

SAFETY DATA SHEET

Safety data sheet according to (EC) No. 1907/2006

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

1.1. Product identifier:

BiopSafe® Formaldehyde solution 4%

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

For laboratory, research and analytical purposes.

1.3. Details of the supplier of the safety data sheet:

AXLAB Innovation A/S

Bygstubben 12 Tel DK. +45 35 43 18 81

DK-2950 Vedbæk Fax DK +45 35 43 00 73

Responsible person for the safety data sheet (e-mail): birgit@axlab.dk

1.4. Emergency telephone number:

(DK) Telephone +45 82 12 12 12

(UK) E-mail: UKREACHCA@hse.gsi.gov.uk

NHS (England or Wales): 0845 46 47

NHS 24 (Scotland): 08454 24 24 24

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

Harmful liquid, which might cause cancer and allergic skin reactions. May cause genetic defects. May cause damage to organs.

CLP (1272/2008): Acute Tox. 4;H302+H332 Skin Sens. 1;H317 Muta. 2;H341 Carc. 1B;H350 STOT SE 2 ;H371

Wording of risk and hazard statements - see section 16.

2.2. Label elements:



Danger

Contain: Formaldehyde, methanol.

H302+H332: Harmful if swallowed or if inhaled.

H317: May cause an allergic skin reaction.

H341: Suspected of causing genetic defects.

H350: May cause cancer.

H371: May cause damage to organs.

P201: Obtain special instructions before use.

P281: Use personal protective equipment as required.

P304+P340+P312: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

P308+P313: IF exposed or concerned: Get medical advice/ attention.

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

P363: Wash contaminated clothing before reuse.

2.3. Other hazards: None known.

PBT/vPvB: No ingredients are PBT/vPvB, according to the criteria in REACH Annex XIII.

SECTION 3: Composition/information on ingredients

3.2. Mixtures:

% w/w	Substance name	CAS-no.	EC-no.	Index-no.	REACH reg.-no.	Classification
~4	Formaldehyde	50-00-0	200-001-8	605-001-00-5	-	EC: T;R23/24/25 C;R34 R43 Carc2;R45 Mut3;R68 CLP: Acute Tox. 3;H301+H311 Acute Tox. 2;H330 Skin Corr. 1B;H314 Skin Sens. 1;H317 Muta. 2;H341 Carc. 1B;H350
<2,5	Methanol	67-56-1	200-659-6	603-001-00-X	-	EC: F ;R11 T;R23/24/25-39/23/24/25 CLP: Flam. Liq. 2;H225 Acute Tox. 3;H301+H311+H331 STOT SE 1;H370

Wording of Risk and hazard statements - see section 16.

SECTION 4: First-aid measures

4.1. Description of first aid measures:

- Inhalation:** Move the affected person to fresh air. **Mild cases:** Keep at rest. If needed: get medical attention. **Severe cases:** Place the person in recovery position and keep warm. If respiration has stopped, administer artificial respiration. Seek medical advice immediately.
- Skin contact:** Remove contaminated clothing and wash skin with water and mild soap. Seek medical advice; continue to flush on the way.
- Eye contact:** Immediately flush with water or physiological salt water for at least 15 minutes, holding eye lids open, remember to remove contact lenses, if any. Get medical attention; continue to flush on the way.
- Ingestion:** Rinse mouth and drink plenty of water. **Do not induce vomiting.** If vomiting occurs keep head down to avoid vomit in the lungs. Seek medical advice. **Never give an unconscious person anything to drink.** In case of unconsciousness: See Inhalation.
- Burns:** Flush with water until pain ceases. Remove cloth that isn't burnt to the skin. If needed seek medical attention, continue to flush on the way.

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

Headache, nausea, dizziness, vomiting (vomit may contain blood), fatigue, heart disorders, blurred vision, burning sensations in mouth, throat and stomach, intoxication, diarrhea and blood in the urine. In severe cases it may lead to drop in blood pressure, dizziness, faintness, ringing in the ears, visual disorders with possible blindness, shock and unconsciousness. Excess incidence of cancer of the nose and upper airways, leukemia and brain cancer mortality has been detected in people who have worked with formaldehyde. Formaldehyde may cause allergic skin reactions in susceptible people.

