English
art. no. 0507931

SAFETY DATA SHEET
ROM eSTEAM
Smoke generating fluid

Read this safety data sheet and the user manual and the safety instructions of the ROM eSTEAM smoke generator before use.

See www. rombv.com for manuals in other languages.

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name:	ROM eSTEAM Smoke generating fluid
UFI-Code:	4M90-V02Y-900V-W83Q
REACH-registration No.:	Not applicable

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

Relevant identified uses:	Fog and smoke simulation

1.3. Details of the supplier of the safety data sheet

Manufactor/Supplier:	ROM bv Harselaarseweg 63 3771 MA Barneveld (NL)
Phone:	+31 (0) 342 49 04 17
Homepage:	www.rombv.com
E-mail:	info@rombv.com
Contact:	Mr. Brian
	Phone: +31 (0) 342 49 04 17

1.4. Emergency telephone number

Opening hours:	+31 (0) 342 49 04 17 (Mo – Fr. 8.00 – 16.00 h	
Contact:	Mr. Brian	
	Phone:	+31 (0) 342 49 04 17
	E-mail:	info@rombv.com
	Emergency information	
	Emergency service	Phone: +31 (0) 342 49 04 17

2. Hazards identification

2.1. Classification of the mixture

Acute toxicity, oral	Category 4		H302
Specific target organ toxicity - repeated exposure	Category 2	Kidney	H373

2.2. Label elements

Hazard pictograms		
Signal word	**Warning**	
Hazard statements	H302 H373	Harmful if swallowed. May cause damage to organs through prolonged or repeated exposure.
Precautionary statements	P102 P260 P264 P270 P301+P310 P314	Keep out of reach of children. Do not breathe dust/fume/gas/mist/vapours/spray. Wash skin thoroughly after handling Do no eat, drink of smoke when using this product. IF SWALLOWED: immediately call a POISON CENTER of doctor/physician Get medical advice/attention if you feel unwell.

2.3. Other dangers

None		

3. Composition/information on ingredients

3.2. Mixture

Ingredients		Hazard class and category		Concentration
Diethylene glycol				
CAS-no.:	111-46-6	Acute tox. 4	H302	<25 %
EG-no.:	203-872-2	STOT RE 2	H373	
Hazard statements	H302	Harmful if swallowed		
	H373	May cause damage to organs through prolonged or repeated exposure. Organs affected: Kidney Route of exposure: Oral		

4. First aid measures[1]

4.1. Description of first aid measures

General notes:	Get medical attention. Have product container, label or material safety data sheet at hand.
Following inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Following skin contact	Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
Following eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Following ingestion:	Immediately call a POISON CENTER or doctor/physician. Rinse the mouth and spit the fluids out. If the casualty is conscious have him drink copious amounts of liquids (water). Apply charcoal (3 tablespoons as a suspension in a glass of water). If the intake has been very recent: Make the casualty vomit. During vomiting hold the head of the casualty low with the body in a prone position in order to prevent aspiration.

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

Diethylene glycol (DEG) is barely irritating and its systemic toxicity is rather low. However, swallowing of larger doses has frequently led to poisoning with kidney failure.
Because initial symptoms are often minor, the severity of poisoning can be underestimated.

Symptoms of acute poisoning

Eyes:	No or only slight irritative effects.
Skin:	No significant irritation; systemic effects must be expected when extensive contact with damaged skin has taken place.
Inhalation:	From high concentrations of vapor/aerosol aggravating effects/unspecific irritative effects in the upper respiratory tract; in extreme cases difficulties in breathing and absorptive effects.
Ingestion:	Almost no irritative effects, dose-dependent absorptive effects.
Absorption:	Following relatively low doses initially headache, dizziness, nausea, vomiting, diarrhoea, after a delay (24 - 72 h) disturbances in kidney function/kidney failure (polyuria, oliguria -> anuria) with cardiac insufficiency, possibly congested liver; indicators: acidosis (with anion gap), leucocytosis, hyperkalaemia, hyperglycaemia, raised levels of creatinine and urea in the blood; following very high doses (150 ml) immediate coma, severe acidosis, kidney failure.

