

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra

Revision date: 16.08.2022

Product code: 19977

Page 1 of 15

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

##### 1.1. Product identifier

Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra

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

###### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

###### Uses advised against

Do not use for private purposes (household).

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

Company name:	Fa. Bernd Kraft GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
e-mail:	info@berndkraft.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
e-mail:	produktsicherheit@berndkraft.de	
Internet:	www.berndkraft.de	
Responsible Department:	Abteilung Produktsicherheit	

##### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

##### Further Information

This product is a mixture. REACH Registration Number see section 3.

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

###### Regulation (EC) No 1272/2008

Flam. Liq. 2; H225  
Acute Tox. 3; H301  
Acute Tox. 3; H311  
Acute Tox. 3; H331  
Skin Irrit. 2; H315  
Eye Dam. 1; H318  
STOT SE 1; H370  
STOT SE 3; H336

Full text of hazard statements: see SECTION 16.

##### 2.2. Label elements

###### Regulation (EC) No 1272/2008

###### Hazard components for labelling

propan-2-ol; isopropyl alcohol; isopropanol  
methanol  
tetrabutylammonium hydroxide

**Signal word:** Danger

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 2 of 15

**Pictograms:**



**Hazard statements**

- H225 Highly flammable liquid and vapour.
- H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H336 May cause drowsiness or dizziness.
- H370 Causes damage to organs.

**Precautionary statements**

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing 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.
- P308+P311 IF exposed or concerned: Call a POISON CENTER/doctor.
- P403+P235 Store in a well-ventilated place. Keep cool.

**2.3. Other hazards**

No data available

**SECTION 3: Composition/information on ingredients**

**3.2. Mixtures**

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol			50 - < 55 %
	200-661-7	603-117-00-0		
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336			
67-56-1	methanol			45 - < 50 %
	200-659-6	603-001-00-X	01-2119433307-44	
	Flam. Liq. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, STOT SE 1; H225 H331 H311 H301 H370			
2052-49-5	tetrabutylammonium hydroxide			1 - < 5 %
	218-147-6	060-300-10-0	01-2120231229-61	
	Acute Tox. 4, Skin Corr. 1B; H302 H314			

Full text of H and EUH statements: see section 16.

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol  
for titra**

Revision date: 16.08.2022

Product code: 19977

Page 3 of 15

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
67-56-1	200-659-6	methanol	45 - < 50 %
		inhalation: LC50 = 128,2 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: ATE = 300 mg/kg; oral: LD50 = 6000 mg/kg STOT SE 1; H370: >= 10 - 100 STOT SE 2; H371: >= 3 - < 10	
2052-49-5	218-147-6	tetrabutylammonium hydroxide	1 - < 5 %
		oral: LD50 = 1000 mg/kg	

**Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

First aider: Pay attention to self-protection!

**After inhalation**

Provide fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Call a physician immediately.

**After contact with skin**

Wash immediately with: Water  
Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

**After contact with eyes**

After eye contact: Rinse immediately carefully and thoroughly with eye-bath or water.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Consult an ophthalmologist.

**After ingestion**

Provide fresh air.  
Call a physician immediately.  
Notes for the doctor : Methanol

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

Irritant, Dizziness  
Dizziness, Anaesthetic state  
Agitation, Spasms  
Inebriation, Vomiting  
Headache, Impairment of vision  
Repeated exposure may cause skin dryness or cracking.

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

No data available

**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**

Water spray jet, Carbon dioxide (CO<sub>2</sub>), Foam, Extinguishing powder.

**Unsuitable extinguishing media**

no restriction

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol  
for titra**

Revision date: 16.08.2022

Product code: 19977

Page 4 of 15

**5.2. Special hazards arising from the substance or mixture**

Combustible liquids  
Highly flammable.  
Hazardous combustion products  
In case of fire may be liberated:  
Carbon dioxide, Carbon monoxide  
Nitrogen oxides (NOx)  
Vapours are heavier than air, spread along floors and form explosive mixtures with air.  
Beware of reignition.  
Heating causes rise in pressure with risk of bursting.

**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.  
Wear full chemical protective clothing.  
In case of fire and/or explosion do not breathe fumes.

**Additional information**

Use water spray jet to protect personnel and to cool endangered containers.  
Move undamaged containers from immediate hazard area if it can be done safely.  
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**General advice**

Keep away from sources of ignition - No smoking.  
This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).  
Take action to prevent static discharges.

