

Safety Data Sheet

according to UK REACH Regulation

TBTU

Revision date: 03.08.2018

Product code: RL-1060

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

TBTU

Further trade names

2-(1H-Benzotriazole-1-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate

REACH Registration Number: 01-2119892999-04-XXXX

CAS No: 125700-67-6

EC No: 423-040-4

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

Laboratory chemical. Manufacture of the substance

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name:	Iris Biotech GmbH	
Street:	Adalbert-Zoellner-Straße 1	
Place:	D-95615 Marktredwitz, Germany	
Post-office box:	568	
	D-95605 Marktredwitz, Germany	
Telephone:	+49 9231 97121 0	Telefax: +49 9231 97121 99
e-mail:	info@iris-biotech.de	
Contact person:	Compliance Department	Telephone: +49 9231 97121 0
e-mail:	sds@iris-biotech.de	
Internet:	www.iris-biotech.de	
Responsible Department:	Only available during office hours.	

1.4. Emergency telephone number: +49 (0)89 19240 (POISON CENTER Munich: 24 h)**Further Information**

Emergency telephone: 24 h

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****GB CLP Regulation**

Hazard categories:

Flammable solid: Flam. Sol. 1

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory or skin sensitisation: Skin Sens. 1

Specific target organ toxicity - single exposure: STOT SE 3

Hazard Statements:

Flammable solid.

Causes skin irritation.

May cause respiratory irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

2.2. Label elements**GB CLP Regulation**

Signal word: Warning

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Pictograms:

Hazard statements

H228	Flammable solid.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container to an approved disposal site.

Additional advice on labelling

Warning - substance not yet tested completely.

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients
3.1. Substances
Chemical characterization

2-(1H-Benzotriazole-1-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate

Sum formula:	C ₁₁ H ₁₆ N ₅ O ⁺ BF ₄ ⁻
Molecular weight:	234,28*86,80 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
125700-67-6	TBTU			<= 100 %
	423-040-4		01-2119892999-04-XXXX	
	Flam. Sol. 1, Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, STOT SE 3; H228 H315 H319 H317 H335			

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

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SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice. Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with skin

Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary. After contact with skin, wash immediately with plenty of water and soap. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with eyes

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

After ingestion

Rinse mouth immediately and drink plenty of water. Rinse mouth thoroughly with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps. In all cases of doubt, or when symptoms persist, seek medical advice.

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

No information available.

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

Treat symptomatically.

The toxicity of the boric acid to humans has been reported that ingestion or absorption Nausea, vomiting, diarrhea, gastrointestinal spasms, erythematous lesions of the skin and mucous membranes can cause. Other symptoms include circulatory collapse, tachycardia, cyanosis, delirium, Convulsions and coma. According to reports, the deaths occurred in infants less than 5 g and Adults g at 5-20.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Water spray jet, Carbon dioxide (CO₂), Foam, Extinguishing powder. Water spray. alcohol resistant foam. Dry extinguishing powder. Carbon dioxide (CO₂). Sand.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Flammable. Vapours can form explosive mixtures with air. Thermal decomposition can lead to the escape of irritating gases and vapours.

In case of fire may be liberated:

Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrogen oxides (NO_x). Fluorhydric acid. Borane/boron oxides.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately.

Do not allow entering drains or surface water. Usual measures for fire prevention.

Use water spray jet to protect personnel and to cool endangered containers.

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SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General measures**

Remove all sources of ignition. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety.

Provide adequate ventilation. Avoid dust formation. Remove all sources of ignition.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear personal protection equipment.

In case of fire: Evacuate area.

Evacuate the danger area, observe emergency procedures, consult an expert.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Danger of explosion Do not allow to enter into soil/subsoil.

Do not allow to enter into surface water or drains.

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

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal. Take up mechanically, placing in appropriate containers for disposal. Avoid dust formation.

Use only antistatically equipped (spark-free) tools.

Take precautionary measures against static discharges.

Wear anti-static footwear and clothing

Clear contaminated areas thoroughly.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

Treat the recovered material as prescribed in the section on waste disposal.

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation. Do not breathe dust. Provide adequate ventilation. Avoid dust formation.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Keep away from sources of ignition - No smoking.

Use only antistatically equipped (spark-free) tools. Take precautionary measures against static discharges.

Wear anti-static footwear and clothing

Avoid contact with skin, eyes and clothes.

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. Usual measures for fire prevention.

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. Avoid contact with skin, eyes and clothes. Provide adequate ventilation. When using do not eat, drink or smoke. Wash hands before breaks and after work.

Further information on handling

Warning: Hazardous decomposition products: Fluorhydric acid.

Please note the expiry date!

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Handle and open container with care.

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

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed in a cool, well-ventilated place.

Handle and store contents under inert gas. Protect from moisture.
storage temperature: +2°C - +8°C

Hints on joint storage

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

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Additional advice on limit values**

To date, no national critical limit values exist.

8.2. Exposure controls**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe dust. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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

Suitable eye protection: goggles. Wear eye/face protection.

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. Wear suitable gloves.

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.

Full contact:

Glove material: nitrile rubber, glove thickness: 0.11 mm, Breakthrough time:> 480 min

Splash contact:

Glove material: nitrile rubber, glove thickness: 0.11 mm, Breakthrough time:> 480 min

Skin protection

Wear suitable protective clothing. Wear suitable protective clothing.

Wear anti-static footwear and clothing

Respiratory protection

In case of inadequate ventilation wear respiratory protection. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

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Environmental exposure controls

Discharge into the environment must be avoided.

