Highly flammable liquid and vapour. Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child (oral) (developmental toxicity). May cause damage to organs through prolonged or repeated exposure (respiratory tract, inhalation).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media
Unsuitable extinguishing media

Foam, water spray, carbon dioxide or dry powder. Use water to cool fire-exposed containers and to disperse vapour.
Do not use water jet. Direct water jet may spread the fire

5.2 Special hazards arising from the substance or mixture

Highly flammable liquid and vapour. May form explosive peroxides. Cool containers exposed to flames with plenty of water until well after the fire is out. Vapour may form explosive mixture with air. Vapour is heavier than air and may accumulate in confined spaces.

This material is harmful to aquatic life with long lasting effects. Fire water contaminated with the material must be contained; do not empty into drains. Run off to sewer may cause fire or explosion hazard.

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Move containers from the fire area if it is safe to do so. Cool containers exposed to flames with plenty of water until well after the fire is out. Do not allow product or run-off to enter drains, sewers, or watercourses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency responders

Eliminate sources of ignition. Ensure adequate ventilation.
Do not touch or walk through split material. Avoid contact with skin, eyes, or clothing. Do not breathe fumes/ mist/ vapours/ spray. Wear suitable personal protective equipment, (see Section 8). The vapour is heavier than air; it will concentrate in low lying areas; beware of pits and confined spaces.

For emergency responders

Keep unnecessary personnel away. Wear suitable personal protective equipment, including gloves, goggles/face shield, boots, and protective clothing. Wear appropriate respirator when ventilation is inadequate (see section 8). Do not breathe fumes/mist/vapours/spray. Ensure adequate ventilation. Avoid contact with skin, eyes, or clothing. The vapour is heavier than air; it will concentrate in low lying areas, beware of pits and confined spaces.

6.2 Environmental precautions

The product is harmful to aquatic life with long lasting effects. Collect spillage. Do not allow to enter drains, sewers, or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

For containment	Stop the leak if it is safe to do so. Contain the spillage with sand, earth, or any suitable non-combustible adsorbent material.
For cleaning up	Use sand, earth, or any suitable non-combustible adsorbent material to adsorb spillages. Using non-sparking tools transfer the contaminated adsorbent material into a UN approved container for disposal. Containers should be sealed before being disposed of via an authorised waste disposal contractor.

6.4 Reference to other sections

See section 8 for personal protective equipment. See section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. explosion-proof [electrical/ventilating/lighting/] equipment. Use non-sparking tools. Take action to prevent static discharges.

Do not breathe fumes/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Wear protective gloves/ protective clothing/eye protection/face protection/ hearing protection.

Do not eat, drink, or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Ground and bond container and receiving equipment. Keep only in original container and keep it tightly closed. Store in a well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Keep away from direct sunlight.

Storage temperature	Ambient
Storage life	12 months
Incompatible materials	Keep away from strong acids and oxidising agents. Do not store in aluminium metal

7.3 Specific end use(s)

For the electrolytic chemical etching of metals.
Follow supplier's recommendations on correct use of the product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

Source UK EH40/2005, 4th edition 2020. Workplace exposure limits, and GESTIS - International limit values.

Substance	CAS No.	Long-term exposure limit (8-hr TWA reference period)		Short-term exposure limit (15-min reference period)		Note
		ppm	mg/m ³	ppm	mg/m ³	
Ethanol	64-17-5	1000	1920	-	-	UK
		-	-	1000	-	Ireland
Molybdenum compounds (as Mo) soluble compounds	-	-	5	-	10	UK
Molybdenum compounds (as Mo) insoluble compounds		-	10	-	20	
Mica, total inhalable	12001-26-2	-	10	-	-	UK
Mica, respirable		-	0.8	-	-	
Mica, respirable		-	3	-	-	Ireland
2-butoxyethanol	111-76-2	25	123	50	246	UK Sk, BMGV
		20	98	50	246	Ireland
Ethyl acetate	141-78-6	200	734	400	1468	UK, Ireland
Solvent naphtha (petroleum), light, aromatic	64742-95-6	500	-	-	-	UK (1)
Methanol	67-56-1	200	266	250	333	Sk

Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

BMGV: Biological monitoring guidance value

(1) Value for aromatics, approved by ACTS. Hydrocarbon solvents supplied as a complex mixture, HSE ACTS procedure, see EH40, paragraphs 84-87.