**For non-emergency personnel**

Provide adequate ventilation.  
Use personal protection equipment.  
Avoid contact with skin, eyes and clothes.  
Remove persons to safety.  
Emergency procedures  
Do not breathe dust/fume/gas/mist/vapours/spray.

**For emergency responders**

Precautionary statements For emergency responders : Personal protection equipment: see section 8

**6.2. Environmental precautions**

Do not allow uncontrolled discharge of product into the environment. Danger of explosion  
Do not allow to enter into surface water or drains.  
The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.  
Danger of explosion

**6.3. Methods and material for containment and cleaning up**

**For containment**

Cover drains.  
Prevent spread over a wide area (e.g. by containment or oil barriers).  
Collect in closed and suitable containers for disposal.  
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**For cleaning up**

Clean contaminated articles and floor according to the environmental legislation.

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol  
for titra**

Revision date: 16.08.2022

Product code: 19977

Page 5 of 15

**Other information**

Provide adequate ventilation.  
Do not breathe dust/fume/gas/mist/vapours/spray.  
Wear breathing apparatus if exposed to vapours/dusts/aerosols.

**6.4. Reference to other sections**

Safe handling: see section 7  
Personal protection equipment: see section 8  
Disposal: see section 13

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

Avoid exposure - obtain special instructions before use.  
If handled uncovered, arrangements with local exhaust ventilation have to be used.  
Read label before use. Handle and open container with care.  
When using do not eat, drink, smoke, sniff. Keep container tightly closed.  
Use personal protection equipment. Use extractor hood (laboratory).  
Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

**Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.  
Vapours can form explosive mixtures with air.

**Advice on general occupational hygiene**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.  
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

**Further information on handling**

Take off immediately all contaminated clothing and wash it before reuse.  
Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.

**7.2. Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Keep in a cool, well-ventilated place.  
Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Hints on joint storage**

Do not store together with: Oxidising agent. Pyrophoric or self-heating substances.

**Further information on storage conditions**

Keep cool. Protect from sunlight.  
storage temperature: +2°C - +8°C

**7.3. Specific end use(s)**

Laboratory chemicals

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 6 of 15

**Occupational exposure limits**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fib/cm <sup>3</sup>	Category	Origin
67-56-1	Methyl alcohol	200	260		TWA (8 h)	
67-63-0	Propan-2-ol	200	-		TWA (8 h)	
		400	-		STEL (15 min)	

**Biological limit values**

CAS No	Substance	Parameter	Value	Test material	Sampling time
67-63-0	2-Propanol	Acetone	40 mg/L	Urine	End of shift at end of workweek
67-56-1	Methanol	Methanol	15 mg/L	Urine	End of shift

**DNEL/DMEL values**

CAS No	Substance	DNEL type	Exposure route	Effect	Value
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol	Worker DNEL, long-term	inhalation	systemic	500 mg/m <sup>3</sup>
		Worker DNEL, long-term	dermal	systemic	888 mg/kg bw/day
		Consumer DNEL, long-term	inhalation	systemic	89 mg/m <sup>3</sup>
		Consumer DNEL, long-term	dermal	systemic	319 mg/kg bw/day
		Consumer DNEL, long-term	oral	systemic	26 mg/kg bw/day
67-56-1	methanol	Consumer DNEL, acute	inhalation	systemic	50 mg/m <sup>3</sup>
		Worker DNEL, long-term	inhalation	systemic	260 mg/m <sup>3</sup>
		Worker DNEL, acute	inhalation	systemic	260 mg/m <sup>3</sup>
		Worker DNEL, long-term	inhalation	local	260 mg/m <sup>3</sup>
		Worker DNEL, acute	inhalation	local	260 mg/m <sup>3</sup>
		Worker DNEL, long-term	dermal	systemic	40 mg/kg bw/day
		Worker DNEL, acute	dermal	systemic	40 mg/kg bw/day
		Consumer DNEL, long-term	inhalation	systemic	50 mg/m <sup>3</sup>
		Consumer DNEL, long-term	inhalation	local	50 mg/m <sup>3</sup>
		Consumer DNEL, acute	inhalation	local	50 mg/m <sup>3</sup>
		Consumer DNEL, long-term	dermal	systemic	8 mg/kg bw/day
		Consumer DNEL, acute	dermal	systemic	8 mg/kg bw/day
		Consumer DNEL, long-term	oral	systemic	8 mg/kg bw/day
		Consumer DNEL, acute	oral	systemic	8 mg/kg bw/day
2052-49-5	tetrabutylammonium hydroxide	Worker DNEL, long-term	inhalation	systemic	4,93 mg/m <sup>3</sup>
		Worker DNEL, long-term	dermal	systemic	1,4 mg/kg bw/day
		Consumer DNEL, long-term	inhalation	systemic	0,87 mg/m <sup>3</sup>
		Consumer DNEL, long-term	dermal	systemic	0,5 mg/kg bw/day
		Consumer DNEL, long-term	oral	systemic	0,5 mg/kg bw/day

