

# Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

As retained in UK law by (SI 2019/758 as amended)

## HSQ Electron Beam Resist

Version number: 1.0

Date of compilation: 2025-06-25

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

#### 1.1 Product identifier

Trade name

**HSQ Electron Beam Resist**

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

Relevant identified uses

Electron beam resist  
Industrial use

Uses advised against

Do not use for private purposes (household)

#### 1.3 Details of the supplier of the safety data sheet

EM Resist LTD  
Media House  
SK10 4NL Macclesfield  
United Kingdom

Telephone: +44 (0) 1625 813723

e-mail: [info@emresist.com](mailto:info@emresist.com)Website: [www.emresist.com](http://www.emresist.com)

e-mail (competent person)

[info@emresist.com](mailto:info@emresist.com)

#### 1.4 Emergency telephone number

Emergency information service

+44 (0) 1625 813723

This number is only available during the following office hours: Mon-Fri 09:00 - 17:00

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification (acc. to GB CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.6	flammable liquid	2	Flam. Liq. 2	H225
3.11	acute toxicity (inhal.)	4	Acute Tox. 4	H332
3.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.6	carcinogenicity	2	Carc. 2	H351
3.8D	specific target organ toxicity - single exposure (narcotic effects, drowsiness)	3	STOT SE 3	H336

For full text of H-phrases: see SECTION 16

Code	Supplemental hazard information
EUH066	repeated exposure may cause skin dryness or cracking

The most important adverse physicochemical, human health and environmental effects

The product is combustible and can be ignited by potential ignition sources.

#### 2.2 Label elements

Labelling (acc. to GB CLP)

- signal word

Danger

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### - pictograms

GHS02, GHS07,  
GHS08



### - hazard statements

H225 Highly flammable liquid and vapour.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H336 May cause drowsiness or dizziness.  
H351 Suspected of causing cancer.

### - precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
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.  
P312 Call a POISON CENTRE/doctor if you feel unwell.  
P403+P235 Store in a well-ventilated place. Keep cool.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### - supplemental hazard information

EUH066 Repeated exposure may cause skin dryness or cracking.

### - hazardous ingredients for labelling

Contains: 4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone.

## 2.3 Other hazards

### Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of  $\geq 0,1\%$ .

### Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .


## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not relevant (mixture).

### 3.2 Mixtures

The product does not contain (other) ingredients which are classified according to present knowledge of the supplier and contribute to the classification of the product and hence require reporting in this section.

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	CAS No 108-10-1  EC No 203-550-1  Index No 606-004-00-4	80 – 99	Flam. Liq. 2 / H225 Acute Tox. 4 / H332 Eye Irrit. 2 / H319 Carc. 2 / H351 STOT SE 3 / H336 EUH066		

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Name of sub-stance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexan-one	CAS No 108-10-1  EC No 203-550-1	-	-	11 mg//4h	inhalation: vapour

### Remarks

All the percentages given are percentages by weight unless stated otherwise. For full text of H-phrases: see SECTION 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General notes

Do not leave affected person unattended. Remove victim out of the danger area. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Call a POISON CENTER/doctor.

#### Following skin contact

Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

#### Following eye contact

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER/doctor.

#### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Call a POISON CENTER or doctor if you feel unwell.

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

Narcotic effects.

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

For specialist advice physicians should contact the poison centre.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water spray; Alcohol resistant foam; Dry extinguishing powder; Carbon dioxide (CO<sub>2</sub>);  
Co-ordinate firefighting measures to the fire surroundings.

#### Unsuitable extinguishing media

Water jet.

### 5.2 Special hazards arising from the substance or mixture

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures.

#### Hazardous combustion products

During fire hazardous fumes/smoke could be produced. Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

#### Special protective equipment for firefighters

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Self-contained breathing apparatus (SCBA). Standard protective clothing for firefighters.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety. Ventilate affected area. Avoid contact with eyes, skin and clothing.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Use personal protective equipment as required.

#### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

#### 6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid binder, universal binder, sawdust). Absorb the spillage with an inert, dry material.

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

#### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Recommendations

- measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools.

- specific notes/details

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours may form explosive mixtures with air.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingsuffs.

#### 7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- explosive atmospheres

Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.

- flammability hazards

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

- incompatible substances or mixtures

Keep away from alkalis, oxidising substances, acids.

Control of effects

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Protect against external exposure, such as

Heat. High temperatures. UV-radiation/sunlight.

Consideration of other advice

Store in a well-ventilated place. Keep container tightly closed. Keep container in a cool and dry area.

- ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation. Ground/bond container and receiving equipment.

- packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

### 7.3 Specific end use(s)

See section 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Notation	Source
GB	4-methylpentan-2-one	108-10-1	WEL	50	208	100	416	H	EH40/2005

#### Notation

H absorbed through the skin

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

#### Biological limit values

Biological limit values						
Country	Name of agent	Parameter	Notation	Identifier	Value	Source
GB	4-methylpentan-2-one	4-methylpentan-2-one		BMGV	20 µmol/l	EH40/2005

#### Relevant DNELs/DMELs/PNECs and other threshold levels

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	DNEL	83 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	DNEL	208 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
4-methylpentan-2-one; isobutyl methyl	108-10-1	DNEL	83 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects

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### Relevant DNELs of components of the mixture

Name of sub-stance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
ketone; methyl isobutyl ketone; iso-hexanone						
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	208 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	11.8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	14.7 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	chronic - systemic effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	155.2 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	acute - systemic effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	14.7 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	chronic - local effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	155.2 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	acute - local effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	4.2 mg/kg bw/day	human, dermal	consumer (private households)	chronic - systemic effects
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	DNEL	4.2 mg/kg bw/day	human, oral	consumer (private households)	chronic - systemic effects

### Relevant PNECs of components

Name of sub-stance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	PNEC	0.6 mg/l	aquatic organisms	freshwater	short-term (single instance)
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	PNEC	0.06 mg/l	aquatic organisms	marine water	short-term (single instance)

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Relevant PNECs of components						
Name of sub-stance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
hexanone						
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	PNEC	27.5 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	PNEC	8.27 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	PNEC	0.83 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; iso-hexanone	108-10-1	PNEC	1.3 mg/kg	terrestrial organisms	soil	short-term (single instance)

### 8.2 Exposure controls

#### Appropriate engineering controls

General ventilation. Provide eyewash stations and safety showers at the workplace.

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection

##### Skin protection



Chemical protective clothing.

##### Hand protection



Wear suitable gloves. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

##### - type of material

Nitrile rubber

##### - material thickness

Use gloves with a minimum material thickness:  $\geq 0.38$  mm.

##### - breakthrough time of the glove material

Use gloves with a minimum breakthrough time of the glove material: >480 minutes (permeation: level 6).

##### - other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection. Type: ABEK-P2 (combined filters against gases, vapours and

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particles, colour code: Brown/Grey/Yellow/Green/White).

### Environmental exposure controls

Take appropriate precautions to avoid uncontrolled release into the environment. Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	alcohol-like ketone
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	117 °C at 760 mmHg
Evaporation rate	not determined
Flammability	flammable liquid in accordance with GHS criteria
Lower and upper explosion limit	LEL: 1.2 vol% / UEL: 8 vol%
Flash point	14 °C
Auto-ignition temperature	460 °C (auto-ignition temperature (liquids and gases))
Decomposition temperature	no data available
pH (value)	not determined
Kinematic viscosity	not determined

### Solubility

Water solubility	miscible in any proportion
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Partition coefficient n-octanol/water (log value)	this information is not available
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Vapour pressure	2 kPa at 20 °C calculated value, referring to a component of the mixture
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### Density and/or relative density

Density	not determined
Relative vapour density	information on this property is not available
Relative density	0.8 (water = 1)

Particle characteristics	not relevant (liquid)
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### 9.2 Other information



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Information with regard to physical hazard classes	there is no additional information
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Other safety characteristics

Miscibility	Completely miscible with water.
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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition. Vapours may form explosive mixtures with air.

If heated:

Risk of ignition.

#### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

#### 10.3 Possibility of hazardous reactions

May form explosive peroxides.

#### 10.4 Conditions to avoid

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

Hints to prevent fire or explosion

Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

#### 10.5 Incompatible materials

Strong oxidisers.

#### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

#### Classification acc. to GHS

Acute toxicity

Harmful if inhaled.

- acute toxicity estimate (ATE)

Exposure route	ATE
Inhalation: vapour	11.11 mg/l/4h

Acute toxicity estimate (ATE) of components

Name of substance	CAS No	Exposure route	ATE
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	inhalation: vapour	11 mg/l/4h

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Acute toxicity of components					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	oral	LD50	4,570 mg/kg	rat
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	inhalation: vapour	LC50	11.6 mg/l/4h	rat

### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

### Serious eye damage/eye irritation

Causes serious eye irritation.

### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

### Carcinogenicity

Suspected of causing cancer.

### Reproductive toxicity

Shall not be classified as a reproductive toxicant.

### Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

### Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

## 11.2 Information on other hazards

### Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .

## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	LC50	$>179 \text{ mg/l}$	fish	96 h
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	EC50	$>200 \text{ mg/l}$	aquatic invertebrates	48 h
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	NOEC	$\geq 179 \text{ mg/l}$	fish	96 h
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl	108-10-1	LOEC	$>179 \text{ mg/l}$	fish	96 h

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### Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
ketone; isohexanone					

### Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	NOEC	78 mg/l	aquatic invertebrates	21 d
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	LOEC	156 mg/l	aquatic invertebrates	21 d
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	108-10-1	LOAEC	625 mg/l	aquatic invertebrates	21 d

## 12.2 Persistence and degradability

Data are not available.

## 12.3 Bioaccumulative potential

Data are not available.

## 12.4 Mobility in soil

Data are not available.

## 12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of  $\geq 0,1\%$ .

## 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .

## 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Waste treatment-relevant information

Solvent reclamation/regeneration.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

### Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

## SECTION 14: Transport information

### 14.1 UN number

ADR/RID

UN 1245

IMDG-Code

UN 1245

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ICAO-TI	UN 1245
<b>14.2 UN proper shipping name</b>	
ADR/RID	METHYL ISOBUTYL KETONE
IMDG-Code	METHYL ISOBUTYL KETONE
ICAO-TI	Methyl isobutyl ketone
<b>14.3 Transport hazard class(es)</b>	
ADR/RID	3
IMDG-Code	3
ICAO-TI	3
<b>14.4 Packing group</b>	
ADR/RID	II
IMDG-Code	II
ICAO-TI	II
<b>14.5 Environmental hazards</b>	non-environmentally hazardous acc. to the dangerous goods regulations
<b>14.6 Special precautions for user</b>	
Provisions for dangerous goods (ADR) should be complied within the premises.	
<b>14.7 Maritime transport in bulk according to IMO instruments</b>	
No data available.	

### Additional information for each of the UN Model Regulations

#### **Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - additional information**

Classification code	F1
Danger label(s)	3



Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	33
Emergency Action Code	3YE

#### **Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - additional information**

Classification code	F1
Danger label(s)	3



Excepted quantities (EQ)	E2
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Date of compilation: 2025-06-25

Limited quantities (LQ) 1 L

Transport category (TC) 2

Hazard identification No 33

### International Maritime Dangerous Goods Code (IMDG) - additional information

Marine pollutant -

Danger label(s) 3



Special provisions (SP) -

Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

EmS F-E, S-D

Stowage category B

### International Civil Aviation Organization (ICAO-IATA/DGR) - additional information

Danger label(s) 3



Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

##### Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
P5c	flammable liquids (cat. 2, 3)	5,000 50,000	51)

#### Notation

51) flammable liquids, categories 2 or 3 not covered by P5a and P5b

#### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed.

#### Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or		a)	

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List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
	properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment			

### Legend

a) Indicative list of the main pollutants

### Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors, amending Regulation (EC) No 1907/2006 and repealing Regulation (EU) No 98/2013

None of the ingredients are listed.

### Regulation on persistent organic pollutants (POP)

None of the ingredients are listed.

### National regulations (GB)

### List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

None of the ingredients are listed.

### Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name	Name acc. to inventory	Conditions of restriction	No
HSQ Electron Beam Resist	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC	R3	3
4-methylpentan-2-one; isobutyl methyl ketone; methyl isobutyl ketone; isohexanone	flammable / pyrophoric	R40	40

### Legend

R3

- 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,
  - tricks and jokes,
  - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
- Articles not complying with paragraph 1 shall not be placed on the market.
- Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
  - can be used as fuel in decorative oil lamps for supply to the general public, and,
  - present an aspiration hazard and are labelled with R65 or H304,
- Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the British Standard Specification on Decorative oil lamps (BS EN 14059) adopted by the British Standards Institute.
- Without prejudice to the implementation of other legislation 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:
  - lamp oils, labelled with R65 or 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';
  - grill lighter fluids, labelled with R65 or 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';
  - lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
- Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the Agency.

R40

- Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
  - metallic glitter intended mainly for decoration,
  - artificial snow and frost,
  - 'whoopie' cushions,
  - silly string aerosols,

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### Legend

- imitation excrement,
- horns for parties,
- decorative flakes and foams,
- artificial cobwebs,
- stink bombs.

2. Without prejudice to the application of other legislation 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.

(\*\*\*) OJ L 147, 9.6.1975, p. 40.

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
GB CLP	The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended)
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization

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Abbr.	Descriptions of used abbreviations
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LEL	Lower explosion limit (LEL)
LOAEC	Lowest Observed Adverse Effect Concentration
LOEC	Lowest Observed Effect Concentration
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
UEL	Upper explosion limit (UEL)
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

### Key literature references and sources for data

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended). The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended). GB mandatory classification and labelling.

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.



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Code	Text
H351	Suspected of causing cancer.

#### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.