

1 Identification

- **Product identifier**
- **Trade name:** Formaldehyde 37 %
- **Article number:** A0877
- **CAS Number:**
50-00-0
- **EC number:**
200-001-8
- **Index number:**
605-001-00-5
- **Application of the substance / the mixture** Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
AppliChem GmbH
Ottoweg 4
D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570
Fax.: +49 (0)6151 935711
msds@applichem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
Flam. Liq. 4 H227 Combustible liquid.
Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Skin Sens. 1 H317 May cause an allergic skin reaction.
Muta. 2 H341 Suspected of causing genetic defects.
Carc. 1A H350 May cause cancer.
STOT SE 1 H370 Causes damage to organs.
STOT SE 3 H335 May cause respiratory irritation.
- **Label elements**
- **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

GHS05 GHS06 GHS07 GHS08
- **Signal word** Danger
- **Hazard-determining components of labeling:**
formaldehyde
methanol
- **Hazard statements**
H227 Combustible liquid.

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- H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H341 Suspected of causing genetic defects.
- H350 May cause cancer.
- H370 Causes damage to organs.
- H335 May cause respiratory irritation.

Precautionary statements

- P201 Obtain special instructions before use.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 3
Fire = 2
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = *3
Fire = 2
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS No. Description

50-00-0 formaldehyde

Identification number(s)

• **EC number:** 200-001-8

• **Index number:** 605-001-00-5

• **Description:** Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

50-00-0	formaldehyde	>30-≤40%
67-56-1	methanol	>10-≤15%

4 First-aid measures

Description of first aid measures

General information:

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Personal protection for the First Aider.

Immediately remove any clothing soiled by the product.

After inhalation:

Take affected persons into fresh air and keep quiet.

Supply fresh air.

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- In case of unconsciousness place patient stably in side position for transportation.
If breathing stops: mouth-to-mouth respiration or mechanical ventilation, oxygen mask if necessary.
Immediately call a physician.
- **After skin contact:**
Wash off with plenty of water.
Call a doctor immediately.
Immediately remove any clothing soiled by the product.
 - **After eye contact:**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
 - **After swallowing:**
Rinse out mouth.
Do not induce vomiting; immediately call for medical help.
make victim drink water (maximum of 2 drinking glasses)
A person vomiting while lying on their back should be turned onto their side.
 - **Information for doctor:**
 - **Most important symptoms and effects, both acute and delayed**
Breathing difficulty
Dizziness
Headache
Cramp
Disorientation
Dizziness
Coughing
Allergic reactions
 - **Indication of any immediate medical attention and special treatment needed**
Mentioning methanol ingestion.
Treat symptomatically and supportively.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Water, CO₂, foam, powder.
- **For safety reasons unsuitable extinguishing agents:** None
- **Special hazards arising from the substance or mixture**
Combustible.
Vapours are heavier than air and may spread along floors.
Can form explosive gas-air mixtures.
Formation of toxic gases is possible during heating or in case of fire.
Formaldehyde
CO, CO₂
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.
- **Additional information**
Cool endangered receptacles with water spray.
Contain escaping vapours with water.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Do not inhale steams/aerosols.
Wear protective clothing.
Avoid substance contact.
Ensure adequate ventilation

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- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent from spreading (e.g. by damming-in or oil barriers).
Keep contaminated washing water and dispose of appropriately.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Absorb with liquid-binding material (AppliSorb).
Ensure adequate ventilation.
Clean up affected area.
Dispose of the collected material according to regulations.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

50-00-0	formaldehyde	0.90 ppm
67-56-1	methanol	530 ppm

· **PAC-2:**

50-00-0	formaldehyde	14 ppm
67-56-1	methanol	2,100 ppm

· **PAC-3:**

50-00-0	formaldehyde	56 ppm
67-56-1	methanol	7200* ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Work only in fume cabinet.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Keep receptacles tightly sealed.
Store in a cool location.
- **Information about storage in one common storage facility:**
Do not store with the following type of product
strong oxidants
gases
- **Further information about storage conditions:**
Storage in a well-ventilated place.
Keep receptacle tightly sealed.
Accessible for authorised persons only.
- **Recommended storage temperature: +15 - +25°C**
- **Storage class: 6.1 C**
- **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· Components with limit values that require monitoring at the workplace:

50-00-0 formaldehyde

PEL	Short-term value: 2 ppm Long-term value: 0.75 ppm see 29 CFR 1910.1048(c)
REL	Long-term value: 0.016 ppm Ceiling limit value: 0.1* ppm *15-min; See Pocket Guide App. A
TLV	Short-term value: 0.37 mg/m ³ , 0.3 ppm Long-term value: 0.12 mg/m ³ , 0.1 ppm DSEN; RSEN

67-56-1 methanol

PEL	Long-term value: 260 mg/m ³ , 200 ppm
REL	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
TLV	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI

· Ingredients with biological limit values:

67-56-1 methanol

BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)
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- **Additional information:** The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.

· Breathing equipment:

Respiratory protection required when vapours/aerosols are generated.
Filter AX

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:**
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.3 mm
Value for the permeation: Level $\geq >480$
- **Eye protection:**



Tightly sealed goggles

- **Body protection:**
Full head, face and neck protection
Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Fluid
Color:	Colorless
Odor:	Acrid

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	93-96 °C (199.4-204.8 °F)

· Flash point: >62 °C (>143.6 °F)

· Ignition temperature: ~ 300 °C (~ 572 °F)

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower:	5.5 Vol %
Upper:	73 Vol %

· Vapor pressure at 20 °C (68 °F): 128 hPa (96 mm Hg)

· Density at 20 °C (68 °F): 1.08-1.1 g/cm³ (9.013-9.18 lbs/gal)

· Solubility in / Miscibility with

Water: Soluble.