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol  
for titra**

Revision date: 16.08.2022

Product code: 19977

Page 7 of 15

**PNEC values**

CAS No	Substance	Value
Environmental compartment		Value
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol	
Freshwater		140,9 mg/l
Freshwater (intermittent releases)		140,9 mg/l
Marine water		140,9 mg/l
Freshwater sediment		552 mg/kg
Marine sediment		552 mg/kg
Secondary poisoning		160 mg/kg
Micro-organisms in sewage treatment plants (STP)		2251 mg/l
Soil		28 mg/kg
67-56-1	methanol	
Freshwater		20,8 mg/l
Freshwater (intermittent releases)		1540 mg/l
Marine water		2,08 mg/l
Freshwater sediment		77 mg/kg
Marine sediment		7,7 mg/kg
Micro-organisms in sewage treatment plants (STP)		100 mg/l
Soil		100 mg/kg
2052-49-5	tetrabutylammonium hydroxide	
Freshwater		0,0165 mg/l
Freshwater (intermittent releases)		0,165 mg/l
Marine water		0,00165 mg/l
Freshwater sediment		2,16 mg/kg
Marine sediment		0,216 mg/kg
Micro-organisms in sewage treatment plants (STP)		28,4 mg/l
Soil		0,421 mg/kg

**8.2. Exposure controls**

**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Do not breathe gas/fumes/vapour/spray.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

goggles

**Hand protection**

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 8 of 15

specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 898 Butoject®

Recommended material: Butyl caoutchouc (butyl rubber) 0,7 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 890 Vitoject®

Recommended material: FKM (fluoro rubber) 0,7 mm

Wearing time with occasional contact (splashes): > 120 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

**Skin protection**

Flame-retardant protective clothing. Wear anti-static footwear and clothing

Take off immediately all contaminated clothing and wash it before reuse.

Wear fire resistant or flame retardant clothing.

Wash hands and face before breaks and after work and take a shower if necessary.

Draw up and observe skin protection programme.

**Respiratory protection**

Respiratory protection necessary at: aerosol or mist formation

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

Danger of explosion

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid	
Colour:	colourless	
Odour:	like: Alcohol	
Melting point/freezing point:		No data available
Boiling point or initial boiling point and boiling range:		No data available
Flammability		
Solid/liquid:		not applicable
Gas:		not applicable
Lower explosion limits:		No data available
Upper explosion limits:		No data available
Flash point:		~9 °C
Auto-ignition temperature:		No data available
Decomposition temperature:		No data available
pH-Value:		No data available
Viscosity / kinematic:		No data available
Water solubility:		No data available
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:		No data available



**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol  
for titra**

Revision date: 16.08.2022

Product code: 19977

Page 9 of 15

Vapour pressure:	No data available
Vapour pressure:	No data available
Density:	0,79642 g/cm <sup>3</sup>
Bulk density:	No data available
Relative vapour density:	No data available

**9.2. Other information**

**Information with regard to physical hazard classes**

**Explosive properties**

Vapours can form explosive mixtures with air.

**Sustaining combustion:**

Sustaining combustion

**Self-ignition temperature**

Solid:

not applicable

Gas:

not applicable

**Oxidizing properties**

not determined

**Other safety characteristics**

Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic:	No data available
Flow time:	No data available

**Further Information**

No data available

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Highly flammable.

Vapours can form explosive mixtures with air.