Biological monitoring guidance value

Substance	Biological monitoring guidance value	Sampling time
2-butoxyethanol	240 mmol butoxyacetic acid/mol creatinine in urine	Post shift

Derived No Effect Level (DNEL) – Workers

Substance	CAS No.	Route of exposure	Acute/short-term exposure		Long-term exposure		
			Systemic effects	Local effects	Systemic effects	Local effects	
Ethanol	64-17-5	Inhalation	No hazard identified	1900 mg/m ³ irritation (respiratory tract)	380 mg/m ³ carcinogenicity	No hazard identified	
		Dermal	No hazard identified	No hazard identified	343 mg/kg bw/day repeated dose toxicity	No hazard identified	
		Eye	Medium hazard (no threshold derived)				
Molybdenum trioxide	1313-27-5	Inhalation	No hazard identified	No hazard identified	16.76mg/m ³ repeated dose toxicity	3 mg/m ³ repeated dose toxicity	
		Dermal	No hazard identified				
		Eye	No hazard identified				
Ammonium trixovanadate	7803-55-6	Inhalation	No hazard identified	920 µg/m ³	640 µg/m ³ developmental toxicity/teratogenicity	180 µg/m ³ repeated dose toxicity	
		Dermal	No hazard identified				
		Eye	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	
2-butoxyethanol	111-76-2	Inhalation	1 091 mg/m ³ acute toxicity	246 mg/m ³ irritation (respiratory tract)	98 mg/m ³ repeated dose toxicity	No hazard identified	
		Dermal	No hazard identified	Medium hazard (no threshold derived)	Low hazard (no threshold derived)	No hazard identified	
		Eye	Medium hazard (no threshold derived)				
Ethyl acetate	141-78-6	Inhalation	1468 mg/m ³ irritation (respiratory tract)	1468 mg/m ³ irritation (respiratory tract)	734 mg/m ³ irritation (respiratory tract)	734 mg/m ³ irritation (respiratory tract)	
		Dermal	No hazard identified	Low hazard (no threshold derived)	63 mg/kg bw/day irritation (respiratory tract)	No hazard identified	
		Eye	Low hazard (no threshold derived)				
Solvent naphtha (petroleum), light, aromatic	64742-95-6	Inhalation	1286.4 mg/m ³ neurotoxicity	1066.67 mg/m ³ irritation (respiratory tract)	1.9 mg/m ³ repeated dose toxicity	837.5 mg/m ³ irritation (respiratory tract)	
		Dermal	High hazard (no threshold derived)	Low hazard (no threshold derived)	High hazard (no threshold derived)	High hazard (no threshold derived)	
		Eye	No hazard identified				

Methanol	67-56-1	Inhalation	130 mg/m ³ acute toxicity			
		Dermal	20 mg/kg bw/day acute toxicity	No hazard identified	20 mg/kg bw/day acute toxicity	No hazard identified
		Eye	No hazard identified			

Derived No Effect Level (DNEL) – General population

Substance	CAS No.	Route of exposure	Acute/short-term exposure		Long-term exposure	
			Systemic effects	Local effects	Systemic effects	Local effects
Ethanol	64-17-5	Inhalation	No hazard identified	950 mg/m ³ irritation (respiratory tract)	114 mg/m ³ carcinogenicity	No hazard identified
		Dermal	No hazard identified	No hazard identified	206 mg/kg bw/day repeated dose toxicity	No hazard identified
		Oral	No hazard identified	-	87 mg/kg bw/day repeated dose toxicity	-
		Eye	Medium hazard (no threshold derived)			
Molybdenum trioxide	1313-27-5	Inhalation	No hazard identified	No hazard identified	5 mg/m ³ repeated dose toxicity	2 mg/m ³ repeated dose toxicity
		Dermal	No hazard identified			
		Oral	No hazard identified	-	5.1 mg/kg bw/day repeated dose toxicity	-
		Eye	No hazard identified			
Ammonium trioxovanadate	7803-55-6	Inhalation	No hazard identified	0.570 mg/m ³	0.180 mg/m ³ developmental toxicity / teratogenicity	0.110 mg/m ³ repeated dose toxicity
		Dermal	No hazard identified			
		Oral	0.920 mg/kg bw/day	-	0.180 mg/kg bw/day repeated dose toxicity	-
		Eye	Low hazard (no threshold derived)			
2-butoxyethanol	111-76-2	Inhalation	426 mg/m ³ acute toxicity	147 mg/m ³ irritation (respiratory tract)	59 mg/m ³ repeated dose toxicity	No hazard identified
		Dermal	No hazard identified	Medium hazard (no threshold derived)	No hazard identified	No hazard identified
		Oral	26.7 mg/kg bw/day acute toxicity	-	6.3 mg/kg bw/day repeated dose toxicity	-