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

In case of unconsciousness: Immediately seek medical advice. Show this safety data sheet to a physician or emergency ward.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media:

Use water spray (never use water jet – as it may spread the fire), carbon dioxide, dry chemical or foam.

5.2. Special hazards arising from the substance or mixture:

Do not breathe smoke fumes. In case of fire, the substance may form hazardous decomposition products: Primarily oxides of carbon.

5.3. Advice for firefighters:

Remove containers if possible or keep containers cool by spraying with water. Wear self-contained breathing apparatus when generation of smoke is vigorous.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment – see section 8. Remove sources of ignition. Avoid further spreading. Ventilate area of leak or spill.

6.2. Environmental precautions:

Do not empty into drains – see section 12. Inform appropriate authorities in accordance with local regulations.

6.3. Methods and material for containment and cleaning up:

Sweep up and place in a suitable container. Flush area of spill with plenty of water. Further handling of spillage - see section 13.

6.4. Reference to other sections:

See references above.

SECTION 7: Handling and storage

7.1. Precautions for safe handling:

AVOID ALL CONTACT! Take off immediately all contaminated clothing. Wash contaminated skin with water and mild soap. Warn laundry staff about the chemical's hazardous properties. Required access to Emergency shower, water and eye wash fountain. Avoid breathing vapours. Work in fume cupboard or use local exhaust. Provide adequate ventilation. Good personal hygiene is necessary. After use, wash with plenty of soap and water. The skin is greased with hand lotion. Do not eat, drink, smoke or store food, beverages and tobacco when there is a risk of contamination by carcinogens. May cause fainting fit. Great caution is advised when driving vehicles or operating machines.

7.2. Conditions for safe storage, including any incompatibilities:

Store in a tightly closed original container (formaldehyde in air slowly oxidizes to formic acid) and a well-ventilated area at temperatures between 15-25°C. Keep away from incompatible materials – see section 10. Do not use storage container made of metal. Especially at lower temperatures, the solution may become cloudy as a result of starting the formation of paraformaldehyde. Keep locked up and out of reach of unauthorized personnel and separated from food, feed, drugs etc.

7.3. Specific end use(s):

See section 1.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters:

Occupational exposure limits: EH40/2005 Workplace Exposure Limits

Formaldehyde	Long-term exposure limit (8-hr TWA ref. period):	2 ppm / 2.5 mg.m ⁻³
	Short-term exposure limit (15 min. STEL ref. period):	2 ppm / 2.5 mg.m ⁻³
Methanol	Long-term exposure limit (8-hr TWA ref. period):	200 ppm / 266 mg.m ⁻³
	Short-term exposure limit (15 min. STEL ref. period):	250 ppm / 333 mg.m ⁻³

Comments: **Sk**

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

DNEL/PNEC: No CSR.

8.2. Exposure controls:

Appropriate engineering controls: Avoid breathing vapours. Work in fume cupboard or use local exhaust.

Personal protective equipment:

Inhalation: Normally not necessary when working in fume cupboard or use local exhaust. In case of in-adequate ventilated working areas: Use an approved mask (EN140) with a gasfilter type AX+ formaldehyde (brown/olive green – organic vapours (low boiling point) and formaldehyde. Particle filter P2 must be used as prefilter. The filters have a limited lifetime and must be changed. Read the instructions.

Skin: Wear protective gloves (EN374-3) of butyl rubber or 4H. Breakthrough time for butyl rubber: Approximately 3 hours. Breakthrough time for 4H: Approximately 4 hours. Altox has reduced the breakthrough time with a factor 3. The standard test EN 374-3 is performed at 23°C, while the temperature inside the glove during use is around 35 °C. Also the glove is stretched during use, which also reduces the break through time.

Eyes: Wear tight fitting safety goggles (EN166) when there is risk of contact.