· Viscosity:

Dynamic at 20 °C (68 °F):	2 mPas
Kinematic at 20 °C (68 °F):	1.8-2.5 s (DIN 53211/4)
Organic solvents:	49.0 %
Water:	51.0 %
VOC content:	49.00 %

· Other information: No further relevant information available.

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10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Heating
- **Possibility of hazardous reactions**
Forms explosive gas mixture with air.
Reacts with strong oxidizing agents.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No dangerous reactions known.
- **Hazardous decomposition products:** No dangerous decomposition products known.
- **Additional information:** Explosible with air in a vaporous/gaseous state.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

Components	Type	Value	Species
50-00-0 formaldehyde			
Oral	LD50	100 mg/kg	(rat)
Dermal	LD50	270 mg/kg	(rabbit)
67-56-1 methanol			
Oral	LD50	5,628 mg/kg	(rat)
Dermal	LD50	17,100 mg/kg	(rabbit)

- **Primary irritant effect:**
- **on the skin:**
Caustic effect on skin and mucous membranes.
Danger of skin absorption.
- **on the eye:**
Strong caustic effect.
Risk of blindness.
- **Sensitization:** Sensitization possible through skin contact.
- **Other information (about experimental toxicology):**
After swallowing:
burns of mouth, pharynx, oesophagus and gastrointestinal tract.
Systemic effects:
narcosis
Further hazardous properties cannot be excluded.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The product should be handled with the care usual when dealing with chemicals.

- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)	1
· NTP (National Toxicology Program)	K

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· **OSHA-Ca (Occupational Safety & Health Administration)**

50-00-0 formaldehyde

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:**
Toxic for aquatic organisms
Toxic effect on fish and plankton.

· Type of test	Effective concentration	Method	Assessment
50-00-0 formaldehyde			
EC50/72 h	4.89 mg/l	(Algae)	
EC50/48 h	5.8 mg/l	(daphnia magna)	
LC50/96 h	6.7 mg/l	(fish)	
67-56-1 methanol			
EC50/48 h	>10,000 mg/l	(daphnia magna)	
EC50/96 h	22,000 mg/l	(Algae)	
LC50/96 h	15,400 mg/l	(fish)	

- **Persistence and degradability** The product is easily biodegradable.
- **Behavior in environmental systems:**
- **Bioaccumulative potential**
Distribution log Pow<1.
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** disinfectant
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (Assessment by list): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Chemicals must be disposed of in compliance with the respective national regulations.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN2922

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· **UN proper shipping name**
· **DOT, ADR** Corrosive liquids, toxic, n.o.s. (Formaldehyde solutions, Methanol)
· **IMDG, IATA** CORROSIVE LIQUID, TOXIC, N.O.S. (FORMALDEHYDE SOLUTION, METHANOL)

· **Transport hazard class(es)**

· **DOT**



· **Class** 8 Corrosive substances
· **Label** 8, 6.1

· **ADR**



· **Class** 8 (CT1) Corrosive substances
· **Label** 8+6.1

· **IMDG**



· **Class** 8 Corrosive substances
· **Label** 8/6.1

· **IATA**



· **Class** 8 Corrosive substances
· **Label** 8 (6.1)

· **Packing group**
· **DOT, ADR, IMDG, IATA** III

· **Environmental hazards:**
· **Marine pollutant:** No

· **Special precautions for user** Warning: Corrosive substances
· **Danger code (Kemler):** 86
· **EMS Number:** F-A,S-B
· **Stowage Category** B
· **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

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· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 2922 CORROSIVE LIQUIDS, TOXIC, N.O.S. (FORMALDEHYDE SOLUTIONS, METHANOL), 8 (6.1), III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):	
50-00-0	formaldehyde

· Section 313 (Specific toxic chemical listings):	
50-00-0	formaldehyde
67-56-1	methanol

· TSCA (Toxic Substances Control Act):	
Substance is listed.	

· **Proposition 65**

· Chemicals known to cause cancer:	
50-00-0	formaldehyde

· Chemicals known to cause reproductive toxicity for females:	
Substance is not listed.	

· Chemicals known to cause reproductive toxicity for males:	
Substance is not listed.	

· Chemicals known to cause developmental toxicity:	
67-56-1	methanol

· **Carcinogenity categories**

· EPA (Environmental Protection Agency)	
	B1

· TLV (Threshold Limit Value established by ACGIH)	
	A2

· NIOSH-Ca (National Institute for Occupational Safety and Health)	
50-00-0	formaldehyde

· **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

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· Hazard pictograms



GHS05 GHS06 GHS07 GHS08

· Signal word Danger

· Hazard-determining components of labeling:

formaldehyde
methanol

· Hazard statements

H227 Combustible liquid.
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H370 Causes damage to organs.
H335 May cause respiratory irritation.

· Precautionary statements

P201 Obtain special instructions before use.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a poison center/doctor.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Dept. Compliance

· Date of preparation / last revision 03/30/2018 / 4

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 4: Flammable liquids – Category 4
Acute Tox. 3: Acute toxicity – Category 3

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Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 1A: Carcinogenicity – Category 1A
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

· *** Data compared to the previous version altered.**

US