		Eye	Medium hazard (no threshold derived)			
Ethyl acetate	141-78-6	Inhalation	734 mg/m ³ irritation (respiratory tract)	734 mg/m ³ irritation (respiratory tract)	367 mg/m ³ irritation (respiratory tract)	367 mg/m ³ irritation (respiratory tract)
		Dermal	No hazard identified	No hazard identified	37 mg/kg bw/day irritation (respiratory tract)	Low hazard (no threshold derived)
		Oral	No hazard identified	-	4.5 mg/kg bw/day repeated dose toxicity	-
		Eye	Low hazard (no threshold derived)			
Solvent naphtha (petroleum), light, aromatic	64742-95-6	Inhalation	1152 mg/m ³ neurotoxicity	640 mg/m ³ irritation (respiratory tract)	0.410 mg/m ³ repeated dose toxicity	178.57 mg/m ³ irritation (respiratory tract)
		Dermal	High hazard (no threshold derived)	Low hazard (no threshold derived)	High hazard (no threshold derived)	High hazard (no threshold derived)
		Oral	No hazard identified	-	No hazard identified	-
		Eye	No hazard identified			
Methanol	67-56-1	Inhalation	26 mg/m ³ acute toxicity			
		Dermal	4 mg/kg bw/day acute toxicity	No hazard identified	4 mg/kg bw/day acute toxicity	No hazard identified
		Oral	4 mg/kg bw/day acute toxicity	-	4 mg/kg bw/day acute toxicity	-
		Eye	No hazard identified			

Predicted No Effect Concentration (PNEC)

Substance	Ethanol	Molybdenum trioxide	Ammonium trioxovanadate
CAS No.	64-17-5	1313-27-5	7803-55-6
Hazard for Aquatic Organisms			
Freshwater	0.960 mg/L	11.9 - 17.9 mg/L	0.0076 mg/L
Intermittent releases (freshwater)	2.75 mg/L	-	0.00693 mg/L
Marine water	0.790 mg/L	2.28 - 3.42 mg/L	0.0025 mg/L
Intermittent releases (marine water)	-	-	-
Sewage treatment plant (STP)	580 mg/L	21.7 - 32.6 mg/L	0.450 mg/L
Sediment (freshwater)	3.6 mg/kg sediment dw	21 200 - 31 800 mg/kg sediment dw	240 mg/kg sediment dw
Sediment (marine water)	2.9 mg/kg sediment dw	2 370 - 3 560 mg/kg sediment dw	79 mg/kg sediment dw

Hazard for Air			
Air	No hazard identified	No hazard identified	-
Hazard for Terrestrial Organism			
Soil	0.630 mg/kg soil dw	9.9 - 14.9 mg/kg soil dw	7.2 mg/kg soil dw
Hazard for Predators			
Secondary poisoning	380 - 720 mg/kg food	No potential for bioaccumulation	167 µg/kg food

Substance	2-butoxyethanol	Ethyl acetate	Methanol
CAS No.	111-76-2	141-78-6	67-56-1
Hazard for Aquatic Organisms			
Freshwater	8.8 mg/L	0.240 mg/L	No hazard identified
Intermittent releases (freshwater)	26.4 mg/L	1.65 mg/L	No hazard identified
Marine water	0.880 mg/L	0.024 mg/L	No hazard identified
Intermittent releases (marine water)	-	-	No hazard identified
Sewage treatment plant (STP)	463 mg/L	650 mg/L	No hazard identified
Sediment (freshwater)	34.6 mg/kg sediment dw	1.15 mg/kg sediment dw	No hazard identified
Sediment (marine water)	3.46 mg/kg sediment dw	115 µg/kg sediment dw	No hazard identified
Hazard for Air			
Air	No hazard identified	No hazard identified	No hazard identified
Hazard for Terrestrial Organism			
Soil	2.33 mg/kg soil dw	148 µg/kg soil dw	No hazard identified
Hazard for Predators			
Secondary poisoning	20 mg/kg food	200 mg/kg food	No potential for bioaccumulation

8.2 Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction, to minimise exposure to vapours. A washing facility/water for eye and skin cleaning purposes should be present.

