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

1.1. Product identifier

Product form: Substance
Physical state: Solid
Substance name: TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95%
Product code: SNT8140
Formula: C13H27F3O3SSn
Synonyms: TRIBUTYLTIN TRIFLATER; TRIBUTYLSTANNYLTRIFLUOROMETHANESULFONATE; METHANESULFONIC ACID, 1,1,1-TRIFLUORO-, TRIBUTYLSTANNYL ESTER
Chemical family: ORGANOTIN

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

1.2.1. Relevant identified uses

Use of the substance/mixture: Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

GELEST INC.
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@gelestde.com - www.gelestde.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Acute toxicity (oral), Category 3: H301
Skin corrosion/irritation, Category 2: H315
Serious eye damage/eye irritation, Category 2: H319
Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP): GHS06

Signal word (CLP): Danger
Hazard statements (CLP): H301 - Toxic if swallowed. H315 - Causes skin irritation.
Precautionary statements (CLP)

H319 - Causes serious eye irritation.

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

P264 - Wash hands thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER.

P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

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

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-constituent</td>
<td>TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95%</td>
<td>68725-14-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tributyltin trifluoromethanesulfonate</td>
<td>(CAS-No.) 68725-14-4</td>
<td>95 - 100</td>
<td>Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315 Eye Irrit. 2, H319</td>
</tr>
<tr>
<td>Other Organotins</td>
<td></td>
<td>0 - 5</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation

Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact

Wash with plenty of water/…. Get immediate medical advice/attention.

First-aid measures after eye contact

Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion

Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER/doctor.

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

Symptoms/effects after inhalation

May cause irritation to the respiratory tract.

Symptoms/effects after skin contact

Causes skin irritation. Organotins may be absorbed through the skin.

Symptoms/effects after eye contact

Causes serious eye irritation.

Symptoms/effects after ingestion

Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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

Note to physician: Application of corticosteroid creams has been effective in treating severe skin irritation. If blisters develop, they may require abrasion to promote healing.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media


Unsuitable extinguishing media

Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard

Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions

Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95%
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Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.
Hygiene measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Keep out of reach of children. Store locked up.
Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Other Organotins</th>
<th>ACGIH TWA (mg/m³)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy - Portugal - USA ACGIH</td>
<td>0.1 mg/m³ as tin</td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>0.1 mg/m³ as tin</td>
<td></td>
</tr>
</tbody>
</table>

Tributyltin trifluoromethanesulfonate (68725-14-4)

<table>
<thead>
<tr>
<th>Other Organotins</th>
<th>ACGIH TWA (mg/m³)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy - Portugal - USA ACGIH</td>
<td>0.1 mg/m³ as tin</td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>0.1 mg/m³ as tin</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls:
Provide local exhaust or general room ventilation. Handle in an enclosing hood with exhaust ventilation. Insure that exhaust is vented properly-caustic scrubbing is recommended.

Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95%
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Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Solid.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>439.11 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Off-white to amber.</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>No additional information available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>41 - 43 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>156 - 157 °C @ 0.08 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 110 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 0.01 mm Hg @ 25°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water. Water: 9 mg/l</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Direct sunlight causes slow degradation to an inorganic tin salt.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Acids. Oxidizing agent.

10.6. Hazardous decomposition products


SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed.
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ATE CLP (oral) 100 mg/kg bodyweight

TrIBUTYL(TIN(TRIFLUOROMETHANESULFONATE)) TIN, 95% (68725-14-4)
ATE CLP (oral) 100 mg/kg bodyweight

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: Causes skin irritation. Organotins may be absorbed through the skin.
Symptoms/effects after eye contact: Causes serious eye irritation.
Symptoms/effects after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: This material is acutely toxic to aquatic life if released to open waters. This material is toxic to wildlife and fish.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Sewage disposal recommendations: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations: Dispose of solid materials or residues at a licensed site. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : 3146
UN-No. (IMDG) : 3146
UN-No. (IATA) : 3146
UN-No. (ADN) : 3146
UN-No. (RID) : 3146
### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | ORGANOTIN COMPOUND, SOLID, N.O.S. |
| Proper Shipping Name (IMDG) | ORGANOTIN COMPOUND, SOLID, N.O.S. |
| Proper Shipping Name (IATA) | Organotin compound, solid, n.o.s. |
| Proper Shipping Name (ADN) | ORGANOTIN COMPOUND, SOLID, N.O.S. |
| Proper Shipping Name (RID) | ORGANOTIN COMPOUND, SOLID, N.O.S. |
| Transport document description (ADR) | UN 3146 ORGANOTIN COMPOUND, SOLID, N.O.S. (TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN), 6.1, II, (D/E) |
| Transport document description (IMDG) | UN 3146 ORGANOTIN COMPOUND, SOLID, N.O.S. (TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN), 6.1, II, MARINE POLLUTANT |
| Transport document description (IATA) | UN 3146 Organotin compound, solid, n.o.s. (TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN), 6.1, II |
| Transport document description (ADN) | UN 3146 ORGANOTIN COMPOUND, SOLID, N.O.S. (TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN), 6.1, II |
| Transport document description (RID) | UN 3146 ORGANOTIN COMPOUND, SOLID, N.O.S. (TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN), 6.1, II |

