

Balchem Ethylene Oxide 90/10**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product name : Balchem Ethylene Oxide 90/10
Synonyms : carbon dioxide/ethylene oxide, mixtures, conc ethylene oxide>87%; carbon dioxide/ethylene oxide, mixtures, conc carbon dioxide<13%; ethylene oxide/carbon dioxide, mixtures, conc carbon dioxide<13%; ethylene oxide/carbon dioxide, mixtures, conc ethylene oxide>87%
Registration number REACH : Not applicable (mixture)
Product type REACH : Mixture
Formula : C₂H₄O+CO₂

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1 Relevant identified uses**

Industrial use
Use as sterilisation aid

1.2.2 Uses advised against

No uses advised against

1.3. Details of the supplier of the safety data sheet**Supplier of the safety data sheet**

BALCHEM NV
Westvaartdijk 85
B-1850 Grimbergen Belgium
☎ +32 2 251 60 87
✉ +32 2 252 17 51
info.grimbergen@balchem.com

Manufacturer of the product

BALCHEM NV
Westvaartdijk 85
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1.4. Emergency telephone number

24h/24h (Telephone advice: English, French, German, Dutch) :
+32 14 58 45 45 (BIG)
24h/24h
Ireland: +353 (0)1 809 2166 (available to the public 08:00 – 22:00)
UK: NHS 111 (24h)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Flam. Gas	category 1A	H220: Extremely flammable gas.
Press. Gas	Liquefied gas	H280: Contains gas under pressure; may explode if heated.
Chem. Unst. Gas	Category A	H230: May react explosively even in the absence of air.
Carc.	category 1B	H350: May cause cancer.
Muta.	category 1B	H340: May cause genetic defects.
Repr.	category 1B	H360Fd: May damage fertility. Suspected of damaging the unborn child.
Acute Tox.	category 3	H331: Toxic if inhaled.
Acute Tox.	category 3	H301: Toxic if swallowed.
STOT RE	category 1	H372: Causes damage to organs (central nervous system) through prolonged or repeated exposure.
Skin Corr.	category 1	H314: Causes severe skin burns and eye damage.
Eye Dam.	category 1	H318: Causes serious eye damage.
STOT SE	category 3	H335: May cause respiratory irritation.
STOT SE	category 3	H336: May cause drowsiness or dizziness.

2.2. Label elements

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Contains: ethylene oxide.

Signal word

Danger

H-statements

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H230	May react explosively even in the absence of air.
H350	May cause cancer.
H340	May cause genetic defects.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H301 + H331	Toxic if swallowed or if inhaled.
H372	Causes damage to organs (central nervous system) through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

P-statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves, protective clothing and eye protection/face protection.
P260	Do not breathe gas.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.

Supplemental information

Restricted to professional users.

2.3. Other hazards

Gas/vapour spreads at floor level: ignition hazard
Odour threshold is well above one of the exposure limits
Produces effects on the nervous system
May cause frostbites
Caution! Substance is absorbed through the skin

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark	M-factors and ATE
ethylene oxide 01-2119432402-53	75-21-8 200-849-9	C>87 %	Flam. Gas 1A; H220 Press. Gas - Liquefied gas; H280 Chem. Unst. Gas A; H230 Carc. 1B; H350 Muta. 1B; H340 Repr. 1B; H360Fd Acute Tox. 3; H331 Acute Tox. 3; H301 STOT RE 1; H372 Skin Corr. 1; H314 Eye Dam. 1; H318 STOT SE 3; H335 STOT SE 3; H336 Chem. Unst. Gas A; H230: C≥30%, (UN Manual of Tests and Criteria)	(1)(2)(6)(10)	Constituent	ATE inhalation (gas): 700 ppm ATE oral: 100 mg/kg
carbon dioxide	124-38-9 204-696-9	C<13 %	Press. Gas - Liquefied gas; H280	(1)(2)(I)	Constituent	

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- (1) For H- and EUH-statements in full: see section 16
(2) Substance with a Community workplace exposure limit
(6) Enumerated in Annex VI of Regulation (EC) No. 1272/2008 but the classification has been adapted after evaluation of available test data
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006
(I) Exempted from registration under REACH according to Annex IV (Regulation (EC) No 1907/2006)

SECTION 4: First aid measures

4.1. Description of first aid measures

General:

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

After inhalation:

Remove victim into fresh air. Immediately consult a doctor/medical service. Do not apply mouth-to-mouth resuscitation.