Environmental exposure controls: None particular.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties:

Appearance:	Colorless liquid
Odour:	Like Aldehyde
Odour threshold:	Not determined
pH (concentrate):	Not determined
Melting point / freezing point (°C):	0
Initial boiling point and boiling range (°C):	100
Decomposition temperature (°C):	Not determined
Flash point (°C):	Not determined
Evaporation rate:	Not determined
Flammability (solid, gas):	Not relevant
Upper/lower flammability or explosive limits (vol-%):	Not determined
Vapour pressure (hPa, 20°C):	23
Vapour density (air=1):	Not determined
Density (25°C):	1,02
Solubility(in water):	Non to partly soluble
Partition coefficient: n-octanol/water, Log K _{ow} :	Not determined
Auto-ignition temperature (°C):	Not relevant
Viscosity (40°C):	Not relevant
Explosive properties:	Not relevant
Oxidising properties:	Not relevant

9.2. Other information:

VOC g/l:	892,4
VOC %:	4,81

SECTION 10: Stability and reactivity

10.1. Reactivity:

No data available.

10.2. Chemical stability:

Stable under normal conditions (see section 7).

10.3. Possibility of hazardous reactions:

None known.

10.4. Conditions to avoid:

Avoid excessive heating. Keep away from sources of ignition, sparks and embers.

10.5. Incompatible materials:

Reacts violently with oxidising materials (eg. Hydrogen peroxide), magnesium carbonate, metals and metal alloys as well as acids (contact with hydrochloric acid may cause formation of the carcinogen bis (chloro methyl) - ether). Contact with alkali metals can initiate polymerization to paraformaldehyde.

10.6. Hazardous decomposition products:

When heated to high temperatures (decomposition) toxic fumes are emitted: Carbonoxides.

SECTION 11: Toxicological information**11.1. Information on toxicological effects:**

Hazard class	Data	Test	Data source
Acute toxicity:			
Inhalation	LC ₅₀ (rat) = 0,578 mg/l/4H (Formaldehyde)	No information	IUCLID
	LC ₅₀ (rat) = 83,9 mg/l/4H (Methanol)	No information	IUCLID
Dermal	LD ₅₀ (rabbit) = 270 mg/kg (Formaldehyde)	No information	RTECS
	LD ₅₀ (rat) = 12800 mg/kg (Methanol)	No information	IUCLID
Oral	LD ₅₀ (rat) = 100 mg/kg (Formaldehyde)	No information	RTECS
	LD ₅₀ (rat) = 5300 mg/kg (Methanol)	No information	IUCLID
Corrosion/irritation:	Severe skin- and eyeirritation, rabbit, (Formaldehyde)	No information	IUCLID
	No skin irritation, rabbit (Methanol)	OECD 404	IUCLID
	Moderate eye irritation, rabbit (Methanol)	Draize	IUCLID
Sensitization:	Skin sensitization, guinea pig (Formaldehyde)	Buehler	IUCLID
CMR:	TD _{Lo} (oral, rat) = 109000 mg/kg/2Y (continuous): "Carcinogenic" (Formaldehyde)	No information	RTECS
	Genotoxicity, in vivo test, rodent (Formaldehyde)	Micronucleus assay etc.	IUCLID
	TD _{Lo} (oral, female rat) = 186 mg/kg 1-21D after conception: "Effects on newborn" (Formaldehyde)	No information	IUCLID
	TC _{Lo} (inhalation, male rat) = 35 µg/m ³ /8H 60D before mating "Paternal effects" (Formaldehyde)	No information	IUCLID

Information on likely routes of exposure: Inhalation, skin and ingestion.

Symptoms:

- Inhalation: Vapours may cause irritation to the airways. High vapour concentrations may cause water in the lungs (pulmonary edema). Symptoms (shortness of breath) may occur several hours after exposure.
- Skin: May cause irritation, redness and drying of skin. Methanol and formaldehyde may be absorbed through the skin and by extensive skin contact cause symptoms like those mentioned under "Ingestion".
- Eyes: Splashes and vapours may cause irritation with redness, pain and blurred vision.
- Ingestion: Burning sensations in mouth, throat and stomach with symptoms like discomfort, nausea, vomiting, pain and diarrhoea. Methanol may be absorbed through the gastrointestinal tract and cause severe poisoning.
- Chronic effects: Formaldehyde is by the Danish labor inspection considered to be a highly potent carcinogen. Excess incidence of cancer of the nose and upper airways, leukemia and brain cancer mortality has been detected in people who have worked with formaldehyde. Formaldehyde may cause allergic skin reactions with symptoms like redness, swelling and itching in susceptible people. Prolonged or frequent exposure to vapours of volatile organic compounds may result in damage on liver, kidneys, blood or central nervous system (including brain damage). Methanol is excreted in human milk. Laboratory tests have shown that both methanol and formaldehyde may cause damage to the genetic material. In animal studies, they have both shown teratogenic capabilities. Ingestion of formaldehyde has caused sustained damage to the liver and kidneys.
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SECTION 12: Ecological information**12.1. Toxicity:**

