

Safety Data Sheet
 acc. to OSHA HCS

Page 1/11


Printing date 05/05/2018
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 Version number: 6

1 Identification

- **Product identifier**
- **Trade name:** Tetrabutylammonium Hydroxide solution 40 % in methanol
- **Article number:** 157141
- **Application of the substance / the mixture**
 Chemical analytics
 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)

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 msds@appliChem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
 Flam. Liq. 2 H225 Highly flammable liquid and vapor.
 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.
 Eye Dam. 1 H318 Causes serious eye damage.
 STOT SE 1 H370 Causes damage to organs.
- **Label elements**
- **GHS label elements**
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

 GHS02 GHS05 GHS06 GHS08
- **Signal word** Danger
- **Hazard-determining components of labeling:**
 methanol
 tetrabutylammonium hydroxide
- **Hazard statements**
 H225 Highly flammable liquid and vapor.
 H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
 H314 Causes severe skin burns and eye damage.
 H370 Causes damage to organs.
- **Precautionary statements**
 P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352 If on skin: Wash with plenty of water.

(Contd. on page 2)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 1)

P308+P311 IF exposed or concerned: Call a poison center/doctor.

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3
Fire = 3
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = *3
Fire = 3
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

67-56-1	methanol	>50-<100%
2052-49-5	tetrabutylammonium hydroxide	>10-≤40%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Personal protection for the First Aider.
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
Involve doctor immediately.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- **After skin contact:**
Call a doctor immediately.
Immediately wash with polyethylene glycol 400.
Immediately wash with water and soap and rinse thoroughly.
Immediately remove any clothing soiled by the product.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Make victim drink ethanol (e.g. 1 drink glass off a 40 % alcoholic beverage).
Seek medical treatment.
Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

(Contd. on page 3)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
Combustible.
Vapours are heavier than air and may spread along floors.
Forms explosive mixtures with air at ambient temperatures.
Beware of backfiring.
Development of hazardous combustion gases or vapours possible in the event of fire.
In case of fire, the following can be released:
Nitrogen oxides (NO_x)
CO, CO₂
- **Advice for firefighters**
- **Protective equipment:**
Mouth respiratory protective device.
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Contain escaping vapours with water.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Keep away from ignition sources
Avoid substance contact.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Clean up affected area.
- **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:

67-56-1	methanol	530 ppm
2052-49-5	tetrabutylammonium hydroxide	1.2 mg/m ³

· PAC-2:

67-56-1	methanol	2,100 ppm
2052-49-5	tetrabutylammonium hydroxide	13 mg/m ³

· PAC-3:

67-56-1	methanol	7200* ppm
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(Contd. on page 4)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 3)

2052-49-5 tetrabutylammonium hydroxide

79 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:**
Away from sources of ignition and heat.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Open receptacle only under localized extractor facilities.
Store receptacle in a well ventilated area.
Store only outside or in explosion proof rooms.
Store under lock and key and with access restricted to technical experts or their assistants only.
Accessible for authorised persons only.
- **Recommended storage temperature:** +15 - +25°C
- **Storage class:** 3
- **Specific end use(s)** No further relevant information available.

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:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

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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(Contd. on page 5)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 4)

- **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.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:**
 - Short term filter device:
Filter AX
 - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **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.
- **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: ≥ 0.7 mm
 - Value for the permeation: Level ≥ 480 min
- **As protection from splashes gloves made of the following materials are suitable:**
 - Recommended thickness of the material: ≥ 0.7 mm
 - Fluorocarbon rubber (Viton)
 - Value for the permeation: Level ≥ 120 min
- **Eye protection:**



Tightly sealed goggles

- **Body protection:**
 - Solvent resistant protective clothing
 - Use protective suit.
 - 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.