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

Eyes:	If splashes reach the eyes, first aid measures (thorough rinsing) should be followed by a consultation with an ophthalmologist.
Skin:	Following contact with intact skin, cleanse carefully. No further therapeutic measures should be required. If larger areas were contaminated however - especially damaged skin - transport to hospital to examine for possible poisoning.
Inhalation:	Following inhalation of concentrated aerosol/hot vapor, supply plenty of fresh air and monitor lung function and cardiovascular parameters. Provide symptomatic therapy as needed. Observation in hospital is indicated even if there is a lack of symptoms.
Ingestion:	When large doses are swallowed (> 0.1 mg/kg bw), primary elimination of the noxa with gastric lavage (always in intubation) is recommended when this can be done within the first hour after intake. Shortly following intake of very high doses, measures for cardiopulmonary and cerebral reanimation may become necessary. Transport to clinic in every case. Of highest priority in the clinic are monitoring cardio-vascular, lung and CNS function as well as checking acid-base balance and kidney and liver parameters. The most important therapeutic measures are correction of metabolic acidosis and maintaining kidney function; in severe cases haemodialysis as soon as possible! Treatment for cardiac insufficiency and liver dysfunction as necessary.
Recommendations:	Provide the physician information about the substance/product and treatment already administered. In newer animal experiments, administration of an alcohol dehydrogenase inhibitor (Fomepizole) repressed the formation of the DEG metabolites 2-hydroxyethoxy acetic acid and diglycol acid, to which the nephrotoxic and hepatotoxic effects of the substance are attributed.

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water (spray jet - do not use full jet)
Dry extinguishing agents
Carbon dioxide
Fight larger fires with alcohol-resistant foam or water spray.

5.2. Special hazards arising from the substance or mixture

Carbon monoxide and carbon dioxide

5.3. Advice for firefighters

Classes of fires: B liquid or melting substances
Wear self-contained breathing apparatus for fire fighting if necessary.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

<u>The instructions given in the section apply to the non-vaporized liquid.</u>

Risk of slipping due to leakage, spillage or condensed product.
Keep unprotected persons at a safe distance.
Ensure adequate ventilation.

<u>The following instructions apply to the vaporized liquid</u>

Ensure adequate ventilation

6.2. Environmental precautions

<u>The instructions given in the section apply to the non-vaporized liquid.</u>

The mixture is weakly water-endangering.
Avoid further spillage or leakage prevented if this is possible without risk.
In case greater quantities intrude into waterways, sewage system or soil, inform appropriate authorities.

6.3. Methods and material for containment and cleaning up

The instructions given in the section apply to the non-vaporized liquid.

Absorb any spilt liquid with an absorbent (e.g. diatomite, vermiculite, sand) and dispose of according to regulations.
Afterwards ventilate area and wash spill site.

The instructions given in the section apply to the vaporized liquid.

During the heating of the liquid in the fog machine, steam and aerosol form, which condense on cold surfaces and form oily films which increase the risk of skidding.
These residues can be easily removed with a warm soapy solution. Wearing appropriate gloves is recommended.

6.4. Reference to other sections

For disposal see section 13

7. Handling and storage

7.1. Precautions for safe handling

The following instructions apply to the non-vaporized liquid

Store in unbreakable containers.
Avoid contact with eyes and skin
Do not breathe vapours and aerosol.
Do no eat, drink or smoke when using this product.

The following instructions apply to the vaporized liquid

Considering the visibility and the desired effect, the concentration of smoke fluid in the air should be calculated between 25 and max. 80 mg/m³.
A visibility of 25 meters (in accordance with the German VStättV; please refer for the definition of the “max. distance to the nearest exit” in national applicable regulations if used outside of Germany) must be complied with.
Exposure scenario see section 16

7.2. Conditions for safe storage, including any incompatibilities

The following instructions apply to the non-vaporized liquid

Storage class (TRGS 520) 12
Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight.
Store at temperatures not exceeding 40 °C/104 °F. Keep cool.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Do not store together with oxidizing agents.
Do not store together with strong alkalis.

