

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

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

- **1.1 Product identifier**
- **Trade name:** Tetrabutylammonium bromide (TBAB)
- **Article number:** 194
- **CAS Number:**
1643-19-2
- **EC number:**
216-699-2
- **Registration number** 01-2119943706-31
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Phase transfer catalyst
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Möller Chemie GmbH & Co. KG
Bürgerkamp 1
D-48565 Steinfurt
Tel.: 02551/9340-0
Fax: 02551/9340-60
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**
Poison Control Center Mainz - 24 hour emergency service - Tel.: +49 (0) 6131/19240

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS08 health hazard

Repr. 2 H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS07



GHS08

- **Signal word** Warning
- **Hazard statements**
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: Tetrabutylammonium bromide (TBAB)

(Contd. of page 1)

H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

P330 Rinse mouth.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

The product does not contain any substance above the legal limits included on the list for endocrine disrupting properties established under Article 59(1) of Regulation (EC) No 1907/2006 or under Commission Delegated Regulation (EU) 2017/2100 or of Commission Regulation (EU) 2018/605 has endocrine disrupting properties.

· **Results of PBT and vPvB assessment**

· **PBT:**

The product does not contain any substances above legal limits that meet the criteria for PBT (persistent, bioaccumulative and toxic).

· **vPvB:**

The product does not contain any substances above legal limits that meet the criteria for vPvB (very persistent and very bioaccumulative).

SECTION 3: Composition/information on ingredients

· **3.1 Substances**

· **CAS No. Description**

1643-19-2 tetrabutylammonium bromide

· **Identification number(s)**

· **EC number:** 216-699-2

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:**

First aiders pay attention to self-protection.

Take affected persons out of danger area and lay down.

Remove contaminated clothing immediately.

· **After inhalation:**

Supply fresh air.

Consult a doctor if breathing difficulties persist.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

Call a doctor immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

EU

(Contd. on page 3)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: **Tetrabutylammonium bromide (TBAB)**

(Contd. of page 2)

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** CO₂, powder or water spray. Fight larger fire with alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Carbon monoxide, carbon dioxide
Nitrogen oxides (NO_x)
hydrogen bromide
Toxic gases/vapours
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear self-contained breathing apparatus and chemical protective suit.
Wear fully protective suit.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Do not breathe dust.
Ensure adequate ventilation
Avoid contact with eyes and skin
- **6.2 Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Do not allow to penetrate the ground/soil.
- **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Avoid dust formation.
Thoroughly clean the polluted objects and floor, taking into account the environmental regulations. Place into suitable closed containers for disposal.
- **6.4 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Avoid contact with skin, eyes and clothing.
Do not breathe dust.
- **Information about fire - and explosion protection:** Usual preventive fire protection measures.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in cool, dry conditions in tightly closed containers.
Protect against direct sunlight.
- **Information about storage in one common storage facility:**
Store away from oxidising agents.
Store separately from bases.
- **Further information about storage conditions:**
This product is hygroscopic.
Keep container tightly sealed.
Store only in the original container.
Recommended storage temperature: 15 - 25 °C
- **Storage class:** 11

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: **Tetrabutylammonium bromide (TBAB)**

(Contd. of page 3)

· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**· **Ingredients with limit values that require monitoring at the workplace:** Not required.· **DNELs**

1643-19-2 Tetra-N butylammonium romid

Workers:

Long -term, inhaled systemic: 2.96 mg/m³

Long -term, systemic: 0.84 mg/kg KG/d

Consumer:

Long -term, inhaled systemic: 0.522 mg/m³

Long -term, systemic: 0.3 mg/kg KG/d

Long -term, orally systemic: 0.3 mg/kg KG/d

· **PNECs**

1643-19-2 Tetra-n-butylammoniumromid

Süßwasser: 0.003 mg/l

Meerwasser: 0.0003 mg/l

Süßwassersediment: 0.0165 mg/kg

Meeressediment: 0.0017 mg/kg

Mikroorganismen in Kläranlagen: 0.186 mg/l

Boden: 0.0326 mg/kg

· **Additional information:** The lists valid during the making were used as basis.· **8.2 Exposure controls**· **Appropriate engineering controls** No further data; see item 7.· **Individual protection measures, such as personal protective equipment**· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Immediately remove all soiled and contaminated clothing

Do not breathe dust. Avoid dust formation.

· **Respiratory protection:**

In dust formation respiratory protection required.

Required for dust respirator

· **Hand protection**

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**

Nitrile rubber, NBR

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.