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(Contd. on page 6)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 5)

9 Physical and chemical properties

<ul style="list-style-type: none"> Information on basic physical and chemical properties General Information Appearance: <ul style="list-style-type: none"> Form: Liquid Color: Colorless Odor: Alcohol-like Odor threshold: Not determined. 	
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	64 °C (147.2 °F)
· Flash point:	12 °C (53.6 °F)
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	455 °C (851 °F)
· Decomposition temperature:	Not determined.
· 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:	44 Vol %
· Vapor pressure at 20 °C (68 °F):	128 hPa (96 mm Hg)
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	60.0 %
VOC content:	60.00 %
· Other information	No further relevant information available.

10 Stability and reactivity

- Reactivity No dangerous reactions known.
- Chemical stability
- Thermal decomposition / conditions to be avoided: Heating
- Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- Incompatible materials:
 - Risk of explosion with:
 - oxidizing agent
 - Exothermic reactions with:
 - reducing agents
 - acid anhydrides

(Contd. on page 7)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 6)

- **Hazardous decomposition products:** In the event of fire: See chapter 5
- **Additional information:**
sensitive to air
Incompatible with:
various plastics
various alloys
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
67-56-1 methanol			
Oral	LD50	5,628 mg/kg (rat)	
Dermal	LD50	17,100 mg/kg (rabbit)	

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**
Causes serious eye damage.
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Other information (about experimental toxicology):**
After swallowing:
pain
- **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.

- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:**

Type of test	Effective concentration	Method	Assessment
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** No further relevant information available.

(Contd. on page 8)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol



(Contd. of page 7)

- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Water hazard class 2 (Self-assessment): 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.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **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 | UN3286 |
| • DOT, ADR, IMDG, IATA | |
| • UN proper shipping name | Flammable liquid, toxic, corrosive, n.o.s. (Methanol, Tetrabutyl ammoniumhydroxide) |
| • DOT, ADR | |
| • IMDG, IATA | FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (METHANOL, Tetrabutyl ammoniumhydroxide) |
| • Transport hazard class(es) | |
| • DOT | |
|  | |
| • Class | 3 Flammable liquids |
| • Label | 3, 6.1, 8 |
| • ADR | |
|  | |
| • Class | 3 (FTC) Flammable liquids |

(Contd. on page 9)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 8)

· **Label** 3+6.1+8

· **IMDG**



· **Class** 3 Flammable liquids
· **Label** 3/6.1/8

· **IATA**



· **Class** 3 Flammable liquids
· **Label** 3 (6.1, 8)

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

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

· **Special precautions for user** Warning: Flammable liquids
· **Danger code (Kemler):** 336
· **EMS Number:** F-E,S-C
· **Stowage Category** B
· **Stowage Code** SW2 Clear of living quarters.
· **Segregation Code** SG5 Segregation as for class 3
SG8 Stow "away from" class 4.1

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

· **Transport/Additional information:**

· **ADR**
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **IMDG**
· **Limited quantities (LQ)** 1L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 3286 FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (METHANOL, TETRABUTYLAMMONIUMHYDROXIDE), 3 (6.1+8), II

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

67-56-1 methanol

(Contd. on page 10)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 9)

• **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

• **Proposition 65**

• **Chemicals known to cause cancer:**

None of the ingredients is listed.

• **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

• **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

• **Chemicals known to cause developmental toxicity:**

67-56-1 | methanol

• **Carcinogenicity categories**

• **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

• **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

• **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

• **GHS label elements**

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

• **Hazard pictograms**



GHS02 GHS05 GHS06 GHS08

• **Signal word** Danger

• **Hazard-determining components of labeling:**

methanol

tetrabutylammonium hydroxide

• **Hazard statements**

H225 Highly flammable liquid and vapor.
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H370 Causes damage to organs.

• **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with plenty of water.
P308+P311 IF exposed or concerned: Call a poison center/doctor.

• **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** 05/05/2018 / 5

• **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

(Contd. on page 11)

Trade name: Tetrabutylammonium Hydroxide solution 40 % in methanol

(Contd. of page 10)

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. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

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