

SAFETY DATA SHEET

Safety data sheet in accordance with (EC) no. 1907/2006.

POINT 1: Identification of the substance/preparation and of the company/undertaking

1.1. Product identifier:

BiopSafe® Formaldehyde solution 4%

1.2. Relevant identified uses of the substance or preparation as well as uses which are to be advised against:

For laboratory, research and analysis purposes.

1.3. Further information about the supplier of the safety data sheet:

AXLAB Innovation A/S

Bygstubben 12 Tel. 35 43 18 81

2950 Vedbæk Fax 35 43 00 73

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

1.4. Emergency telephone number:

82 12 12 12 (the Poison Control Hotline – open 24 hours a day, every day).

POINT 2: Hazard identification

2.1. Classification of the substance or preparation:

Toxic and caustic liquid with possible long term effects. Can cause an allergic skin reaction. Possible carcinogenic effect. EU (67/548 or 1999/45): Xn;R20/21/22 Carc3;R40 R43

CLP (1272/2008): Acute Tox. 4;H302+H332 Skin Sens. 1;H317 Carc. 2;H351

Wording of risk phrases – see below in point 2.

2.2. Label elements:

(packaging size >125 ml)



Hazard

Contains: Formaldehyde and methanol.

H302+H332: Harmful if ingested or inhaled.

H317: Can cause an allergic skin reaction.

H351: Suspected of causing cancer.

P201: Obtain specific instructions before use.

P281: Use the compulsory personal protective equipment.

P304+P340+P312: IF INHALED: Move the person to a place with fresh air and ensure that the person in question rests in a position which eases breathing. If the person feels unwell ring a POISON CENTRE or a doctor.

P308+P313: IF exposed or concerned about exposure: Seek medical attention.

P333+P313: If skin irritation or rash occurs: Seek medical attention.

P363: Contaminated clothing must be washed before it can be worn again.

(packaging size <125 ml)



HAZARD

Contains: Formaldehyde and methanol.

H317: Can cause an allergic skin reaction.

H351: Suspected of causing cancer.

P201: Obtain specific instructions before use.

P281: Use the compulsory personal protective equipment.

2.3. Other hazards: None known.

PBT/vPvB: The ingredients are not PBT/vPvB with reference to the criteria in the REACH appendix XIII.

POINT 3: Composition of/information about ingredients**3.2. Preparations:**

% w/w	Substance name	CAS	EC no.	Index no.	REACH reg.no.	Substance classification	Note
~ 4	Formaldehyde	50-00-0	200-001-8	605-001-00-5	-	EU: T;R23/24/25 C;R34 Carc3;R40 R43 CLP: Acute Tox. 3;H301+H311 Acute Tox. 2; H330 Skin Corr. 1B;H314 Skin Sens. 1;H317 Carc. 2;H351	1
<2,5	Methanol	67-56-1	200-659-6	603-001-00-X	-	EU: 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	2

1) The substance is registered on the Danish Working Environment Authority's list of substances, which are deemed to be carcinogenic.

2) The substance is an organic solvent.

Wording of risk phrases - see point 16.

POINT 4: First aid measures**4.1. Description of first aid measures:**

Inhalation:	Take the person to where there is fresh air. Mild cases: To be kept calm under supervision. If unwell: Seek medical advice. Severe cases: Anyone unconscious must be put in the recovery position with their head lower than their body and be kept warm. If breathing has stopped give artificial respiration. Call a doctor or ambulance immediately.
Skin:	Contaminated clothing must be removed immediately. Rinse the skin and wash thoroughly with soap and water. Continue rinsing until a doctor can take over the treatment.
Eyes:	Rinse immediately with water or physiological saline solution for at least 15 minutes. If possible remove contact lenses and open the eyes wide. In all cases seek medical attention. Also continue rinsing whilst transporting to a doctor/hospital.
Ingestion:	Immediately rinse the mouth thoroughly and drink plentiful amounts of water. If immediate medical assistance is not possible: Do not induce vomiting. If vomiting occurs position the head lower than the body in order to prevent the stomach contents entering the lungs. Call an ambulance immediately. Anyone unconscious must not be given fluids. In the case of unconsciousness: See inhalation.
Burns:	Rinse with water until the pain has ceased. Whilst rinsing remove clothing that is not burnt on from the burnt area. If medical treatment is necessary, continue rinsing until a doctor has taken over the treatment.