8.2.2. Personal protection equipment

Eye and face protection



Wear safety glasses with side protection (EN166).

Skin protection – hand



Wear chemical resistant gloves (EN 374). Contact glove supplier to confirm suitable glove material, thickness, and breakthrough times. If contact with forearms is likely, wear gauntlet-style gloves.

Skin protection – other

Wear long sleeve chemical resistant protective clothing. Plastic apron. Nitrile rubber boots.

Respiratory protection



In the case of insufficient ventilation, wear respiratory equipment. Suitable respiratory protection for lower concentrations or short-term effect: Filter type ABEK-P3 (EN 14387).

Thermal hazards

None known.

General hygiene

Do not eat, drink, or smoke when using this product. t. Take off immediately all contaminated clothing. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

8.2.3. Environmental Exposure Controls

Avoid release to the environment. Contain spillages.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

(a) Physical state	Paste
(b) Colour	Yellow
(c) Odour	Characteristic
(d) Melting point/freezing point	No data available
(e) Boiling point or initial boiling point and boiling range	No data available
(f) Flammability (solid)	Not applicable
(g) Upper/lower explosion limits	UEL: 19% (w/w); LEL: 1.1% (w/w)
(h) Flash point	14 °C (calculated)
(i) Auto-ignition temperature	No data available
(j) Decomposition temperature (°C)	No data available
(k) pH	No data available
(l) Kinematic viscosity	Not applicable
(m) Solubility(ies)	Soluble in water

(n) Partition coefficient: n-octanol/water	No data available
(o) Vapour pressure	No data available
(p) Density and/or relative density	No data available
(q) Relative vapour density	No data available
(r) Particle characteristics	Not applicable
(s) Explosive properties	Not explosive
(t) Oxidising properties	Not oxidising

9.2 Other information

No additional information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Highly flammable liquid and vapour. May form explosive peroxides. Vapour may form explosive mixture with air. Vapour is heavier than air and may accumulate in confined spaces.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep away from direct sunlight.

10.5 Incompatible materials

Keep away from strong acids and oxidising agents. Keep away from metals and aluminium.

10.6 Hazardous decomposition products

Carbon oxides (CO and CO₂), nitrogen oxides (NO and NO₂), molybdenum oxides and vanadium oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

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

(a) Acute toxicity	
Acute toxicity - Oral	Acute Tox. 4. Harmful if swallowed. Acute toxicity estimate (ATE): 300 – 2000 mg/kg bw
Acute toxicity - Dermal	Not classified. Based on the available data, the classification criteria are not met. Acute toxicity estimate (ATE): > 2000mg/kg bw
Acute toxicity - Inhalation	Not classified. Based on the available data, the classification criteria are not met. Acute toxicity estimate (ATE): > 20 mg/L.

Substance	Acute toxicity - oral	Acute toxicity - dermal	Acute toxicity - inhalation
Ammonium trioxovanadate	LD ₅₀ : 141.43 mg/Kg (rat, female)	LD ₅₀ > 2000 mg/Kg (rats, male and female)	LC ₅₀ : 2.43 mg/L (rats, female) (air)
2-butoxyethanol	LD ₅₀ : 1200 mg/Kg (guinea pig, male and female)	LD ₅₀ > 2000 mg/Kg (guinea pig, male and female)	LC ₅₀ : 3 mg/L (vapours)
Methanol	The classification is only based upon the experiences in humans and classifies methanol as acutely toxic by oral, dermal and inhalative exposure		

(b) Skin corrosion/irritation	Not classified. Based on the available data, the classification criteria are not met.
(c) Serious eye damage/irritation	Eye Irrit. 2. Causes serious eye irritation.
(d) Respiratory or skin sensitisation Respiratory sensitisation	Not classified. Based on the available data, the classification criteria are not met.
Skin sensitisation	Skin Sens. 1A. May cause an allergic skin reaction.
(e) Germ cell mutagenicity	Muta. 1B. May cause genetic defects.
(f) Carcinogenicity	Carc. 1B. May cause cancer.
(g) Reproductive toxicity	Repr. 2. Suspected of damaging fertility or the unborn child (oral) (developmental toxicity).
(h) STOT-single exposure	STOT SE 3. May cause respiratory irritation.
(i) STOT-repeated exposure	STOT RE 2. May cause damage to organs through prolonged or repeated exposure (respiratory tract, inhalation).
(j) Aspiration hazard	Not classified. Based on the available data, the classification criteria are not met.

