

**Tetrabutylammoniumhydroxid-Lösung R Reag. Ph. Eur., Kapitel 4.1.1**

Revision: 19.12.2023

Product code: 17717

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Tetrabutylammoniumhydroxid-Lösung R Reag. Ph. Eur., Kapitel 4.1.1

**1.2. Relevant identified uses of the substance or mixture and uses advised against****Use of the substance/mixture**

Reagents and laboratory chemicals  
Only for laboratory and analysis purposes.

**Uses advised against**

Do not use for private purposes (household).

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

Company name:	AnalytiChem GmbH	
	ACD	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
E-mail:	info@analytichem.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
E-mail:	produktsicherheit@analytichem.de	
Internet:	www.analytichem.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**

Acute Tox. 4; H302  
Skin Corr. 1B; H314  
Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

**2.2. Label elements****Regulation (EC) No 1272/2008**

**Hazard components for labelling**  
tetrabutylammonium hydroxide

**Signal word:** Danger

**Pictograms:**

**Hazard statements**

H302 Harmful if swallowed.

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H314 Causes severe skin burns and eye damage.

**Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
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.

**2.3. Other hazards**

No information available.

**SECTION 3: Composition/information on ingredients****3.2. Mixtures****Chemical characterization**

Mixtures in aqueous solution

**Relevant ingredients**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
2052-49-5	tetrabutylammonium hydroxide			30 - < 35 %
	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.

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

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
2052-49-5	218-147-6	tetrabutylammonium hydroxide	30 - < 35 %
	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.  
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**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

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Remove contact lenses, if present and easy to do. Continue rinsing.

**After ingestion**

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately. Do not allow a neutralisation agent to be drunk.

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

Skin corrosion/irritation

Dyspnoea

Cough

Gastrointestinal complaints

Headache

Vomiting

Risk of serious damage to eyes.

**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**

Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

no restriction

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

Hazardous combustion products

In case of fire may be liberated: Nitrogen oxides (NOx)

**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

Avoid contact with skin, eyes and clothes.

**Additional information**

Suppress gases/vapours/mists with water spray jet.

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****For non-emergency personnel**

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Consult an expert

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 to enter into surface water or drains.

**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).

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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.

**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**

Do not breathe vapour/aerosol.

Read label before use.

**Advice on protection against fire and explosion**

No special fire protection measures are necessary.

**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.

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

Draw up and observe skin protection programme. Wash hands before breaks and after work.

**7.2. Conditions for safe storage, including any incompatibilities****Requirements for storage rooms and vessels**

Keep cool. Protect from sunlight.

**Hints on joint storage**

national regulations

**Further information on storage conditions**

Keep container tightly closed.

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

Laboratory chemicals

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

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**DNEL/DMEL values**

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
2052-49-5	tetrabutylammonium hydroxide			
Worker DNEL, long-term		inhalation	systemic	4,93 mg/m³
Worker DNEL, long-term		dermal	systemic	1,4 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,87 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,5 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,5 mg/kg bw/day

**PNEC values**

CAS No	Substance	
Environmental compartment	Value	
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 vapour/aerosol.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Suitable eye 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 specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 741 Dermatril® L

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Recommended material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with occasional contact (splashes): > 480 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**

Wear suitable protective clothing.

**Respiratory protection**

Respiratory protection necessary at: aerosol or mist formation

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state:	Liquid	
Colour:	colourless - yellow	
Odour:	odourless	
Odour threshold:	No data available	
Melting point/freezing point:		No data available
Boiling point or initial boiling point and boiling range:		No data available
Flammability:		not applicable
Lower explosion limits:		No data available
Upper explosion limits:		No data available
Flash point:		No data available
Auto-ignition temperature:		No data available
Decomposition temperature:		No data available
pH-Value (at 20 °C):		14
Viscosity / kinematic:		No data available
Water solubility:		very soluble
Solubility in other solvents		
not determined		
Dissolution rate:		No data available
Partition coefficient n-octanol/water:		No data available
Dispersion stability:		No data available
Vapour pressure:		No data available
Vapour pressure:		No data available
Density (at 20 °C):		No data available
Relative density:		No data available
Bulk density:		No data available
Relative vapour density:		No data available
Particle characteristics:		No data available

**9.2. Other information****Information with regard to physical hazard classes**

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**Explosive properties**

No data available

**Sustained combustibility:**

No data available

**Self-ignition temperature**

Solid:

not applicable

Gas:

not applicable

**Oxidizing properties**

Not oxidising.

**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

**Viscosity / dynamic:**

No data available

**Flow time:**

No data available

**Further Information**

No data available

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No data available

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

Protect against: Radiant heat., Air

**10.3. Possibility of hazardous reactions**

Violent reaction with: Acid

**10.4. Conditions to avoid**

Radiant heat.