After skin contact:

If possible, wipe up/dry remove chemical. Then rinse/shower immediately for 30 minutes with (lukewarm) water. Cut clothing; never remove burnt clothing from the wound. Do not give any pain medication. Consult a doctor/medical service.

After eye contact:

Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a doctor/medical service.

After ingestion:

Rinse mouth with water. Immediately consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

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

4.2.1 Acute symptoms

After inhalation:

Dry/sore throat. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Drowsiness. Central nervous system depression. Nausea. Vomiting. Headache. Dizziness. Disturbances of consciousness. EXPOSURE TO HIGH CONCENTRATIONS: Disturbances of heart rate. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Cramps/uncontrolled muscular contractions. Risk of lung oedema.

After skin contact:

Frostbites. Caustic burns/corrosion of the skin. FOLLOWING SYMPTOMS MAY APPEAR LATER: Swelling of the skin. Blisters. May cause spots on the skin.

After eye contact:

Corrosion of the eye tissue. Frostbites.

After ingestion:

Burns to the gastric/intestinal mucosa. Possible esophageal perforation.

4.2.2 Delayed symptoms

No effects known.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:

Small fire: Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher.

Major fire: Adapt extinguishing media to the environment for surrounding fires.

5.1.2 Unsuitable extinguishing media:

Small fire: Quick-acting CO2 extinguisher, Water (water can be used to control jet flame), Foam.

Major fire: Water (water can be used to control jet flame), Foam.

5.2. Special hazards arising from the substance or mixture

Upon combustion: CO and CO2 are formed. Polymerizes on exposure to temperature rise. Contains gas under pressure; may explode if heated.

5.3. Advice for firefighters

5.3.1 Instructions:

If no hazard for/from the surroundings: controlled burning. If hazardous substances are nearby: consider extinguishment. Extinguish only if gas supply/leak can be shut afterwards. Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

5.3.2 Special protective equipment for fire-fighters:

Gas-tight suit (EN 943). Corrosion-proof suit (EN 14605). Self-contained breathing apparatus (EN 136 + EN 137).

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep upwind. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment.

6.1.1 Protective equipment for non-emergency personnel

See section 8.2

6.1.2 Protective equipment for emergency responders

Gas-tight suit (EN 943). Corrosion-proof suit (EN 14605).

Suitable protective clothing

See section 8.2

6.2. Environmental precautions

Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Tip the container on one side to stop the leakage. Try to reduce evaporation. Take account of toxic/corrosive precipitation water. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

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

7.1. Precautions for safe handling

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Gas/vapour heavier than air at 20°C. Observe very strict hygiene - avoid contact. Remove contaminated clothing immediately. Do not discharge the waste into the drain.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Storage temperature: < 50 °C. Meet the legal requirements. Keep container in a well-ventilated place. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. Keep out of direct sunlight. Secure cylinders tightly to prevent overturning.

7.2.2 Keep away from:

Heat sources, ignition sources, combustible materials, oxidizing agents, metals.

7.2.3 Suitable packaging material:

Steel, stainless steel, synthetic material.

7.2.4 Non suitable packaging material:

Aluminium, iron, copper, tin.

7.3. Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

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

EU

Carbon dioxide	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	5000 ppm
	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	9000 mg/m ³
Ethylene oxide	Time-weighted average exposure limit 8 h (Binding occupational exposure limit value)	1 ppm
	Time-weighted average exposure limit 8 h (Binding occupational exposure limit value)	1.8 mg/m ³

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Belgium

Carbone (dioxyde de)	Time-weighted average exposure limit 8 h	5000 ppm
	Time-weighted average exposure limit 8 h	9131 mg/m ³
	Short time value	30000 ppm
	Short time value	54784 mg/m ³
A: La mention "A" signifie que l'agent libère un gaz ou une vapeur qui n'ont en eux-mêmes aucun effet physiologique mais peuvent diminuer le taux d'oxygène dans l'air. Lorsque le taux d'oxygène descend en dessous de 17-18 % (vol/vol) le manque d'oxygène provoque des suffocations qu'aucun symptôme préalable n'annonce.		
Oxyde d'éthylène	Time-weighted average exposure limit 8 h	1 ppm
	Time-weighted average exposure limit 8 h	1.8 mg/m ³

The Netherlands

Ethyleenoxide	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	0.46 ppm
	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	0.84 mg/m ³
Kooldioxide	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	5000 ppm
	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	9000 mg/m ³