4.2. The most important symptoms and effects, both acute and delayed:

Headache, nausea, dizziness, vomiting (possibly bloody), tiredness, heart trouble, stomach ache, blurred vision, burning pain in the mouth, throat and stomach, intoxication, sickness, diarrhoea, blood in the urine. In severe cases a drop in blood pressure, dizziness, lassitude, ringing in the ears, dysopia - possible blindness, shock and unconsciousness. An increased frequency of cancer in the nose and the upper respiratory tract as well as increased leukaemia and brain cancer mortality in humans who have worked with formaldehyde has been proved.

4.3. Indication of whether immediate medical help and specific treatment is necessary:

If unwell or unconscious: Immediately call a doctor or an ambulance. Show this safety data sheet to a doctor or accident and emergency department.

POINT 5: Firefighting**5.1. Extinguishing agent:**

Water mists (never a jet of water – this spreads the fire), foam, powder or carbon dioxide.

5.2. Specific hazards in connection with the substances or preparation:

Avoid inhalation of flue gases. When methanol and formaldehyde vapours burn, poisonous gases are formed: Carbon oxides.

5.3. Instructions for fire crews:

Use a GENTLE JET OF WATER in order to cool containers! Use a compressed air face mask in the case of intense smoke formation.

POINT 6: Precautions against accidental emissions**6.1. Personal safety measures, personal protective equipment and emergency procedures:**

Use personal protective equipment - see point 8. Eliminate sources of ignition. Limit the spread. Ensure good ventilation.

6.2. Environmental protection measures:

Avoid emission into drains - see point 12. Inform the local environment authorities in the case of emissions into the surroundings.

6.3. Methods and equipment for containment and decontamination:

Waste, residues etc. must be collected, stored and disposed of in tightly sealed containers labelled with: "Contains a substance which is covered by a Danish working environment regulation with regard to the risk of cancer". Smaller spillages: If possible

mop up with a damp cloth, which must be disposed of as chemical waste. Purge thoroughly with water. Further handling of waste – see point 13

6.4. Reference to other points:

See above.

POINT 7: Handling and storage

7.1. Precautions for safe handling:

AVOID CONTACT! Wash immediately if the skin is contaminated. Change contaminated clothes immediately. Warn laundry staff about the harmful properties of the chemical. There must be access to water, safety showers and an eye rinse bottle. Avoid inhaling vapours. Work in a fume cupboard. Meticulous personal hygiene is necessary. Wash hands and contaminated areas with soap and water once the work has ended. During use there must be no eating, drinking or smoking. Food, drinks and tobacco must not be stored where there is a risk of contamination from carcinogenic substances. Can have the effect of clouding consciousness. Great care is advised when driving and operating machinery.

When formaldehyde is to be used in a laboratory §17 as well as §29-32 in the Kræftbekendtgørelse (cancer executive order) apply; i.e. that working processes which include formaldehyde must only take place in closed systems or in another way which prevents the release of the substance and must be approved by the local Danish Working Environment Authority. If there is no technical possibility of fulfilling requirements for working processes: see §17 paragraphs 2 and 3 in the Kræftbekendtgørelse.

7.2. Conditions for safe storage including any incompatibility:

In a tightly sealed original container (formaldehyde is oxidised slowly in air to produce formic acid), at temperatures of 15-25°C. In well ventilated rooms, separated from incompatible materials – see point 10. Do not use metal as a storage container. Particularly at lower temperatures the solution can become cloudy as a result of the incipient formation of paraformaldehyde. Keep locked up, out of the reach of unauthorised persons, separated from foodstuffs, animal feed etc.

Fireproof. The Danish Emergency Management Agency technical regulations for inflammable liquids must be followed precisely including the rules for inflammable storage. Fire hazard class: III-2 (55°C < Flashpoint ≤100°C Miscible with water). 1 storage unit = 50 litres.

7.3. Particular uses:

See use - point 1.