Aquatic	Data (Formaldehyde)	Test (Media)	Data source
Fish	LC ₅₀ (Morone saxatilis, 96 h) = 6,7 mg/l	Static (SW)	IUCLID
Daphnia	LC ₅₀ (Daphnia magna, 48 h) = 2 mg/l	No information (FW)	IUCLID
Algae	EC ₅₀ (Pseudokirchneriella subcapitata, 48 h) = 4,2 mg/l	No information (FW)	EPA Ecotox

12.2. Persistence and degradability:

Formaldehyde is readily biodegradable.

12.3. Bioaccumulative potential:

Formaldehyde: Log K_{ow} = 0,35 – No significant bio accumulative effect.

12.4. Mobility in soil:

Formaldehyd: K_{oc} (calculated) < 10 – high to very high mobility in soil environments is expected.

12.5. Results of PBT and vPvB assessment:

No ingredients are PBT/vPvB, according to the criteria in REACH Annex XIII.

12.6. Other adverse effects:

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods:

The chemical is to be considered as hazardous waste. Comply with national and local regulations.

EWC-code:

16 05 06 (mixture itself and collected waste)

SECTION 14: Transport information

Not hazardous for transportation (ADR-RID-IMDG)

14.1. UN-no.: None.

14.2. UN proper shipping name: None.

14.3. Transport hazard class(es): None.

14.4. Packing group: None.

14.5. Environmental hazards: None.

14.6. Special precautions for user: None.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not relevant.

SECTION 15: Regulatory information

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

Must not be used by persons under 18 years of age.

The employer shall assess the working conditions and, if there is any risk to the safety or health and any effects on the pregnancy or breastfeeding of workers, take the necessary measures to adjust the working conditions (Directive 92/85/EEC).

15.2. Chemical Safety Assessment:

No CSR.

SECTION 16: Other information

Hazard statements mentioned in section 2 and 3:

R 11:	Highly flammable.
R 20/21/22:	Harmful by inhalation, in contact with skin and if swallowed.
R 23/24/25:	Toxic by inhalation, in contact with skin and if swallowed.
R 34:	Causes burns.
R 39/23/24/25:	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R 43:	May cause sensitisation by skin contact.
R 45:	May cause cancer.
R 68:	Possible risk of irreversible effects.
H225:	Highly flammable liquid and vapour.
H301+H311+H331:	Toxic if swallowed, in contact with skin or if inhaled.
H302+H332:	Harmful if swallowed or if inhaled.
H314:	Causes severe skin burns and eye damage.
H317:	May cause an allergic skin reaction.
H330:	Fatal if inhaled.
H341:	Suspected of causing genetic defects.
H350:	May cause cancer.
H370:	Causes damage to organs.
H371:	May cause damage to organs.

Abbreviations:

CMR = Carcinogenicity, mutagenicity and reproductive toxicity.

CSR = Chemical Safety Report

DNEL = Derived No-Effect Level

EC₅₀ = Effect Concentration 50%

EL₅₀ = Effect Loading 50%

FW = Fresh Water

LC₅₀ = Lethal Concentration 50%

LD₅₀ = Lethal Dose 50%

LL₅₀ = Lethal Loading 50%

PBT = Persistent, Bioaccumulative, Toxic

PNEC = Predicted No-Effect Concentration

vPvB = very Persistent, very Bioaccumulative

SECTION 16: Other information (continued)

Literature:

EPA Ecotox = US Environmental Protection Agency

IUCLID = International Uniform Chemical Database Information

RTECS = Register of Toxic Effects of Chemical Substances

Training advice:

No special training is required. However, the user should be well instructed in the execution of his/her task, be familiar with this Safety Data Sheet and have normal training in the use of personal protective equipment.

Other information:

SDS made from information made available to Altox on the 12th of November 2015.

Changes since the previous edition:

2,9 & 16.

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