· **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.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: *Tetrabutylammonium bromide (TBAB)*

(Contd. of page 4)

· **Eye/face protection**

Tightly sealed goggles

· **Body protection:** *Protective work clothing*

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**· **General Information**

· Physical state	<i>Solid</i>
· Colour:	<i>White</i>
· Odour:	<i>Amine-like</i>
· Odour threshold:	<i>Not determined.</i>
· Melting point/freezing point:	<i>90-95 °C (OECD 102)</i>
· Boiling point or initial boiling point and boiling range	<i>144.3 °C (969.4 hPa OECD 103)</i>
· Flammability	<i>Product is not flammable.</i>
· Lower and upper explosion limit	
· Lower:	<i>Not determined.</i>
· Upper:	<i>Not determined.</i>
· Flash point:	<i>76 °C</i>
· Decomposition temperature:	<i>140 °C</i>
· pH (100 g/l) at 20 °C	<i>5 - 7 (OECD 122)</i>
· Viscosity:	
· Kinematic viscosity	<i>Not applicable.</i>
· Dynamic:	<i>Not applicable.</i>
· Solubility	
· water at 20 °C:	<i>600 g/l</i>
· Partition coefficient n-octanol/water (log value)	<i>0.84 log POW</i>
· Vapour pressure at 25 °C:	<i>0.00011 hPa</i>
· Density and/or relative density	
· Density at 25 °C:	<i>1.04 g/cm³</i>
· Relative density	<i>Not determined.</i>
· Vapour density	<i>Not applicable.</i>
· Particle characteristics	<i>Crystalline - contains no nanoparticles</i>

· **9.2 Other information**

· Appearance:	
· Form:	<i>Crystalline</i>
· Important information on protection of health and environment, and on safety.	
· Auto-ignition temperature:	<i>Not determined.</i>
· Explosive properties:	<i>Product does not present an explosion hazard.</i>
· Change in condition	
· Evaporation rate	<i>Not applicable.</i>

· **Information with regard to physical hazard classes**

· Explosives	<i>Void</i>
· Flammable gases	<i>Void</i>
· Aerosols	<i>Void</i>
· Oxidising gases	<i>Void</i>
· Gases under pressure	<i>Void</i>
· Flammable liquids	<i>Void</i>
· Flammable solids	<i>Void</i>
· Self-reactive substances and mixtures	<i>Void</i>

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: **Tetrabutylammonium bromide (TBAB)**

(Contd. of page 5)

· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

SECTION 10: Stability and reactivity

· 10.1 Reactivity

With proper handling and storage, no dangerous reactions occur.

With a correspondingly fine distribution, in a whispered condition, it is generally to be assumed from a dust explosion

· 10.2 Chemical stability

The product is stable if the regulations / instructions for storage and handling are observed.
hygroscopic substance.

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· 10.3 Possibility of hazardous reactions No dangerous reactions known.

· 10.4 Conditions to avoid

Avoid moisture.

Avoid dust formation.

High temperatures

· 10.5 Incompatible materials:

Strong oxidizing agents

Strong bases

· 10.6 Hazardous decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated become.

· Additional information: Product is hygroscopic.

SECTION 11: Toxicological information

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

· Acute toxicity

Harmful if swallowed.

· LD/LC50 values relevant for classification:

Dermal	LD50	>2.000 mg/kg (rat)
--------	------	--------------------

· Skin corrosion/irritation

Causes skin irritation.

· Serious eye damage/irritation

Causes serious eye irritation.

· Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

· 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

Suspected of damaging fertility. Suspected of damaging the unborn child.

· 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.

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: **Tetrabutylammonium bromide (TBAB)**

(Contd. of page 6)

- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:**
 - Acute fish toxicity:
LC50/96 H:> 100 mg/l freshwater fish
 - Acute algae toxicity:
ERC50/72 h: 204.7 mg/l fresh water algae
- **12.2 Persistence and degradability** biodegradable
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** The product is not considered to be persistent, bioaccumulating nor toxic (PBT).
- **vPvB:** The product is not considered to be persistent or very bioaccumulative (vPvB).
- **12.6 Endocrine disrupting properties** For information on endocrine disrupting properties see section 11.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**
 - Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
 - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 - Danger to drinking water if even extremely small quantities leak into the ground.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
 - Disposal according to local regulations.
 - Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:**
 - Disposal must be made according to official regulations.
 - Contaminated packaging should be treated like the substance.

SECTION 14: Transport information

- | | |
|--|-----------------|
| · 14.1 UN number or ID number | |
| · ADR, ADN, IMDG, IATA | Void |
| · 14.2 UN proper shipping name | |
| · ADR, ADN, IMDG, IATA | Void |
| · 14.3 Transport hazard class(es) | |
| · ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · 14.4 Packing group | |
| · ADR, IMDG, IATA | Void |
| · 14.5 Environmental hazards: | |
| · Marine pollutant: | No |
| · 14.6 Special precautions for user | Not applicable. |

(Contd. on page 8)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

Trade name: Tetrabutylammonium bromide (TBAB)

(Contd. of page 7)

- | | |
|---|-----------------|
| · 14.7 Maritime transport in bulk according to IMO instruments | Not applicable. |
| · UN "Model Regulation": | Void |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 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:** Product safety department
- **Contact:** Mrs. Steyer
- **Abbreviations and acronyms:**
ADR: Accord relatif au transport international 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 Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

EU