POINT 8: Exposure control/Personal protective equipment

8.1. Control parameters:

The Danish Working Environment Authority exposure level: 0.3 ppm = 0.4 mg/m³ LK (Formaldehyde)

200 ppm = 260 mg/m³ EH (Methanol)

E = The substance has a EC exposure value. H = The substance can be absorbed through the skin.

K = The substance has been recorded in the Danish Working Environment Authority's list of substances which are deemed to be carcinogenic. L = Ceiling value which may not be exceeded.

DNEL/PNEC: No CSR.

8.2. Exposure control:

Appropriate precautions with regard to exposure control:

Avoid inhalation: Work in a fume cupboard or with a localised ventilation system.

Personal protective equipment: Personal protective equipment for incineration or cleaning must stored and disposed of in closed packaging labelled with: "Contains a substance which is covered by a Danish working environment regulation with regard to the risk of cancer".

Inhalation: Not normally necessary, when work is done in a fume cupboard. In the case of inadequate ventilation: use an approved mask (EN140) with gas filter type AX + formaldehyde (brown/olive green – against organic vapours (low-boiling) and formaldehyde). Particulate filter P2 must be used as a pre-filter. The filters have a limited service life (must be changed). Read the manufacturer's instructions.

Skin: Wear protective gloves (EN374) of butyl or possibly 4H. Breakthrough time for butyl: approx. 3 hours. Breakthrough time for 4H: approx. 4 hours. Alttox has reduced the handskeguide (glove guide's) breakthrough time by approx. a factor of 3 because the standard test EN 374-3 has been carried out at 23°C; whilst in practice the temperature in the glove is approx. 35°C. In addition elastic gloves become stretched with use, so the glove thickness and thus the breakthrough time is reduced.

Eyes: Wear tight fitting safety goggles (EN166) in case of splashing. Precautions for limiting environmental exposure: No particular precautions.

POINT 9: Physicochemical properties

9.1. Information about basic physicochemical properties:

Appearance: Colourless liquid

Odour: As aldehyde

Odour threshold (ppm): Not specified

pH: Not specified

Melting point/freezing point (°C): 0

Initial boiling point and boiling point interval (°C): 100

Decomposition temperature (°C): No data available

Flashpoint (°C):	approx. 62
Evaporation rate:	Not specified
Flammability (solid, gas):	Not relevant
Upper/lower flammability or explosive limits (vol-%):	Not relevant
Vapour pressure (mbar, 20°C):	23 hPa
Vapour density (air=1):	Not specified
Density (25°C):	1.02

POINT 9: Physicochemical properties (continued)

Relative density:	Not specified
Solubility in water (g/l, 20°C):	Not or partially miscible
Partition coefficient: n-octanol/water, Log K _{ow} :	Not specified
Auto ignition temperature (°C):	The product is not pyrophoric
Viscosity (mPa*s, 50°C):	Not specified
Explosive properties:	Not relevant
Oxidising properties:	Not relevant

9.2. Other information:

VOC in g/l:	892.4
VOC in %:	4.81

POINT 10: Stability and reactivity

10.1. Reactivity:

No data available.

10.2. Chemical stability:

Stable during recommended storage conditions – see point 7.

10.3. Risk of hazardous reactions:

None known.

10.4. Conditions which must be avoided:

Avoid the formation of sparks and embers as well as heat.

10.5. Materials which must be avoided:

Reacts violently with oxidants (for example hydrogen peroxide), magnesium carbonate, metals and metal alloys and acids (on contact with hydrochloric acid there is the potential for the formation of the carcinogenic substance bis(chlormethyl)- ether). Contact with alkali metals can initiate polymerisation to paraformaldehyde.

10.6. Hazardous degradation products:

Very poisonous gases are released upon heating for dissociation: Carbon oxides.