France

Carbone (dioxyde de)	Time-weighted average exposure limit 8 h (VRI: Valeur réglementaire indicative)	5000 ppm
	Time-weighted average exposure limit 8 h (VRI: Valeur réglementaire indicative)	9000 mg/m ³
Oxyde d'éthylène	Time-weighted average exposure limit 8 h (VRC: Valeur réglementaire contraignante)	1.0 ppm
	Time-weighted average exposure limit 8 h (VRC: Valeur réglementaire contraignante)	1.8 mg/m ³

Germany

Kohlenstoffdioxid	Time-weighted average exposure limit 8 h (TRGS 900)	5000 ppm (1)
	Time-weighted average exposure limit 8 h (TRGS 900)	9100 mg/m ³ (1)

(1) UF: 2 (II)

Austria

Ethylenoxid	Kurzzeitwert 15(Miw) 4x (TRK)	7.2 mg/m ³
	Tagesmittelwert (TRK)	1 ppm
	Tagesmittelwert (TRK)	1.8 mg/m ³
	Kurzzeitwert 15(Miw) 4x (TRK)	4 ppm
Kohlenstoffdioxid	Tagesmittelwert (MAK)	5000 ppm
	Tagesmittelwert (MAK)	9000 mg/m ³
	Kurzzeitwert 60(Mow) 3x (MAK)	10000 ppm
	Kurzzeitwert 60(Mow) 3x (MAK)	18000 mg/m ³

UK

Carbon dioxide	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	5000 ppm
	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	9150 mg/m ³
	Short time value (Workplace exposure limit (EH40/2005))	15000 ppm
	Short time value (Workplace exposure limit (EH40/2005))	27400 mg/m ³
Ethylene oxide	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	1 ppm
	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	1.8 mg/m ³

USA (TLV-ACGIH)

Carbon dioxide	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	5000 ppm
	Short time value (TLV - Adopted Value)	30000 ppm
Ethylene oxide	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	1 ppm

b) National biological limit values

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

USA (BEI-ACGIH)

Ethylene oxide (N-(2-hydroxyethyl) valine (HEV) hemoglobin adducts)	Globin: not critical	5000 pmol HEV/g globin	Nonspecific
Ethylene oxide (S-(2-hydroxyethyl) mercapturic acid (HEMA))	Urine: end of shift	5 µg HEMA/g creatinine	Nonspecific, Population based

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c) National acceptable and tolerable concentrations

Germany

Ethylenoxid	Akzeptanzkonzentration (TRGS 910)	0.2 mg/m ³ (1)
	Akzeptanzkonzentration (TRGS 910)	0.1 ppm (1)
	Toleranzkonzentration (Risiko 4:1.000) (TRGS 910)	2 mg/m ³ (2)
	Toleranzkonzentration (Risiko 4:1.000) (TRGS 910)	1 ppm (2)

(1) Akzeptanzkonzentration assoziiert mit Risiko 4:10.000

(2) UF: 2

Ethylenoxid	Akzeptanzkonzentration (TRGS 910)	400 pmol/g Globin Parameter: 2-Hydroxyethylvalin (HEV) Untersuchungsmaterial: Erythrozytenfraktion des Vollblutes	nach mindestens 3 Monaten Exposition
	Toleranzkonzentration (Risiko 4:1.000) (TRGS 910)	4000 pmol/g Globin Parameter: 2-Hydroxyethylvalin (HEV) Untersuchungsmaterial: Erythrozytenfraktion des Vollblutes	nach mindestens 3 Monaten Exposition

8.1.2 Sampling methods

Product name	Test	Number
Carbon Dioxide	NIOSH	6603
Carbon Dioxide	OSHA	1027
Carbon Dioxide	OSHA	ID 172
Ethylene oxide (organic and inorganic gases by Extractive FTIR)	NIOSH	3800
Ethylene Oxide (Qazi-Ketcham)	SKC NON	14
Ethylene Oxide	ASTM	D4413
Ethylene Oxide	ASTM	D5578
Ethylene Oxide	NIOSH	1614
Ethylene Oxide	NIOSH	3702
Ethylene Oxide	OSHA	1010

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

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

8.1.4 Threshold values

DNEL/DMEL - Workers

ethylene oxide

Effect level (DNEL/DMEL)	Type	Value	Remark
DMEL	Long-term systemic effects inhalation	1.8 mg/m ³	
DNEL	Long-term systemic effects inhalation	10 mg/m ³	
DMEL	Long-term local effects inhalation	1.8 mg/m ³	

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

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

8.2.1 Appropriate engineering controls

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the oxygen concentration in the air. Work under local exhaust/ventilation.