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

**10.3. Possibility of hazardous reactions**

Oxidising agent, Nitrogen oxides (NO<sub>x</sub>), Potassium chlorate, peroxides, for example hydrogen peroxide, Nitric acid, sulphuric acid, Acid halogen, Acetic anhydride, Maleic anhydride, Reducing agent, Acid, Bromine, Chlorine, Chloroform, Fluorine, Alkali metals, Alkaline earth metal;

**10.4. Conditions to avoid**

Vapours can form explosive mixtures with air.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**10.5. Incompatible materials**

Plastic articles

Zinc

**10.6. Hazardous decomposition products**

SECTION 5: Firefighting measures

**Further information**

No data available

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 10 of 15

**SECTION 11: Toxicological information**

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

**Toxicokinetics, metabolism and distribution**

Avoid exposure - obtain special instructions before use.

**Acute toxicity**

Toxic if swallowed.  
Toxic in contact with skin.  
Toxic if inhaled.  
Irritation to respiratory tract

**ATEmix calculated**

ATE (oral) 214,3 mg/kg; ATE (dermal) 652,2 mg/kg; ATE (inhalation vapour) 6,52 mg/l; ATE (inhalation dust/mist) 1,087 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
67-56-1	methanol				
	oral	LD50 6000 mg/kg	Monkey	Amer J Ophthalmol 40: 76-83 (cited in DG)	Determination of the acute toxicity of t
	dermal	ATE 300 mg/kg			
	inhalation (4 h) vapour	LC50 128,2 mg/l	Rat	Study report (1980)	Study performed according to internal co
	inhalation dust/mist	ATE 0,5 mg/l			
2052-49-5	tetrabutylammonium hydroxide				
	oral	LD50 1000 mg/kg	Rat	Study report (2018)	OECD Guideline 423

**Irritation and corrosivity**

Causes skin irritation.  
Causes serious eye damage.  
Has degreasing effect on the skin.

**Sensitising effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

**STOT-single exposure**

Causes damage to organs. (methanol)  
May cause drowsiness or dizziness. (propan-2-ol; isopropyl alcohol; isopropanol) (eyes)

**STOT-repeated exposure**

Based on available data, the classification criteria are not met.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Specific effects in experiment on an animal**

There are no data available on the mixture itself.

**Additional information on tests**

There are no data available on the mixture itself.

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 11 of 15

**Practical experience**

There are no data available on the mixture itself.

**11.2. Information on other hazards**

**Other information**

Irritation to respiratory tract  
Repeated exposure may cause skin dryness or cracking.  
Causes damage to organs.  
Organs affected:  
Liver and kidney damage  
eyes  
heart

**Further information**

Irritant, Dizziness, Dizziness, Anaesthetic state, Agitation, Spasms, Inebriation, Vomiting, Headache, Impairment of vision  
Repeated exposure may cause skin dryness or cracking.

**SECTION 12: Ecological information**

**12.1. Toxicity**

There are no data available on the mixture itself.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol					
	Acute fish toxicity	LC50 mg/l	10000	96 h	Pimephales promelas	Publication (1983) OECD Guideline 203
67-56-1	methanol					
	Acute fish toxicity	LC50 mg/l	15400	96 h	Lepomis macrochirus	Bulletin of Environmental Contamination other: EPA-660/3-75-009, 1975
	Acute algae toxicity	ErC50 mg/l	ca. 22000	96 h	Pseudokirchneriella subcapitata	Ecotoxicology and Environmental Safety 7 OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l	> 10000	48 h	Daphnia magna	Water Research 23(4): 495-499 (1989) other: DIN 38412 Teil 11
	Fish toxicity	NOEC mg/l	446,7	28 d	Pimephales promelas	SAR and QSAR in Environmental Research, Calculation performed with ECOSAR
	Crustacea toxicity	NOEC	208 mg/l	21 d	Daphnia magna	OECD QSAR Toolbox Report (2013) Toxicity of the target chemical is predi
2052-49-5	tetrabutylammonium hydroxide					
	Acute fish toxicity	LC50 mg/l	> 100	96 h	Danio rerio	REACH Registration Dossier other: as mentioned below
	Acute algae toxicity	ErC50 mg/l	> 200	72 h	Chlorella vulgaris	REACH Registration Dossier OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l	16,5	48 h	Daphnia magna	REACH Registration Dossier OECD Guideline 202

**12.2. Persistence and degradability**

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 12 of 15

There are no data available on the mixture itself.