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.
Exposure scenario see section 16

8. Exposure controls/personal protection

8.1. Control parameters

CAS Nr.: 111-46-6 Diethylene glycol
Derived No Effect Level (DNEL) / Derived Minimal Effect Level (DMEL)

DNEL: Worker, long-term – systemic effects, skin contact 106 mg/kg
Worker, long-term – local effects, inhalation 60 mg/m3
Consumer, long-term – systemic effects, skin contact 53 mg/kg
Consumer, long-term – local effects, inhalation 12 mg/m3

Predicted No-Effect Concentration (PNEC)
Freshwater 10 mg/L
Marine water 1 mg/L
Intermittent release 10 mg/L
Sediment (freshwater) 20,9 mg/kg TM
Wastewater treatment plant 199,5 mg/

CAS-nr.	112-27-6	Ingredient	Diethylene glycol			
		Limit values				
	8 hours		Short term			
County	ppm	mg/m³	ppm	mg/m³	Remarks	Legal basis
Australia	23	100				WORKPLACE EXPOSURE STANDARDS FOR AIRBORNE CONTAMINANTS, 18 January 2024
Denmark	2,5	11	5			Bilag 2 - Gransevardier for luftforureninger m.v. 19.12.2024
Germany	10	44	40	176	4(II), Y, 11	Technischen Regeln fur Gefahrstoffe TRGS-900 Stand 17.06.2024
Estonia	10	45	20	90	A	Tookeskkonna keemiliste ohutegurite piirnormid Vastu voetud 01.04.2024 nr 20
Ireland	23	100				2024 Code of Practice for the Chemical Agents Regulations
Croatia	23	101				2023 PRAVILNIK - O IZMJENAMA I DOPUNAMA PRAVILNIKA O ZAŠTITI RADNIKA OD IZLOŽENOSTI OPASNIM KEMIKALIJAMA NA RADU, GRANIČNIM VRIJEDNOSTIMA IZLOŽENOSTI I BIOLOŠKIM GRANIČNIM VRIJEDNOSTIMA
Latvia	10					Darba aizsardzības prasības saskarē ar ķīmiskajām vielām darba vietās
Lithuania	10	45	20	90	O	Lietuvos higienos normos HN 23:2011 Galiojanti suvestinė redakcija: 05.04.2024

The Netherlands		70			H	OEL CAS-nummers https://www.ser.nl/en/themes/OEL-Database
Austria	10	44	40	176	15(Miw) 4x	Gesamte Rechtsvorschrift für Grenzwerteverordnung 2021, Fassung vom 26.01.2023
Poland		10			)4	ROZPORZĄDZENIE - MINISTRA RODZINY, PRACY I POLITYKI SPOŁECZNEJ 1 z dnia 24 czerwca 2024 r. zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynnikow szkodliwych dla zdrowia w środowisku pracy 2
Romania	115	500	184	800		Valori limită obligatorii de expunere profesională ale agenților chimici Hotărare 743/2021
Slovakia	10	44	20	90		Nariadenie vlady č. 355/2006 Z. z 01.06.2024
Slovenia	10	44	40	176	Y	RS-2024-029-00824-OB-P001-0000 04.04.2024
Sweden	10	45	20	90	H, V	Hygieniska gränsvärden AFS 2018:1
Switzerland	10	44	40	176	SS_C	SUVA: Grenzwerte am Arbeitsplatz 2025
United Kingdom	23	101				EH40/2005 Workplace exposure limits 2020

Remarks		
Germany	4(II)	Category II Restoratively active substances: The baseline value (15-minute mean value) is defined as an excess factor (EF) of 2. **For DEG: EF of 4.** Operational monitoring is to be carried out by means of measurement-technical mean value formation over 15 minutes. In the case of substances of the short-term value category II, longer periods of overrun (PD) are also permissible, as long as the product of the overrun factor and the excess time is observed
	Y	There is no reason to fear a risk of damage to the developing embryo or foetus when MAK and BAT values are observed.
	11	At room temperature , the substance develops in relevant amounts both as a vapor and as an aerosol. Therefore, the sum of vapor and aerosol must always be assessed.
Estonia	A	Indicates absorption through the skin
Lithuania	O	Indicates absorption through the skin
The Netherlands	H	Indicates absorption through the skin
Austria		Duration (min): 15(Miw) [Miw: average value over evaluation period] Frequency per shift: 4x
Poland	)4	Inhalable aerosol
Slovakia	K	Indicates absorption through the skin
Slovenia	Y	There is no reason to fear of damage to the developing embryo or foetus when MAK and BAT values are observed
Sweden	H	Indicates absorption through the skin
	V	Recommendation, although the short-term maximum value may not be exceeded
Switzerland	SSC	There is no reason to fear of damage to the developing embryo or foetus when MAK and BAT values are observed.

8.2. Exposure controls

Handle in accordance with good industrial hygiene and safety practice.
Wash skin thoroughly after handling with plenty of soap and water.