Air

**10.5. Incompatible materials**

Carbon dioxide (CO<sub>2</sub>)

**10.6. Hazardous decomposition products**

In case of fire may be liberated: Nitrogen oxides (NO<sub>x</sub>)

**Further information**

No data available

**SECTION 11: Toxicological information**

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

**Toxicokinetics, metabolism and distribution**

There are no data available on the mixture itself.

**Acute toxicity**

Harmful if swallowed.

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Mucous membrane irritation in the mouth, throat, esophagus and gastrointestinal tract.

Inhalation effect: Damage to the respiratory tract.

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**ATEmix calculated**

ATE (oral) 1500 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
2052-49-5	tetrabutylammonium hydroxide				
	oral	LD50 1000 mg/kg	Rat	Study report (2018)	OECD Guideline 423

**Irritation and corrosivity**

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/eye irritation: Causes serious eye damage.

Risk of serious damage to eyes.

**Sensitising effects**

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

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

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

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

**STOT-single exposure**

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

**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.

**Information on likely routes of exposure**

There are no data available on the mixture itself.

**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.

**Practical experience**

There are no data available on the mixture itself.

**11.2. Information on other hazards****Endocrine disrupting properties**

There are no data available on the mixture itself.

**Other information**

There are no data available on the mixture itself.

**Further information**

Skin corrosion/irritation

Dyspnoea

Cough

Gastrointestinal complaints

Headache

Vomiting

Risk of serious damage to eyes.

**SECTION 12: Ecological information**



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**12.1. Toxicity**

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

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
2052-49-5	tetrabutylammonium hydroxide					
	Acute fish toxicity	LC50 > 100 mg/l	96 h	Danio rerio	REACH Registration Dossier	other: as mentioned below
	Acute algae toxicity	ErC50 > 200 mg/l	72 h	Chlorella vulgaris	REACH Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50 16,5 mg/l	48 h	Daphnia magna	REACH Registration Dossier	OECD Guideline 202

**12.2. Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
2052-49-5	tetrabutylammonium hydroxide	1,518

**BCF**

CAS No	Chemical name	BCF	Species	Source
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**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Do not empty into drains.

Send to a physico-chemical treatment facility under observation of official regulations.

**Contaminated packaging**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

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## SECTION 14: Transport information

## Land transport (ADR/RID)

<b>14.1. UN number or ID number:</b>	UN 3267
<b>14.2. UN proper shipping name:</b>	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrabutylammonium hydroxide)
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	II
Hazard label:	8
Classification code:	C7
Special Provisions:	274
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2
Hazard No:	80
Tunnel restriction code:	E

## Inland waterways transport (ADN)

<b>14.1. UN number or ID number:</b>	UN 3267
<b>14.2. UN proper shipping name:</b>	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrabutylammonium hydroxide)
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	II
Hazard label:	8
Classification code:	C7
Special Provisions:	274
Limited quantity:	1 L
Excepted quantity:	E2

## Marine transport (IMDG)

<b>14.1. UN number or ID number:</b>	UN 3267
<b>14.2. UN proper shipping name:</b>	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrabutylammonium hydroxide)
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	II
Hazard label:	8
Special Provisions:	274
Limited quantity:	1 L
Excepted quantity:	E2
EmS:	F-A, S-B
Segregation group:	alkalis

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

<b>14.1. UN number or ID number:</b>	UN 3267
<b>14.2. UN proper shipping name:</b>	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrabutylammonium hydroxide)
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	II
Hazard label:	8
Special Provisions:	A3 A803
Limited quantity Passenger:	0.5 L
Passenger LQ:	Y840
Excepted quantity:	E2
IATA-packing instructions - Passenger:	851

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IATA-max. quantity - Passenger: 1 L  
IATA-packing instructions - Cargo: 855  
IATA-max. quantity - Cargo: 30 L

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

Warning: strongly corrosive.

**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**

Restrictions on use (REACH, annex XVII):

Entry 3

Information according to Directive  
2012/18/EU (SEVESO III):

Not subject to 2012/18/EU (SEVESO III)

**National regulatory information**

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D):

3 - highly hazardous to water

**SECTION 16: Other information****Changes**

This data sheet contains changes from the previous version in section(s): 9,11,12,13.

**Abbreviations and acronyms**

Acute Tox. 4: Acute toxicity, hazard category 4

Skin Corr. 1B: Skin corrosion, sub-category 1B

Eye Dam. 1: Serious eye damage, hazard category 1

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
Acute Tox. 4; H302	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method

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

H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.

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**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.

Provide appropriate information, instructions and training to users

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