8.2.2 Individual protection measures, such as personal protective equipment

Observe very strict hygiene - avoid contact. Do not eat, drink or smoke during work.

a) Respiratory protection:

Full face mask with filter type A. High vapour/gas concentration: self-contained breathing apparatus (EN 136 + EN 137).

b) Hand protection:

Protective gloves against cold (EN 511).

Materials	Remark
butyl rubber	Good resistance

c) Eye protection:

Combined eye and respiratory protection.

d) Skin protection:

Head/neck protection. Corrosion-proof clothing (EN 14605).

8.2.3 Environmental exposure controls:

See sections 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Liquefied gas
Colour	Colourless
Odour	Medicinal odour
	Ether-like odour
Odour threshold	No data available (test not performed)
Melting point	Not applicable (gas)

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Boiling point	No data available (test not performed)
Flammability	Extremely flammable gas.
Explosion limits	No data available (test not performed)
Flash point	Not applicable (gas)
Auto-ignition temperature	No data available (test not performed)
Decomposition temperature	No data available (test not performed)
pH	Not applicable (gas)
Kinematic viscosity	Not applicable (gas)
Dynamic viscosity	Not applicable (gas)
Solubility	Water ; > 80 g/100 ml Ethanol ; soluble Ether ; soluble
Log Kow	Not applicable (mixture)
Vapour pressure	No data available (test not performed)
Absolute density	Not applicable (gas)
Relative density	Not applicable (gas)
Relative vapour density	1.5
Particle size	Not applicable (gas)

9.2. Other information

Critical temperature	> 70 °C
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SECTION 10: Stability and reactivity

10.1. Reactivity

May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard. Substance contains stabilizer against polymerization.

10.2. Chemical stability

Unstable on exposure to heat.

10.3. Possibility of hazardous reactions

May react explosively even in the absence of air. Reacts violently with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion.

10.4. Conditions to avoid

Precautionary measures

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks.

10.5. Incompatible materials

Combustible materials, oxidizing agents, metals.

10.6. Hazardous decomposition products

Upon combustion: CO and CO₂ are formed.

SECTION 11: Toxicological information

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

11.1.1 Test results

Acute toxicity

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No (test)data on the mixture available

Classification is based on the relevant ingredients

As the substance is a gas, inhalation is the most likely route of exposure
ethylene oxide

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		100 mg/kg bw - 200 mg/kg bw		Rat (male / female)	Experimental value	
Dermal						Data waiving	
Inhalation (vapours)	LC50	Equivalent to OECD 403	2.77 mg/l - 3.55 mg/l	4 h	Rat (male / female)	Experimental value	

As the substance is a gas, inhalation is the most likely route of exposure
carbon dioxide

As the substance is a gas, inhalation is the most likely route of exposure

Conclusion

Toxic if swallowed.

Toxic if inhaled.

Not classified as acute toxic in contact with skin

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Corrosion/irritation

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No (test)data on the mixture available

Classification is based on the relevant ingredients

The liquid form can cause frostbites, typical for all liquefied gases

ethylene oxide

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage; category 1					Literature study	
Skin	Corrosive		1 minutes - 60 minutes	7 days	Rabbit	Experimental value	Solution
Inhalation	Irritating; STOT SE cat.3					Literature study	

The liquid form can cause frostbites, typical for all liquefied gases

carbon dioxide

The liquid form can cause frostbites, typical for all liquefied gases

Conclusion

Causes severe skin burns and eye damage.

May cause respiratory irritation.

Respiratory or skin sensitisation

Balchem Ethylene Oxide 90/10

No (test)data on the mixture available

Judgement is based on the relevant ingredients

ethylene oxide

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin						Data waiving	

The study on skin sensitisation does not need to be conducted as the substance is a gas

Conclusion

Not classified as sensitizing for skin

Not classified as sensitizing for inhalation

Specific target organ toxicity

Balchem Ethylene Oxide 90/10

No (test)data on the mixture available

Classification is based on the relevant ingredients

As the substance is a gas, inhalation is the most likely route of exposure

ethylene oxide

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Dermal							Data waiving	
Inhalation (vapours)	NOAEC	Equivalent to OECD 453	10 ppm	Central nervous system (no effect)	104 weeks (6h / day, 5 days / week)	Rat (male / female)	Experimental value	

As the substance is a gas, inhalation is the most likely route of exposure

carbon dioxide

As the substance is a gas, inhalation is the most likely route of exposure

Conclusion

Causes damage to organs (central nervous system) through prolonged or repeated exposure.