Information on likely routes of exposure

Ingestion	Harmful if swallowed
Skin contact	May cause an allergic skin reaction. Repeated exposure may cause skin dryness or cracking.
Eye contact	Causes serious eye irritation
Inhalation	May cause respiratory irritation

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Ingestion	Harmful if swallowed. Suspected of damaging fertility or the unborn child (oral) (developmental toxicity).
Skin contact	May cause an allergic skin reaction. Repeated exposure may cause skin dryness or cracking. May cause genetic defects. May cause cancer.
Eye contact	Causes serious eye irritation.
Inhalation	May cause damage to organs through prolonged or repeated exposure (respiratory tract, inhalation).

11.2 Information on other hazards

Endocrine disrupting properties

The mixture does not contain any ingredient that is known to cause endocrine disruption.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Aquatic Chronic 3. Harmful to aquatic life with long lasting effects.

Data on aquatic toxicity

Ammonium trioxovanadate CAS 7803-55-6

Acute (short-term) toxicity

Fish (Leuciscus idus) – fresh water	LC ₅₀ 96-h: 0.693 mg V/L (V ₂ O ₅)
Fish (Limanda limanda) – marine water	LC ₅₀ 96-h: 27.800 mg V/L (NH ₄ VO ₃)
Invertebrates (Daphnia magna) – fresh water	LC ₅₀ 48-h: 1.520 mg V/L (V ₂ O ₅)
Invertebrates (Americamysis bahia) – marine water	LC ₅₀ 48-h: 13.300 mg V/L (NaVO ₃)
Algae (Scenedesmus subspicatus) – fresh water	EC ₅₀ 72-h: 2.907 mg V/L (V ₂ O ₅)

Chronic (long-term) toxicity

Fish (Jordanella floridae) – fresh water	EC ₁₀ 30-d: 0.076 mg V/L (V ₂ O ₅)
Invertebrates (Daphnia magna) – fresh water	NOEC 98-d: 0.560 mg V/L (NaVO ₃)
Algae (Scenedesmus subspicatus) – fresh water	EC ₁₀ 72-h: 0.716 mg V/L (V ₂ O ₅)

12.2. Persistence and degradability

No data available on the mixture. The following data are for the product components:

Substance	Data
Ethanol	Readily biodegradable
Molybdenum trioxide	Not relevant for inorganic substances
Ammonium trioxovanadate	Not relevant for inorganic substances
Mica	Not relevant for inorganic substances
2-butoxyethanol	Readily biodegradable
Ethyl acetate	Readily biodegradable
Solvent naphtha (petroleum), light, aromatic	Not relevant for UVCB hydrocarbon
Condensation products of dimerised fatty acids, C18-unsaturated, with N,N-dimethyl-1,3- propanediamine and 1,3-propanediamine	Readily biodegradable
Methanol	Readily biodegradable

12.3 Bioaccumulative potential

No data available on the mixture. The following data are for the products components:

Substance	Partition coefficient n-octanol /water (Log Kow)	Bioconcentration factor (BCF)
Ethanol	Low potential for bioaccumulation Log Kow (Log Pow): -0.35 at 20 °C	BCF: 1 - 3 at 20 °C
Molybdenum trioxide	Not applicable for inorganic substances	BCF: The lowest bioaccumulation factor observed was 0.05
Ammonium trioxovanadate	Not applicable for inorganic substances	BCF: 12.3 L/kg ww
Mica	Not applicable for inorganic substances	-
2-butoxyethanol	Log Kow (Log Pow): 0.81 at 20 °C	-
Ethyl acetate	Log Kow (Log Pow): 0.68 at 25 °C	BCF: 30 on aquatic species at 22.5 °C
Solvent naphtha (petroleum), light,	Not relevant for UVCB hydrocarbon	-

aromatic		
Condensation products of dimerised fatty acids, C18- unsaturated, with N,N-dimethyl-1,3- propanediamine and 1,3-propanediamine	Log Kow (Log Pow): > 5.5 at 20 °C	Study technically not feasible
Methanol	Log Kow = - 0.77 at 20 °C	BCF: < 10

12.4. Mobility in soil

Ammonium trioxovanadate is readily soluble in water (7.81 g/L). It is expected to be highly mobile in soils.