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol	0,05
67-56-1	methanol	-0,77
2052-49-5	tetrabutylammonium hydroxide	1,518

**BCF**

CAS No	Chemical name	BCF	Species	Source
67-56-1	methanol	1	Cyprinus carpio	Comparative Biochemi
2052-49-5	tetrabutylammonium hydroxide	70,794	Fish	REACH Registration D

**12.4. Mobility in soil**

There are no data available on the mixture itself.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

**12.7. Other adverse effects**

There are no data available on the mixture itself.

**Further information**

Do not allow to enter into surface water or drains.  
Avoid release to the environment.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.  
Send to a physico-chemical treatment facility under observation of official regulations.  
Do not allow to enter into surface water or drains.

**Contaminated packaging**

This material and its container must be disposed of as hazardous waste.  
Handle contaminated packages in the same way as the substance itself.  
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

<b>14.1. UN number or ID number:</b>	UN 1992
<b>14.2. UN proper shipping name:</b>	FLAMMABLE LIQUID, TOXIC, N.O.S. (methanol, propan-2-ol; isopropyl alcohol; isopropanol)
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3+6.1
Classification code:	FT1
Special Provisions:	274

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol  
for titra**

Revision date: 16.08.2022

Product code: 19977

Page 13 of 15

Limited quantity: 1 L  
 Excepted quantity: E2  
 Transport category: 2  
 Hazard No: 336  
 Tunnel restriction code: D/E

**Inland waterways transport (ADN)**

**14.1. UN number or ID number:** UN 1992  
**14.2. UN proper shipping name:** FLAMMABLE LIQUID, TOXIC, N.O.S. (methanol, propan-2-ol; isopropyl alcohol; isopropanol)  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** II  
 Hazard label: 3+6.1  
 Classification code: FT1  
 Special Provisions: 274 802  
 Limited quantity: 1 L  
 Excepted quantity: E2

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 1992  
**14.2. UN proper shipping name:** FLAMMABLE LIQUID, TOXIC, N.O.S. (methanol, propan-2-ol)  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** II  
 Hazard label: 3+6.1  
 Special Provisions: 274  
 Limited quantity: 1 L  
 Excepted quantity: E2  
 EmS: F-E, S-D

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number or ID number:** UN 1992  
**14.2. UN proper shipping name:** FLAMMABLE LIQUID, TOXIC, N.O.S. (methanol, propan-2-ol)  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** II  
 Hazard label: 3+6.1  
 Special Provisions: A3  
 Limited quantity Passenger: 1 L  
 Passenger LQ: Y341  
 Excepted quantity: E2  
 IATA-packing instructions - Passenger: 352  
 IATA-max. quantity - Passenger: 1 L  
 IATA-packing instructions - Cargo: 364  
 IATA-max. quantity - Cargo: 60 L

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

Warning: Combustible liquid. Toxic.

**14.7. Maritime transport in bulk according to IMO instruments**

not applicable

**SECTION 15: Regulatory information**

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

**EU regulatory information**

**Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra**

Revision date: 16.08.2022

Product code: 19977

Page 14 of 15

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 69

Information according to 2012/18/EU (SEVESO III): H2 ACUTE TOXIC

Additional information: P5c

**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 2 - obviously hazardous to water

Skin resorption/Sensitization: Permeates easily through outer skin and causes poisoning.

**SECTION 16: Other information**

**Changes**

This data sheet contains changes from the previous version in section(s): 1,12.

**Abbreviations and acronyms**

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

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

**Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]**

Classification	Classification procedure
Flam. Liq. 2; H225	On basis of test data
Acute Tox. 3; H301	Calculation method
Acute Tox. 3; H311	Calculation method
Acute Tox. 3; H331	Calculation method
Skin Irrit. 2; H315	Calculation method
Eye Dam. 1; H318	Calculation method
STOT SE 1; H370	Calculation method
STOT SE 3; H336	Calculation method

**Relevant H and EUH statements (number and full text)**

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H301+H311+H331	Toxic if swallowed, in contact with skin or if inhaled.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Tetra-n-butylammonium hydroxide solution 0.1 mol/l - 0.1 N solution in 2-propanol/methanol for titra

Revision date: 16.08.2022

Product code: 19977

Page 15 of 15

H370 Causes damage to organs.

#### Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

---

*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*