May cause drowsiness or dizziness.

Mutagenicity (in vitro)

Balchem Ethylene Oxide 90/10

No (test)data on the mixture available

Classification is based on the relevant ingredients

ethylene oxide

Result	Method	Test substrate	Effect	Value determination	Remark
Positive without metabolic activation		Bacteria (S.typhimurium)		Experimental value	
Positive without metabolic activation		Chinese hamster lung fibroblasts (V79)		Experimental value	

Mutagenicity (in vivo)

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No (test)data on the mixture available

Classification is based on the relevant ingredients
ethylene oxide

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Positive (Inhalation)		4 h	Rat (male / female)	Chromosome aberrations	Experimental value	

Conclusion

May cause genetic defects.

Carcinogenicity

Balchem Ethylene Oxide 90/10

No (test)data on the mixture available

Classification is based on the relevant ingredients
ethylene oxide

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (vapours)	NOAEC	Equivalent to OECD 453	< 10 ppm	No carcinogenic effect	104 weeks (6h / day, 5 days / week)	Rat (male / female)	Experimental value	

Conclusion

May cause cancer.

Reproductive toxicity

Balchem Ethylene Oxide 90/10

No (test)data on the mixture available

Classification is based on the relevant ingredients
ethylene oxide

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Inhalation (vapours))	NOAEC	Equivalent to OECD 414	0.18 mg/l air	10 days (gestation, daily)	Rat (female)	No effect	Experimental value	
Maternal toxicity (Inhalation (vapours))	NOAEC	Equivalent to OECD 414	0.18 mg/l air	10 days (gestation, daily)	Rat (female)	No effect	Experimental value	
Effects on fertility (Inhalation (vapours))	NOAEC (P)	Equivalent to OECD 415	0.054 mg/l air	14 weeks (6h / day, 5 days / week)	Rat (male / female)	No effect	Experimental value	

Conclusion

May damage fertility.

Suspected of damaging the unborn child.

Aspiration hazard

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Judgement is based on the relevant ingredients

Not classified for aspiration toxicity

Toxicity other effects

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No (test)data on the mixture available

Chronic effects from short and long-term exposure

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Dry skin. Red skin. Itching. Inflammation/damage of the eye tissue. Nausea. Vomiting. Headache. Impairment of the nervous system. Sensorial disturbances. Movement disturbances. Coordination disorders. Myasthenia. Change in the haemogramme/blood composition. Impairment of the blood forming system. Degeneration of heart tissue. Tumours of the gastrointestinal tract. Possible bladder tumours. Brain affection. Possible premature birth.

11.2. Information on other hazards

No evidence of endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

Balchem Ethylene Oxide 90/10

No (test)data on the mixture available

Judgement of the mixture is based on the relevant ingredients

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ethylene oxide

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	EPA 660/3 - 75/009	84 mg/l	96 h	Pimephales promelas	Static system	Fresh water	Experimental value
Acute toxicity crustacea	LC50	EPA 660/3 - 75/009	212 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value
Toxicity algae and other aquatic plants	ErC50	EPA 660/3 - 75/009	240 mg/l	96 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; GLP
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea								Data waiving
Toxicity aquatic micro-organisms	EC10	OECD 209	130 mg/l	180 minutes	Activated sludge	Static system	Fresh water	Experimental value; GLP

carbon dioxide

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		35 mg/l	96 h	Salmo gairdneri			Literature study; Lethal

Conclusion

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

12.2. Persistence and degradability

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Half-life soil (t1/2 soil)

Method	Value	Primary degradation/mineralisation	Value determination
			Not applicable (gas)

ethylene oxide

Biodegradation water

Method	Value	Duration	Value determination
OECD 301C	107 %	28 day(s)	Experimental value

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
SRC AOP v1.92	57.2 day(s)	500000 /cm ³	QSAR

Half-life soil (t1/2 soil)

Method	Value	Primary degradation/mineralisation	Value determination
	Not applicable		

carbon dioxide

Half-life soil (t1/2 soil)

