

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TSTU**

Revision date: 06.05.2021

Product code: RL-1067

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

TSTU

**Further trade names**

N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate  
2-Succinimido-1,1,3,3-tetramethyluronium tetrafluoroborate  
O-(N-Succinimidyl)-N,N,N',N'-tetramethyluronium tetrafluoroborate  
2-Succinimido-1,1,3,3-tetramethyluronium tetrafluoroborate  
N,N,N',N'-Tetramethyl-O-(N-succinimidyl)uronium tetrafluoroborate  
O-(N-Succinimidyl)-1,1,3,3-tetramethyluronium tetrafluoroborate

Substance name: N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU)  
Product group: Zulieferprodukt  
CAS No: 105832-38-0  
EC No: 629-651-4

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

Scientific research and development  
Laboratory chemical. Manufacture of the substance

**Uses advised against**

Do not use for private purposes (household).  
Restrictions on use: Pharmaceutical substance

**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)

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

Hazard categories:  
Acute toxicity: Acute Tox. 4  
Skin corrosion/irritation: Skin Corr. 1C  
Serious eye damage/eye irritation: Eye Dam. 1  
Specific target organ toxicity - single exposure: STOT SE 3  
Hazard Statements:  
Harmful if swallowed.  
Causes severe skin burns and eye damage.  
Causes serious eye damage.  
May cause respiratory irritation.

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**2.2. Label elements****Regulation (EC) No. 1272/2008****Hazard components for labelling**

N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU)

**Signal word:** Danger**Pictograms:****Hazard statements**

H302 Harmful if swallowed.  
H335 May cause respiratory irritation.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.

**Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P310 Immediately call a POISON CENTER/doctor.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P363 Wash contaminated clothing before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P310 Immediately call a POISON CENTER/doctor.  
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.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container to an approved disposal site.

**Additional advice on labelling**

Warning - substance not yet tested completely.

**2.3. Other hazards**

Product is not dust explosive in its original delivery form. The addition of particulate matter, however, results in a dust explosion risk.  
No information available.

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

N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate

Sum formula: C<sub>9</sub>H<sub>16</sub>N<sub>3</sub>O<sub>3</sub>\*BF<sub>4</sub>  
Molecular weight: 214,24\*86,80 g/mol

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**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
105832-38-0	N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU)			100 %
	629-651-4			
	Acute Tox. 4, Skin Corr. 1C, Eye Dam. 1, STOT SE 3; H302 H314 H318 H335			

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		
105832-38-0	629-651-4	N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU)	100 %
	inhalation: Data lacking (gases); dermal: Data lacking; oral: Data lacking		

**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).

In all cases of doubt, or when symptoms persist, seek medical advice.

**After inhalation**

Provide fresh air. Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration.

**After contact with skin**

Wash with plenty of water. Take off contaminated clothing and wash it before reuse. After contact with skin, wash immediately with plenty of water and soap.

**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.

**After ingestion**

Rinse mouth thoroughly with water. 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**

Refer to chapter 11.

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

Treat symptomatically.

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

Co-ordinate fire-fighting measures to the fire surroundings. Water spray. alcohol resistant foam. Dry extinguishing powder. Sand.

**Unsuitable extinguishing media**

High power water jet.

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

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

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In case of fire may be liberated: Carbon dioxide (CO<sub>2</sub>). Carbon monoxide (CO). Nitrogen oxides (NO<sub>x</sub>). Borane/boron oxides. Fluorhydric acid.

**5.3. Advice for firefighters**

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

**Additional information**

Usual measures for fire prevention.

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

Provide adequate ventilation. Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid contact with skin, eyes and clothes.

Wear personal protection equipment.

In case of fire: Evacuate area.

**6.2. Environmental precautions**

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. Take up mechanically, placing in appropriate containers for disposal. Avoid dust formation.

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**

Provide adequate ventilation.

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

Avoid contact with skin, eyes and clothes.

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**Advice on general occupational hygiene**

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

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

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**

No special measures are necessary.

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

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

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**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**

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**

Wear eye/face protection.

Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**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.

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

**Skin protection**

Use of protective 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.

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**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:	white/ whitish
Odour:	No data available
Odour threshold:	not determined

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**Changes in the physical state**

Melting point/freezing point:	196 - 205 °C
Boiling point or initial boiling point and boiling range:	not determined
Sublimation point:	not determined
Softening point:	not determined
:	No data available
Flash point:	No data available

**Flammability**

Solid/liquid:	not determined
Gas:	not applicable

**Explosive properties**

Product is not dust explosive in its original delivery form. The addition of particulate matter, however, results in a dust explosion risk.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	not determined

**Self-ignition temperature**

Solid:	not determined
Gas:	not applicable

Decomposition temperature:	not determined
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pH-Value:	No data available
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Viscosity / dynamic:	not applicable
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Viscosity / kinematic:	not applicable
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Flow time:	not applicable
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Water solubility:	No data available
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**Solubility in other solvents**

No data available

Dissolution rate:	not determined
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Partition coefficient n-octanol/water:	not determined
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Vapour pressure:	not determined
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Density:	not determined
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Bulk density:	not determined
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Relative vapour density:	not determined
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Particle characteristics:	not determined
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**9.2. Other information****Information with regard to physical hazard classes**

Sustaining combustion:	No data available
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Oxidizing properties	No data available
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**Other safety characteristics**

Solvent separation test:	No data available
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**Further Information****SECTION 10: Stability and reactivity**

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#### 10.1. Reactivity

No data available

#### 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.

Avoid dust formation.