Eye/face protection:	When refilling, glasses with frames and side shields are recommended. Use by official standards (NIOSH, EN 166) tested and approved equipment.
Hand protection:	Wear gloves when refilling. Suitable gloves are: Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products) Polychloroprene - CR (0,5 mm) Nitrile rubber/Nitrile latex - NBR (0,35 mm) Butyl rubber - Butyl (0,5 mm) Fluoro carbon rubber - FKM (0,4 mm) Polyvinyl chloride - PVC (0,5 mm)
Body protection	The protection clothing should be solvent resistant.
Respiration protection	If, according to a hazard assessment, the limit values cannot be excluded by aerosol and fogging, a respiratory protection device must be provided: gas filter A, colour code brown
Additional	not mandatory
Workplace related components, limit value supervision	not mandatory

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

	Smoke fluid	Di-ethyleen glycol[1]
a) Appearance:	Liquid	Liquid
b) Color:	Colourless	Colourless
c) Odour:	Neutral	Odourless
d) Melting point:	-8 °C to -43 °C	-6 °C
e) Initial boiling point:	from 100 °C	244 °C
f) Flammability:	Data not available	
g) Upper/lower flammability or explosive	Data not available	LEL: 1,7 Vol% 75 g/m³ UEL: 37,0 Vol% 1635 g/m³
h) Flash point:	>140 °C	138 °C open cup
i) Ignition temperature:	Data not available	335 °C Temperature class T2
j) Auto-ignition temperature:	Data not available	372 °C at 1013 hPa
k) pH	6 … 8	6 … 8 at 20 °C Concentration: 200 g/l
l) Kinematic viscosity	Low viscosity	Vkin = 26,8 mm²/s
m) Solubility(ies):	Miscible in water	Entirely mixable
n) Partition coefficient n-octanol/Water	Data not available	log K_{ow}: - 2,0
o) Vapour pressure:	Data not available	0,008 hPa at 25 °C
p) Density / Relative density:	1,04 – 1,10 g/cm3	1,12 g/cm3
q) Vapour density:	Data not available	3,66 (air = 1,0)
r) Particle characteristic		

9.2.1 Information with regard to physical hazard classes

s) Explosive properties:	The product is not explosive, but formation of explosive air / vapor mixtures is possible	Data not available
t) Oxidising liquids	Data not available	Not oxidizing

9.2.2 Other safety characteristics

Conductivity:	<5 µS/cm	<0,5 µS/cm

10. Stability and Reactivity

10.1. Reactivity

See section 10.3.

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

Reacts with strong alkalis.
Reacts with oxidants.

10.4. Conditions to avoid

Protect from sunlight.
Do not expose to temperatures exceeding 40 °C/104 °F.

10.5. Incompatible materials

see section 10.3.

10.6. Hazardous decomposition products

Does not decompose during the intended use.
In the event of fire: see section 5.

11. Toxicological information

11.1. Information on toxicological effects

	Smoke fluid	Diethylene glycol[1]
a) acute toxicity	The product is not tested on animals.	LD50 oral - rat – 12.600 mg/kg LD50 oral - human – 1.000 mg/kg DEG has a very low potential to irritate locally. There are no indications of allergic reaction in humans. Ingestion of 150 - 350 ml undiluted DEG was acutely life-threatening or lethal as it triggered immediate severe CNS disturbances (deep coma) and metabolic disturbances (metabolic acidosis). Delayed progress of poisoning was observed following ingestion of medications containing DEG which took place either once or several times for brief intervals. Poisoning was often fatal although disturbances in consciousness appeared prior to death. Death often occurred 4 - 12 days afterward.

b) skin corrosion/-irritation	not irritating	not irritating
(c) serious eye damage/irritation	not irritating	not irritating
(d) respiratory or skin	not sensitising	Not sensitising
(e) germ cell mutagenicity	Data not available	In-vitro and in-vivo studies with DEG had negative or ambiguous results
(f) carcinogenicity	Data not available	Valid animal experiments produced no indications that DEG has any carcinogenic effects. However, heavy contamination with DEG can lead to irritation due to bladder stones and trigger the development of bladder tumours.
(g) reproductive toxicity	There is no reason to fear a risk of damage to the developing embryo or foetus when MAK and BAT values are observed.	There is no reason to fear a risk of damage to the developing embryo or foetus when MAK and BAT values are observed.
(h) STOT-single exposure	May cause damage to organs through prolonged or repeated exposure	May cause damage to organs through prolonged or repeated exposure.
(i) STOT-repeated exposure	Oral – kidney	Oral – kidney
(j) danger of inhalation	When vomiting	When vomiting

12. Ecological information

12.1. Toxicity

No known ecotoxic effect.