Method	Value	Primary degradation/mineralisation	Value determination
			Not applicable (gas)

Conclusion

Water

Does not contain any not readily biodegradable component(s)

12.3. Bioaccumulative potential

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Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (mixture)			

ethylene oxide

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 107		-0.3	25 °C	Experimental value

carbon dioxide

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (inorganic)			

Conclusion

Does not contain bioaccumulative component(s)

12.4. Mobility in soil

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ethylene oxide

(log) Koc

Parameter	Method	Value	Value determination
log Koc	SRC PCKOCWIN v2.0	0.51 - 0.67	Calculated value

Percent distribution

Method	Fraction air	Fraction biota	Fraction sediment	Fraction soil	Fraction water	Value determination
Mackay level I	7.75 %		0 %	0 %	92.23 %	QSAR

Conclusion

Not applicable (gas)

12.5. Results of PBT and vPvB assessment

Does not contain component(s) that meet(s) the criteria of PBT and/or vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006.

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties

12.7. Other adverse effects

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Greenhouse gases

Contains component(s) included in the list of substances which may contribute to the greenhouse effect (IPCC)

None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

ethylene oxide

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

carbon dioxide

Greenhouse gases

Included in the list of substances which may contribute to the greenhouse effect (IPCC)

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

Water ecotoxicity pH

pH shift

SECTION 13: Disposal considerations

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

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).

16 05 04* (gases in pressure containers and discarded chemicals: gases in pressure containers (including halons) containing hazardous substances). Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste.

Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

13.1.3 Packaging/Container

European Union

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

15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR)

14.1. UN number or ID number

UN number	3300
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14.2. UN proper shipping name

Proper shipping name	ethylene oxide and carbon dioxide mixture
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14.3. Transport hazard class(es)

Hazard identification number	263
Class	2

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Classification code	2TF
14.4. Packing group	
Packing group	
Labels	2.3+2.1
14.5. Environmental hazards	
Environmentally hazardous substance mark	no
14.6. Special precautions for user	
Special provisions	
Limited quantities	none.

Rail (RID)

14.1. UN number or ID number	
UN number	3300
14.2. UN proper shipping name	
Proper shipping name	ethylene oxide and carbon dioxide mixture
14.3. Transport hazard class(es)	
Hazard identification number	263
Class	2
Classification code	2TF
14.4. Packing group	
Packing group	
Labels	2.3+2.1 (+13)
14.5. Environmental hazards	
Environmentally hazardous substance mark	no
14.6. Special precautions for user	
Special provisions	
Limited quantities	none.

Inland waterways (ADN)

14.1. UN number or ID number	
UN number/ID number	3300
14.2. UN proper shipping name	
Proper shipping name	ethylene oxide and carbon dioxide mixture
14.3. Transport hazard class(es)	
Class	2
Classification code	2TF
14.4. Packing group	
Packing group	
Labels	2.3+2.1
14.5. Environmental hazards	
Environmentally hazardous substance mark	no
14.6. Special precautions for user	
Special provisions	
Limited quantities	none

Sea (IMDG/IMSBC)

14.1. UN number or ID number	
UN number	3300
14.2. UN proper shipping name	
Proper shipping name	ethylene oxide and carbon dioxide mixture
14.3. Transport hazard class(es)	
Class	2.3
14.4. Packing group	
Packing group	
Labels	2.3+2.1
14.5. Environmental hazards	
Marine pollutant	-
Environmentally hazardous substance mark	no
14.6. Special precautions for user	
Special provisions	
Limited quantities	none.
14.7. Maritime transport in bulk according to IMO instruments	
Annex II of MARPOL 73/78	Not applicable

Air (ICAO-TI/IATA-DGR)

14.1. UN number or ID number	
Transport	Forbidden
UN number/ID number	3300
14.2. UN proper shipping name	
Proper shipping name	ethylene oxide and carbon dioxide mixture
14.3. Transport hazard class(es)	
Class	2.3

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14.4. Packing group

Packing group	
Labels	

14.5. Environmental hazards

Environmentally hazardous substance mark	no
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14.6. Special precautions for user

Special provisions	A2
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Passenger and cargo transport

Limited quantities: maximum net quantity per packaging	
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SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
> 87 %	

ethylene oxide

Product name	Skin resorption
Ethylene oxide	Skin

Directive 2012/18/EU (Seveso III)