#### 10.5. Incompatible materials

Oxidizing agents, strong.

Strong acid

Bases, strong.

Water

#### 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 (CO<sub>2</sub>). Carbon monoxide (CO). Nitrogen oxides (NO<sub>x</sub>).

Borane/boron oxides. Fluorhydric acid.

#### Further information

In case of fire: See chapter 5.

### SECTION 11: Toxicological information

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

##### Toxicokinetics, metabolism and distribution

No data available

##### Acute toxicity

Harmful if swallowed.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
105832-38-0	N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU)				
	oral	Data lacking			
	dermal	Data lacking			
	inhalation	Data lacking			

##### Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

##### 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.

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. (N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU))

##### 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**
**Endocrine disrupting properties**

No data available

**Other information**

No data available

**Further information**

RTECS: No data available

Caution! To the best of our knowledge the toxicological properties of this material have not been thoroughly investigated.

Handle in accordance with good industrial hygiene and safety practice.

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

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

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
105832-38-0	N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU)					
	Aquatic toxicity	Data lacking				

**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.

**12.6. Endocrine disrupting properties**

No data available

**12.7. Other adverse effects**

Warning - substance not yet tested completely.

**Further information**

Avoid release to the environment.

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

Dispose of waste according to applicable legislation.



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Consult the appropriate local waste disposal expert about waste disposal.  
Handle contaminated packages in the same way as the substance itself.


**Contaminated packaging**

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


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

<b>14.1. UN number or ID number:</b>	UN 1759
<b>14.2. UN proper shipping name:</b>	CORROSIVE SOLID, N.O.S. (N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU))
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	III
Hazard label:	8
	
Classification code:	C10
Special Provisions:	274
Limited quantity:	5 kg
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

**Inland waterways transport (ADN)**

<b>14.1. UN number or ID number:</b>	UN 1759
<b>14.2. UN proper shipping name:</b>	CORROSIVE SOLID, N.O.S. (N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU))
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	III
Hazard label:	8
	
Classification code:	C10
Special Provisions:	274
Limited quantity:	5 kg
Excepted quantity:	E1

**Marine transport (IMDG)**

<b>14.1. UN number or ID number:</b>	UN 1759
<b>14.2. UN proper shipping name:</b>	CORROSIVE SOLID, N.O.S. (N,N,N',N'-Tetramethyl-O-(succinimidyl)uronium tetrafluoroborate (TSTU))
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	III
Hazard label:	8
	
Special Provisions:	223, 274

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Limited quantity: 5 kg  
Excepted quantity: E1  
EmS: F-A, S-B

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

**14.1. UN number or ID number:** UN 1759  
**14.2. UN proper shipping name:** CORROSIVE SOLID, N.O.S. (N,N,N',N'-Tetramethyl-O-(succinimidy)l)uronium tetrafluoroborate (TSTU)  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
Hazard label: 8



Special Provisions: A3 A803  
Limited quantity Passenger: 5 kg  
Passenger LQ: Y845  
Excepted quantity: E1  
IATA-packing instructions - Passenger: 860  
IATA-max. quantity - Passenger: 25 kg  
IATA-packing instructions - Cargo: 864  
IATA-max. quantity - Cargo: 100 kg

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

No data available

**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)

**Additional information**

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

**National regulatory information**

Water hazard class (D): 3 - highly hazardous to water

**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

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ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service  
LC50: Lethal concentration, 50%  
LD50: Lethal dose, 50%  
CLP: Classification, labelling and Packaging  
REACH: Registration, Evaluation and Authorization of Chemicals  
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals  
UN: United Nations  
CAS: Chemical Abstracts Service  
DNEL: Derived No Effect Level  
DMEL: Derived Minimal Effect Level  
PNEC: Predicted No Effect Concentration  
ATE: Acute toxicity estimate  
LL50: Lethal loading, 50%  
EL50: Effect loading, 50%  
EC50: Effective Concentration 50%  
ErC50: Effective Concentration 50%, growth rate  
NOEC: No Observed Effect Concentration  
BCF: Bio-concentration factor  
PBT: persistent, bioaccumulative, toxic  
vPvB: very persistent, very bioaccumulative  
RID: Regulations concerning the international carriage of dangerous goods by rail  
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation  
intérieures)  
EmS: Emergency Schedules  
MFAG: Medical First Aid Guide  
IATA: International Air Transport Association  
ICAO: International Civil Aviation Organization  
MARPOL: International Convention for the Prevention of Marine Pollution from Ships  
IBC: Intermediate Bulk Container  
SVHC: Substance of Very High Concern  
For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

**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.
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.