Inorganic substances and organic solvents (ethanol, 2-butoxyethanol, ethyl acetate) are also readily soluble in water and expected to be mobile in soils.

Condensation products of dimerised fatty acids, C18-unsaturated, with N,N-dimethyl-1,3-propanediamine and 1,3-propanediamine (Log Koc: >5.6) and solvent naphtha (petroleum), light aromatic are poorly soluble and expected to persist in soils.

12.5. Results of PBT and vPvB assessment

This 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. Endocrine disrupting properties

This mixture does not cause endocrine disruption.

12.7. Other adverse effects

No known significant effects or critical hazards.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product and packaging to be disposed of as hazardous waste. Disposal should be in accordance with local, state, or national legislation. Harmful to aquatic life with long lasting effects. Do not landfill.

Empty containers retain product residue and can be hazardous. Dispose of uncleaned empty containers as hazardous waste in accordance with local, state, or national legislation.

Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor. Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14: TRANSPORT INFORMATION

According to ADR/ADN/RID/IMDG/ICAO/IATA.

14.1. UN number or ID number

UN 1210

14.2. UN Proper shipping name

PRINTING INK RELATED MATERIAL

14.3. Transport hazard class(es)

3

14.4. Packing group

III

14.5. Environmental hazards

None

14.6. Special precautions for user

None

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: REGULATORY INFORMATION

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

EU Regulations

This product has been classified according to Regulation (EC) No. 1272/2008 (CLP).

This SDS has been prepared in accordance with REACH Regulation (EC) No 1907/2006 as amended by Commission Regulation EU 2020/878.

Candidate List of Substances of Very High Concern for Authorisation

No components listed

REACH: ANNEX XIV list of substances subject to authorisation

No components listed

REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures, and articles

Ammonium trioxovanadate

Entry 65. Inorganic ammonium salts (not applicable for this product)

1. Shall not be placed on the market, or used, in cellulose insulation mixtures or cellulose insulation articles after 14 July 2018 unless the emission of ammonia from those mixtures or articles results in a concentration of less than 3 ppm by volume (2,12 mg/m³) under the test conditions specified in paragraph 4.

Solvent naphtha (petroleum), light, aromatic

Entry 28. Substances which are classified as carcinogen category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 1 or Appendix 2, respectively.

Entry 29. Substances which are classified as germ cell mutagen category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 3 or Appendix 4, respectively.

1. Shall not be placed on the market, or used,

— as substances,
— as constituents of other substances, or,
— in mixtures,
for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:
— either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or,
— the relevant generic concentration limit specified in Part 3 of Annex I of Regulation (EC) No 1272/2008.

'Restricted to professional users'

Methanol

Entry 69. Methanol

Shall not be placed on the market to the general public after 9 May 2019 in windscreen washing or defrosting fluids, in a concentration equal to or greater than 0,6 % by weight.

Community Rolling Action Plan (CoRAP)

No components listed

Regulation (EC) N° 850/2004 of the European Parliament and of the Council on persistent organic pollutants

No components listed

Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer

No components listed

Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals

No components listed

UK Regulations

This product has been classified according to Regulation (EC) No 1272/2008 (CLP) amended by GB CLP (UK SI 2019/720 as amended).

This SDS has been prepared in accordance with REACH Regulation (EC) No 1907/2006, amended by UK REACH. (UK SI 2019/758 as amended).

Health and Safety at Work Act

The Control of Major Accident Hazards (COMAH) Regulations.

The Control of Substances Hazardous to Health (COSHH) Regulations

UK Waste (Circular Economy) (Amendment) Regulations 2020

15.2. Chemical safety assessment

A REACH chemical safety assessment has not been carried out.

SECTION 16: OTHER INFORMATION

i) Indication of changes

Version number 2

Revision 28/03/2024

Reason for update Updated to reflect changes in the REACH dossier and to Regulation (EU) 2020/878. Inclusion of Skin Sens. 1A classification and removal of Skin Irrit. 2 classification.