POINT 11: Toxicological information

11.1. Information about toxicological effects:

Hazard class	Data	Test	Data source
Acute toxicity: Inhalation Dermal Oral	LC ₅₀ (rat) = 0,578 mg/l/4H (Formaldehyde)	Not stated	IUCLID
	LC ₅₀ (rat) = 83,9 mg/l/4H (Methanol)	Not stated	IUCLID
	LD ₅₀ (rabbit) = 270 mg/kg (Formaldehyde)	Not stated	RTECS
	LD ₅₀ (rat) = 12800 mg/kg (Methanol)	Not stated	IUCLID
	LD ₅₀ (rat) = 100 mg/kg (Formaldehyde)	Not stated	RTECS
	LD ₅₀ (rat) = 5300 mg/kg (Methanol)	Not stated	IUCLID
Corrosion /irritation:	Severe skin and eye irritation, rabbit (Formaldehyde) No skin irritation, rabbit (Methanol) Moderate eye irritation, rabbit (Methanol)	Not stated	IUCLID
		OECD 404	IUCLID
		Draize	IUCLID
Sensitisation:	Skin sensitisation, guinea pig (Formaldehyde)	Buehler	IUCLID
CMR:	TD _{Lo} (oral, rat) = 109000 mg/kg/2Y (continuous): “Carcinogenic” (Formaldehyde)	Not stated	RTECS
	Genotoxic during in vivo animal testing, rodents (Formaldehyde)	Micronucleus assay and others	IUCLID
	TD _{Lo} (oral, female rat) = 186 mg/kg 1-21D after conception: “Effects on newborn” (Formaldehyde)	Not stated	IUCLID
	TC _{Lo} (inhalation, male rat) = 35 µg/m ³ /8H 60D before mating “Paternal effects” (Formaldehyde)	Not stated	IUCLID

Probable exposure pathway: Lungs, skin and gastrointestinal tract.

Symptoms:

Inhalation: Inhalation of vapours can irritate the respiratory passages. High concentrations can cause the formation of water in the lungs (lung oedema). Be aware that the symptoms (dyspnoea) can arise several hours after exposure.

Skin: Can cause irritation with reddening and excessive dryness of the skin. Methanol and formaldehyde can be absorbed through the skin and extensive contact causes symptoms as stated under "Ingestion".

Eyes: Splashes and vapours can cause irritation with reddening and pain as well as blurred vision.

Ingestion: Can irritate the mucous membranes in the mouth, throat and gastrointestinal tract and possibly cause discomfort, nausea, vomiting, stomach ache and diarrhoea. Methanol is absorbed via the gastrointestinal tract and can cause severe poisoning.

PUNKT 11: Toxicological information (continued)

Chronic effects: Formaldehyde is deemed to be a highly potent carcinogenic substance by the Danish Working Environment Authority. An increased frequency of cancer in the nose and the upper respiratory tract as well as increased leukaemia and brain cancer mortality in humans who have worked with formaldehyde has been proved. Inhalation of high concentrations or frequent inhalation of even small amounts of an organic solvent can cause damage to, among other things, the liver, kidneys and central nervous system (including brain damage) and damage to the optic nerve.

Long term or repeated contact with the skin can cause the development of a contact allergy. The symptoms are redness, swelling and itching. An allergy after inhalation and asthmatic reactions can arise in those predisposed. Methanol is secreted into breast milk. Laboratory experiments have proved that both methanol and formaldehyde can damage genetic material, and in animal testing they have both been shown to be teratogenic. Prolonged damage to the liver and kidneys has been seen after ingestion of formaldehyde.

POINT 12: Environmental information

12.1. Toxicity:

Aquatic	Data (Formaldehyde)	Test (Media)	Data source
Fish	LC ₅₀ (Morone saxatilis, 96 hours) = 6.7 mg/l	Static (SW)	IUCLID
Crustaceans	LC ₅₀ (Daphnia magna, 48 hours) = 2 mg/l	Not stated (FW)	IUCLID
Algae	EC ₅₀ (Pseudokirchneriella subcapitata, 48 hours) = 4.2 mg/l	Not stated (FW)	EPA ecotox

12.2. Persistence and degradability:

Formaldehyde is easily biodegradable.

12.3. Bioaccumulative potential:

Formaldehyde: Log K_{ow} = 0.35 – No significant bioaccumulation.

12.4. Mobility in soil:

Formaldehyde: K_{oc} (estimated) < 10 – Significant to very significant mobility in the terrestrial environment is expected.

12.5. Results of the PBT- and vPvB assessment:

The ingredients are not PBT/vPvB with reference to the criteria in REACH appendix XIII.