Threshold values under normal circumstances

Substance or category	Low tier (tonnes)	Top tier (tonnes)	Group	For this substance or mixture the summation rule has to be applied for:
H2 ACUTE TOXIC	50	200	None	Toxicity
P2 FLAMMABLE GASES	10	50	None	Flammability

Prior informed consent (PIC)

Contains component(s) listed in Annex I of Regulation (EU) No 649/2012: Part 1 - List of chemicals subject to export notification procedure

REACH Candidate list

Does not contain component(s) included in candidate list of substances of very high concern (SVHC) for authorisation (Article 59 of Regulation (EC) No 1907/2006)

REACH Annex XIV - Authorisation

Does not contain component(s) included in Annex XIV of Regulation (EC) No 1907/2006: list of substances subject to authorisation

REACH Annex XVII - Restriction

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

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
ethylene oxide	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.	Without prejudice to the other parts of this Annex the following shall apply to entries 28 to 30: 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. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: "Restricted to professional users". 2. By way of derogation, paragraph 1 shall not apply to: (a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC; (b) cosmetic products as defined by Directive 76/768/EEC; (c) the following fuels and oil products: — motor fuels which are covered by Directive 98/70/EC, — mineral oil products intended for use as fuel in mobile or fixed combustion plants, — fuels sold in closed systems (e.g. liquid gas bottles); (d) artists' paints covered by Regulation (EC) No 1272/2008; (e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date; (f) devices covered by Regulation (EU) 2017/745.
ethylene oxide	Substances which are classified as germ cell	Without prejudice to the other parts of this Annex the following shall apply to entries 28

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	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.	to 30: - 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. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: "Restricted to professional users". - By way of derogation, paragraph 1 shall not apply to: - medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC; - cosmetic products as defined by Directive 76/768/EEC; - the following fuels and oil products: - motor fuels which are covered by Directive 98/70/EC, - mineral oil products intended for use as fuel in mobile or fixed combustion plants, - fuels sold in closed systems (e.g. liquid gas bottles); - artists' paints covered by Regulation (EC) No 1272/2008; - the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date; - devices covered by Regulation (EU) 2017/745.
ethylene oxide	Substances which are classified as reproductive toxicant category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 5 or Appendix 6, respectively.	Without prejudice to the other parts of this Annex the following shall apply to entries 28 to 30: - 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. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: "Restricted to professional users". - By way of derogation, paragraph 1 shall not apply to: - medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC; - cosmetic products as defined by Directive 76/768/EEC; - the following fuels and oil products: - motor fuels which are covered by Directive 98/70/EC, - mineral oil products intended for use as fuel in mobile or fixed combustion plants, - fuels sold in closed systems (e.g. liquid gas bottles); - artists' paints covered by Regulation (EC) No 1272/2008; - the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date; - devices covered by Regulation (EU) 2017/745.
ethylene oxide	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not.	- 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, "whoopee" cushions, - silly string aerosols, - imitation excrement, - horns for parties, - decorative flakes and foams, - artificial cobwebs, - stink bombs. - Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: "For professional users only". - 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. - The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.
ethylene oxide	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081

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2, but excluding any such substances classified due to effects only following exposure by inhalation
 — reproductive toxicant category 1A, 1B or 2
 but excluding any such substances classified due to effects only following exposure by inhalation
 — skin sensitiser category 1, 1A or 1B
 — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2
 — serious eye damage category 1 or eye irritant category 2
 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council
 (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex.
 The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes, whether or not they contain a substance falling within points (a) to (d) of this column of this entry.

National legislation Belgium Balchem Ethylene Oxide 90/10

Agents cancérigènes, mutagènes et reprotoxiques et aux agents possédant des propriétés perturbant le système endocrinien (Code du bien-être au travail, Livre VI, titre 2)	cancérigène catégorie 1A ou 1B selon CLP, n.s.a.
	mutagène catégorie 1A ou 1B selon CLP, n.s.a.
	reprotoxique catégorie 1A ou 1B selon CLP, n.s.a.

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ethylene oxide

Additional classification	Oxyde d'éthylène; C; La mention "C" signifie que l'agent en question relève du champ d'application de l'arrêté royal du 2 décembre 1993 concernant la protection des travailleurs contre les risques liés à l'exposition à des agents cancérigènes et mutagènes et reprotoxiques au travail.
Résorption peau	Oxyde d'éthylène; D; La mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air.
Agents cancérigènes, mutagènes et reprotoxiques et aux agents possédant des propriétés perturbant le système endocrinien (Code du bien-être au travail, Livre VI, titre 2)	cancérigène catégorie 1A ou 1B selon CLP, n.s.a.
	mutagène catégorie 1A ou 1B selon CLP, n.s.a.
	reprotoxique catégorie 1A ou 1B selon CLP, n.s.a.