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

Physical state:	solid
Colour:	whitish / light brown
Odour:	not determined

Test method
Changes in the physical state

Melting point/freezing point:	205 °C	decomposition
Boiling point or initial boiling point and boiling range:	No data available	
Sublimation point:	No data available	
Softening point:	No data available	
Pour point:	No data available	
Flash point:	not applicable	

Flammability

Solid/liquid:	Combustible substance, Category 1 °C
Gas:	not applicable

Explosive properties

This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment).
 Not classified as explosive.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	No data available

Self-ignition temperature

Solid:	not determined
Gas:	not applicable

Decomposition temperature:	205 °C
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Oxidizing properties

Not oxidising.

pH-Value:	not determined
Viscosity / dynamic:	not applicable
Viscosity / kinematic:	not applicable
Flow time:	not applicable

Water solubility: (at 20 °C)	3 g/L
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Solubility in other solvents

not determined

Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Density:	not determined
Bulk density:	not determined
Relative vapour density:	not determined

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

Sustaining combustion:

Sustaining combustion

Other safety characteristics

Solid content:

not determined

Evaporation rate:

not determined

Further Information**SECTION 10: Stability and reactivity****10.1. Reactivity**

Flammable.

Dust explosive. This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment).

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Protect from moisture.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

10.5. Incompatible materials

Oxidizing agents, strong.

Strong alkali

10.6. Hazardous decomposition products

Thermal decomposition can lead to the escape of irritating gases and vapours.

In case of fire may be liberated: Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrogen oxides (NO_x).

Fluorhydric acid. Borane/boron oxides.

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in GB CLP Regulation****Toxicokinetics, metabolism and distribution**

No data available

Acute toxicity

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

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Sensitising effects

May cause an allergic skin reaction. (TBTU)

Carcinogenic/mutagenic/toxic effects for reproduction

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

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

STOT-single exposure

May cause respiratory irritation. (TBTU)

STOT-repeated exposure

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

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Aspiration hazard

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

Specific effects in experiment on an animal

No data available

Additional information on tests

Classification according to Regulation (EC) No 1272/2008 [CLP]: health hazard properties

Practical experience

No data available

11.2. Information on other hazards**Other information**Warning: Hazardous decomposition products: Fluorhydric acid.
Please note the expiry date!**Further information**

RTECS: No data available

Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia.

The toxicity of the boric acid to humans has been reported that ingestion or absorption Nausea, vomiting, diarrhea, gastrointestinal spasms, erythematous lesions of the skin and mucous membranes can cause. Other symptoms include circulatory collapse, tachycardia, cyanosis, delirium, Convulsions and coma. According to reports, the deaths occurred in infants less than 5 g and Adults g at 5-20.

Warning - substance not yet tested completely.

SECTION 12: Ecological information**12.1. Toxicity**

No data available

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.7. Other adverse effects

No information available.

Further informationDo not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.
Discharge into the environment must be avoided.

Warning - substance not yet tested completely.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**Dispose of waste according to applicable legislation. Dispose of waste according to applicable legislation.
Consult the appropriate local waste disposal expert about waste disposal.

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Handle contaminated packages in the same way as the substance itself.

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number:	UN 1325
14.2. UN proper shipping name:	FLAMMABLE SOLID, ORGANIC, N.O.S. (2-(1H-Benzotriazol-1-yl)-1,1,3,3-tetramethyluronoium tetrafluoroborate)
14.3. Transport hazard class(es):	4.1
14.4. Packing group:	II
Hazard label:	4.1



Classification code:	F1
Special Provisions:	274
Limited quantity:	1 kg
Transport category:	2
Hazard No:	40
Tunnel restriction code:	E

Other applicable information (land transport)

E2

Inland waterways transport (ADN)

14.1. UN number:	UN 1325
14.2. UN proper shipping name:	FLAMMABLE SOLID, ORGANIC, N.O.S. (2-(1H-Benzotriazol-1-yl)-1,1,3,3-tetramethyluronoium tetrafluoroborate)
14.3. Transport hazard class(es):	4.1
14.4. Packing group:	II
Hazard label:	4.1



Classification code:	F1
Special Provisions:	274
Limited quantity:	1 kg

Other applicable information (inland waterways transport)

E2

Marine transport (IMDG)

14.1. UN number:	UN 1325
14.2. UN proper shipping name:	FLAMMABLE SOLID, ORGANIC, N.O.S. (2-(1H-Benzotriazol-1-yl)-1,1,3,3-tetramethyluronoium tetrafluoroborate)
14.3. Transport hazard class(es):	4.1
14.4. Packing group:	II
Hazard label:	4.1

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Marine pollutant:	NO
Special Provisions:	274, 915
Limited quantity:	1 kg
EmS:	F-A, S-G

Other applicable information (marine transport)

E2

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	UN 1325
14.2. UN proper shipping name:	FLAMMABLE SOLID, ORGANIC, N.O.S. (2-(1H-Benzotriazol-1-yl)-1,1,3,3-tetramethyluronoium tetrafluoroborate)
14.3. Transport hazard class(es):	4.1
14.4. Packing group:	II
Hazard label:	4.1



Special Provisions:	A3 A803
Limited quantity Passenger:	5 kg
IATA-packing instructions - Passenger:	445
IATA-max. quantity - Passenger:	15 kg
IATA-packing instructions - Cargo:	448
IATA-max. quantity - Cargo:	50 kg

Other applicable information (air transport)

E2

: Y441

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: flammable solids.

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

Information according to 2012/18/EU (SEVESO III):	Not subject to 2012/18/EU (SEVESO III)
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Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

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
Skin resorption/Sensitization:	Causes allergic hypersensitivity reactions.

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15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information**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%

Relevant H and EUH statements (number and full text)

H228	Flammable solid.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Further Information

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. Warning - substance not yet tested completely.

The product is intended for research, analysis and scientific education.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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 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.