Previous version 22/11/2019

ii) Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
BCF	Bioconcentration factor
CAS number	Chemical Abstracts Service number
CLP	Classification, Labelling and Packaging
CoRAP	Community rolling action plan
DNEL	Derived No Effect Level
EC number	European Inventory of Existing Commercial Chemical Substances or European List of Notified Chemical Substances number
ECHA	European Chemicals Agency
EUH	EU Hazard Statement
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
L(E)C ₅₀	Lethal concentration, 50%; Effect concentration, 50%
LD ₅₀	Lethal dose, 50%
LEL	Lower explosion limit
NOEC	No observed effect concentration
PBT	Persistent, bioaccumulative and toxic
PNEC	Predicted no effect concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SCL	Specific concentration limit
STOT	Specific target organ toxicity
UEL	Upper explosion limit
UVCB	Unknown or variable composition, complex reaction products or of biological materials
WEL	Workplace exposure limit
vPvB	very Persistent and very Bioaccumulative

iii) Key literature references and sources for data

ECHA dossiers
 CLP Legislation
 REACH Legislation
 GB mandatory classification and labelling list
 Regulation (EC) N° 850/2004 of the European Parliament and of the Council on persistent organic pollutants
 Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer
 Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals
 EH40/2005 4th Edition, 2020
 GESTIS ILV (<https://limitvalue.ifa.dguv.de/>)
 Endocrine Disruptor Lists (<https://edlists.org/>)

iv) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No. 1272/2008 and GB CLP	Classification procedure
Flam Liq. 2	Flash point
Acute Tox. 4 (oral)	Calculation
Skin Sens. 1A	Calculation method
Eye Irrit. 2	Calculation method
STOT SE 3	Calculation method

Muta. 1B	Calculation method
Carc. 1B	Calculation method
Repr. 2	Calculation method
STOT RE 2	Calculation method
Aquatic Chronic 3	Summation method

v) Relevant H-statements (number and full text)

Flam. Liq. 2 H225	Flammable Liquid, category 2. Highly flammable liquid and vapour
Asp. Tox. 1 H304	Aspiration hazard, category 1. May be fatal if swallowed and enters airways
Acute Tox. 3 H301	Acute Toxicity, category 3 – oral. Toxic if swallowed
Acute Tox. 4 H302	Acute Toxicity, category 4 – oral. Harmful if swallowed
Acute Tox. 3 H311	Acute Toxicity, category 3 – dermal. Toxic in contact with skin
Skin Irrit. 2 H315	Skin irritation/corrosion, category 2. Causes skin irritation
Skin Sens. 1A H317	Skin sensitisation, category 1. May cause an allergic skin reaction
Eye Irrit. 2 H319	Serious eye damage/eye irritation, category 2. Causes serious eye irritation
Acute Tox. 3 H331	Acute Toxicity, category 3 – inhalation. Toxic if inhaled
Acute Tox. 4 H332	Acute Toxicity, category 4 – inhalation. Harmful if inhaled
STOT SE 3 H335	Specific target organ toxicity — single exposure, category 3. May cause respiratory irritation
STOT SE 3 H336	Specific target organ toxicity — single exposure, category 3. May cause drowsiness or dizziness
Muta. 1B H340	Germ Cell Mutagenicity, category 1B. May cause genetic defects
Carc. 1B H350	Carcinogenicity, category 1B. May cause cancer
Carc. 2 H351	Carcinogenicity, category 2. Suspected of causing cancer
Repr. 2 H361 (oral)	Reproductive Toxicity, category 2. Suspected of damaging fertility or the unborn child (oral) (developmental toxicity)
STOT RE 1 H372 (Respiratory track) (inhalation)	Specific Target Organ Toxicity – Repeated Exposure, category 1. Causes damage to organs through prolonged or repeated exposure (respiratory tract, inhalation)
STOT RE 1 H373 (Respiratory track) (inhalation)	Specific Target Organ Toxicity – Repeated Exposure, category 2. May cause damage to organs through prolonged or repeated exposure (respiratory tract, inhalation)
Aquatic Chronic 2 H411	Hazardous to the aquatic environment, aquatic chronic, category 2. Toxic to aquatic life with long lasting effects
Aquatic Chronic 3 H412	Hazardous to the aquatic environment, aquatic chronic, category 3. Harmful to aquatic life with long lasting effects
EUH066	‘Repeated exposure may cause skin dryness or cracking’

vi) Training advice

Always read the label, safety data sheet and product information before use. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

vii) Further information

No further information

End of safety data sheet

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