National legislation The Netherlands

Balchem Ethylene Oxide 90/10

Waterbezwaarlijkheid	Z (2); Algemene Beoordelingsmethodiek (ABM)
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ethylene oxide

Huidopname (wettelijk)	Ethyleenoxide; H
SZW - Lijst van kankerverwekkende stoffen	ethyleenoxide; Opgenomen in SZW-lijst van kankerverwekkende stoffen
SZW - Lijst van mutagene stoffen	ethyleenoxide; oxiraan; 1,2-epoxyethaan; Opgenomen in SZW-lijst van mutagene stoffen
SZW - Lijst van voor de voortplanting giftige stoffen (ontwikkeling)	ethyleenoxide; Opgenomen in SZW-lijst van voor de voortplanting giftige stoffen (ontwikkeling); 2
SZW - Lijst van voor de voortplanting giftige stoffen (vruchtbaarheid)	ethyleenoxide; Opgenomen in SZW-lijst van voor de voortplanting giftige stoffen (vruchtbaarheid); 1B

National legislation France

Balchem Ethylene Oxide 90/10

No data available

ethylene oxide

Catégorie cancérigène	Oxyde d'éthylène; C1B
Catégorie mutagène	Oxyde d'éthylène; M1B
Catégorie toxique pour la reproduction	Oxyde d'éthylène; R1B
Risque de pénétration percutanée	Oxyde d'éthylène; Risque de pénétration percutanée

National legislation Germany

Balchem Ethylene Oxide 90/10

Lagerklasse (TRGS510)	2A: Gase (ohne Aerosolpackungen und Feuerzeuge)
WGK	3; Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017

ethylene oxide

TA-Luft	5.2.7.1.1/II
Hautresorptive Stoffe	Ethylenoxid; hautresorptiv

National legislation Austria

Balchem Ethylene Oxide 90/10

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ethylene oxide

Krebserzeugend	Ethylenoxid; III A2
Fortpflanzungsgefährdend [fruchtschädigend (entwicklungsschädigend)]	Ethylenoxid; d
Fortpflanzungsgefährdend [Beeinträchtigung der Fortpflanzungsfähigkeit (Fruchtbarkeit)]	Ethylenoxid; F
besondere Gefahr der Hautresorption	Ethylenoxid; H

National legislation United Kingdom

Balchem Ethylene Oxide 90/10

No data available

ethylene oxide

Carcinogen	Ethylene oxide; Carc
Skin absorption	Ethylene oxide; Sk

Other relevant data

Balchem Ethylene Oxide 90/10

No data available

ethylene oxide

TLV - Carcinogen	Ethylene oxide; A2
IARC - classification	1; Ethylene oxide
TLV - Skin absorption	Ethylene oxide; Skin; Danger of cutaneous absorption

15.2. Chemical safety assessment

No chemical safety assessment is required for a mixture.

ethylene oxide

A chemical safety assessment has been performed.

SECTION 16: Other information

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

- H220 Extremely flammable gas.
- H230 May react explosively even in the absence of air.
- H280 Contains gas under pressure; may explode if heated.
- H301 Toxic if swallowed.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- H340 May cause genetic defects.
- H350 May cause cancer.
- H360F_d May damage fertility. Suspected of damaging the unborn child.
- H372 Causes damage to organs (nervous system) through prolonged or repeated exposure.
- H372 Causes damage to organs (central nervous system) through prolonged or repeated exposure.

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
ATE	Acute Toxicity Estimate
BCF	Bioconcentration Factor
BEI	Biological Exposure Indices
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC10	Effect Concentration 10 %
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
GLP	Good Laboratory Practice
HS	Harmonized System of Nomenclature, a standardized international system for classifying goods under the Harmonized System Convention, as drawn up by the World Customs Organization Secretariat
LC0	Lethal Concentration 0 %
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
LOAEC/LOAEL	Lowest Observed Adverse Effect Concentration/Lowest Observed Adverse Effect Level
NOAEC/NOAEL	No Observed Adverse Effect Concentration/No Observed Adverse Effect Level
NOEC/NOEL	No Observed Effect Concentration/No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process

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vPvB

very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.

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