12.2. Persistence and degradability

The product has no negative environmental impact. It is tested in accordance with OECD 301E / EEC 84/449 C3 and is considered readily biodegradable.
With proper releases of low concentrations into adapted biological sewage treatment plants, disturbances of the degradation activity of activated sludge are not to be expected.

12.3. Bio accumulative potential

no potential for bioaccumulation

12.4. Mobility in soil

Transport and distribution between environmental compartments has not been determined..

12.5. Results of PBT and vPvB assessment

Data not available

12.6. Endocrine disrupting properties

Contains no endocrine disruptor (ED) in a concentration of ≥ 0.1%.

12.7. Other adverse effects

not known
Water hazard class WGK 1: low hazardous to waters
Do not allow product to reach groundwater, bodies of water or sewage systems.
Do not allow product undiluted or unnaturalized into wastewater or drainage systems.

13. Disposal considerations

13.1. Waste treatment methods

Waste code: 20 01 13

Product:

Recommendation:	Can be incinerated together with household waste in consultation with the waste disposal company and the competent authority, taking into account the necessary technical regulations

Contaminated packaging:

Recommendation:	Contaminated packaging is to be optimally emptied and can be reused after appropriate cleaning. Packaging which can not be cleaned must be disposed of as well as the substance.

14. Transport Information

14.1. UN-number

ADR/RID:	-
IMDG	-
IATA:	-

14.2. UN proper shipping name

ADR/RID:	Non dangerous goods
IMDG	Non dangerous goods
IATA:	Non dangerous goods

14.3. Transport hazard class(es)n)

ADR/RID:	-
IMDG	-
IATA:	-

14.4. Packing group

ADR/RID:	-
IMDG	-
IATA:	-

14.5. Environmental hazards

ADR/RID:	-
IMDG	-
IATA:	-

14.6. Special precautions for user

ADR/RID:	No
IMDG	No
IATA:	No

14.7. Transport in bulk according to Annex II of Marpol 73/78 and the IBC Code

No transport as bulk according IBC Code.

15. Regulatory information

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

Employment restrictions	No
Technical instruction on air quality control	Chapter 5.2.5 Organic Substances. The following values, specified as overall carbon, are in all not allowed to be exceeded in: Mass flow: 0,50 kg/u or Mass conc.: 50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h
Water hazard class	WGK 1, low hazardous to waters; (Classification according to the publication of the list of substances hazardous to water in the Federal Gazette of August 10th, 2017, last amended January 20th, 2023)
Volatile organic compounds	According to Directive 2004/42/EC does contain VOC components. According Swizz Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC), status as of 1 January 2018, does contain VOC components on the positive list of substances.

15.2. Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

16. Other information

)[1] Diethylene glycol
GESTIS substance database: entries derived from material data sheet diethylene glycol.
http://gestis.itrust.de/nxt/gateway.dll/gestis_de/000000.xml?f=templates$fn=default.htm$vid=gestisdeu:sdbdeu$3.0

Exposure scenario::

Professional smoke fluid for the production of short-term, artificial fog and show effects in the event industry, theatre and film production.
Considering the visibility and the desired effect, the concentration of smoke fluid in the air should be calculated between25 and max. 80 mg/m³..
In particular, the smoke density must be selected to ensure that exits and emergency exits are always visible in enclosed spaces. The same applies to the lighting of escape routes, their markings, landings, manholes, building edges etc.
A visibility of 25 meters (in accordance with the German VStattV; please refer for the definition of the “max. distance to the nearest exit” in national applicable regulations if used outside of Germany) must be complied with.
To avoid anxiety, smoke-sated rooms may never be locked.
The product is to be used properly and as supplied.
Keep away from children and store out of reach.

Further information:

The present information is currently compiled to the best of our knowledge. It does not claim to be exhaustive. The safety data sheet describes products with regard to requirements for safe handling and should be understood by the user as a guideline. The information provided does not indicate property assurances in the sense of quality descriptions.
ROM bv excludes any liability for damages resulting from handling or contact with these products.
Consider ROM bv (www.rombv.com) for general terms and conditions.

All previous safety data sheets are replaced by this version and immediately lose their validity.

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