### 14.3. Transport hazard class(es)

#### ADR

| Transport hazard class(es) (ADR) | 6.1 |
| Danger labels (ADR) | 6.1 |

#### IMDG

| Transport hazard class(es) (IMDG) | 6.1 |
| Danger labels (IMDG) | 6.1 |

#### IATA

| Transport hazard class(es) (IATA) | 6.1 |
| Hazard labels (IATA) | 6.1 |

#### ADN

| Transport hazard class(es) (ADN) | 6.1 |
| Danger labels (ADN) | 6.1 |

#### RID

| Transport hazard class(es) (RID) | 6.1 |
| Danger labels (RID) | 6.1 |
**14.4. Packing group**

<table>
<thead>
<tr>
<th>Packing group (ADR)</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group (IMDG)</td>
<td>II</td>
</tr>
<tr>
<td>Packing group (IATA)</td>
<td>II</td>
</tr>
<tr>
<td>Packing group (ADN)</td>
<td>II</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>II</td>
</tr>
</tbody>
</table>

**14.5. Environmental hazards**

| Dangerous for the environment | No |
| Marine pollutant | Yes (IMDG only) |
| Other information | No supplementary information available |

**14.6. Special precautions for user**

- **Overland transport**
  - Classification code (ADR): T3
  - Special provisions (ADR): 43, 274
  - Limited quantities (ADR): 500g
  - Excepted quantities (ADR): E4
  - Packing instructions (ADR): P002, IBC08
  - Special packing provisions (ADR): B3
  - Mixed packing provisions (ADR): MP10
  - Portable tank and bulk container instructions (ADR): T3
  - Portable tank and bulk container special provisions (ADR): TP33
  - Tank code (ADR): SGAH, L4BH
  - Tank special provisions (ADR): TU15, TE19
  - Vehicle for tank carriage: AT
  - Transport category (ADR): 2
  - Special provisions for carriage - Packages (ADR): V11
  - Special provisions for carriage - Loading, unloading and handling (ADR): CV13, CV28
  - Special provisions for carriage - Operation (ADR): S9, S19
  - Hazard identification number (Kemler No.): 60
  - Orange plates: 60 3146
  - Tunnel restriction code (ADR): D/E
  - EAC code: 2X

- **Transport by sea**
  - Special provisions (IMDG): 43, 274
  - Limited quantities (IMDG): 500 g
  - Excepted quantities (IMDG): E4
  - Packing instructions (IMDG): P002
  - IBC packing instructions (IMDG): IBC08
  - IBC special provisions (IMDG): B2, B4
  - Tank instructions (IMDG): T3
  - Tank special provisions (IMDG): TP33
  - EmS-No. (Fire): F-A
  - EmS-No. (Spillage): S-A
  - Stowage category (IMDG): A
TRI-\textit{n}-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95%
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<table>
<thead>
<tr>
<th>Stowage and handling (IMDG)</th>
<th>SW2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties and observations (IMDG)</td>
<td>A wide variety of toxic solids. Toxic if swallowed, by skin contact or by inhalation.</td>
</tr>
</tbody>
</table>

- **Air transport**
  - PCA Excepted quantities (IATA): E4
  - PCA Limited quantities (IATA): Y644
  - PCA limited quantity max net quantity (IATA): 1kg
  - PCA packing instructions (IATA): 669
  - PCA max net quantity (IATA): 25kg
  - CAO packing instructions (IATA): 676
  - CAO max net quantity (IATA): 100kg
  - Special provisions (IATA): A3, A4, A6
  - ERG code (IATA): 6L

- **Inland waterway transport**
  - Classification code (ADN): T3
  - Special provisions (ADN): 43, 274, 802
  - Limited quantities (ADN): 500 g
  - Excepted quantities (ADN): E4
  - Equipment required (ADN): PP, EP
  - Number of blue cones/lights (ADN): 2

- **Rail transport**
  - Classification code (RID): T3
  - Special provisions (RID): 43, 274
  - Limited quantities (RID): 500g
  - Excepted quantities (RID): E4
  - Packing instructions (RID): P002, IBC08
  - Special packing provisions (RID): B4
  - Mixed packing provisions (RID): MP10
  - Portable tank and bulk container instructions (RID): T3
  - Portable tank and bulk container special provisions (RID): TP33
  - Tank codes for RID tanks (RID): SGAH, L4BH
  - Special provisions for RID tanks (RID): TU15
  - Transport category (RID): 2
  - Special provisions for carriage – Packages (RID): W11
  - Special provisions for carriage - Loading, unloading and handling (RID): CW13, CW28, CW31
  - Coils express (express parcels) (RID): CE9
  - Hazard identification number (RID): 60

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

**SECTION 15: Regulatory information**

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
TRI-\textit{n}-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95% is not on the REACH Candidate List
TRI-\textit{n}-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95% is not on the REACH Annex XIV List
TRI-\textit{n}-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95% is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

15.1.2. National regulations

Germany
TRI-n-BUTYL(TRIFLUOROMETHANESULFONATE)TIN, 95%
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Netherlands
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 3 (Oral) Acute toxicity (oral), Category 3
Eye Irrit. 2 Serious eye damage/eye irritation, Category 2
Skin Irrit. 2 Skin corrosion/Irritation, Category 2
H301 Toxic if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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