12.6. Other negative effects:

Formaldehyde is damaging to protozoa and has disinfectant properties.

POINT 13: Conditions concerning disposal

13.1. Methods of waste treatment:

Waste etc. must be collected, stored and disposed of in an appropriate tightly sealed container, or in another satisfactory way where this is not practically possible. Containers etc. must either bear the original hazard label or be labelled with: "Contains a substance which is covered by a Danish working environment regulation with regard to the risk of cancer".

The chemical must be regarded as hazardous waste. Use the local authority collection and removal scheme.

Chemical group:	EWC code:
H	16 05 06 (product residues)
Z	15 02 02 (absorbents contaminated with the product)

POINT 14: Transportation information

Not covered by the transportation rules.

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. Ecological hazards: No.

14.6. Specific precautionary measures for the user: None.

14.7. Bulk transport in accordance with appendix II of MARPOL 73/78 and the IBC code: Not relevant.

15: Regulatory information

15.1. Special provisions/special legislation for the substance or the preparation with regard to safety, health and the environment:

Must not be used by young people under 18 years old (cf. the Danish Working Environment Authority's executive order about young people's work).

During a workplace assessment it must be ensured that employees are not exposed to actions which can pose a risk during pregnancy or breastfeeding (cf. the Danish Working Environment Authority's executive order about the performance of the work).

When formaldehyde is to be used in a laboratory §17 as well as §29-32 in the Kræftbekendtgørelse apply; i.e. that working processes which include formaldehyde must only take place in closed systems or in another way which prevents the release of the substance and must be approved by the local Danish Working Environment Authority. If there is no technical possibility of fulfilling requirements for working processes: see §17 paragraphs 2 and 3 in the Kræftbekendtgørelse.

Must not be reported - see point 16.

15.2. Chemical safety assessment:

No CSR.

POINT 16: Other information

Wording of risk phrases stated under points 2 and 3:

R 11: Highly flammable.

R 23/24/25: Toxic by inhalation, in contact with the skin and if swallowed.

R 34: Causes burns.

R 39/23/24/25: Toxic: danger of lasting serious damage to health by inhalation, in contact with the skin and if swallowed.

R 40: Possibility of carcinogenic effect.

R 43: Can cause sensitisation by skin contact.

H225: Highly flammable liquid and vapour.

H301: Toxic if swallowed.

H311: Toxic in contact with the skin.

H314: Causes severe skin burns and eye damage.

H317: May cause an allergic skin reaction.

H330: Fatal if inhaled.

H331: Toxic by inhalation.

H351: Suspected of causing cancer.

H370: Causes damage to organs.

Abbreviations:

At. = The Danish Working Environment Authority

CMR = Carcinogenic, mutagenic and toxic to reproduction

CSR = Chemical Safety Report

DNEL = Derived No-Effect Level

EC₅₀ = Effect Concentration 50 %

FW = Fresh Water

LC₅₀ = Lethal Concentration 50 %

LD₅₀ = Lethal Dose 50 %

PBT = Persistent, Bioaccumulative, Toxic

PNEC = Predicted No-Effect Concentration

SW = Salt Water

TD_{Lo} = Toxic Dose Low

vPvB = very Persistent, very Bioaccumulative

Literature:

EPA Ecotox = US Environmental Protection Agency (database of ecotoxicological data for chemical substances)

IUCLID = International Uniform Chemical Information Database (International chemical database with information about chemical substances)

RTECS = Register of Toxic Effects of Chemical Substances (database of toxic effects of chemical substances).

Guidance about training/instruction:

The product must only be used by people who have been carefully instructed in the performance of the work and who have knowledge of the content of this safety datasheet.

Further information:

Prepared on the basis of the information which was available to Altox a/s on 29.9.2014.

The product does not have to be reported to the Product Register as it is imported in amounts of less than 100 kg/year.

Changes since the previous version:

Not relevant.

BiopSafe® Formaldehyde solution 4%

Prepared by: Alttox a/s - Tonsbakken 16-18 - 2740 Skovlunde - Tel. 38 34 77 98 / BN – quality control PW

SDS no. 10