1.1. Product identifier

TI-Prime

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

Use of the substance/mixture
- electronic industry
- Intermediate (precursor)

1.3. Details of the supplier of the safety data sheet

Company name: MicroChemicals GmbH
Street: Nicolaus-Otto-Str. 39
Place: D-89079 Ulm
Telephone: +49 (0) 731 977343 0
Telefax: +49 (0) 731 977343 29
E-mail: info@microchemicals.com
Contact person: Dr. Christian Koch
E-mail: msds@microchemicals.com
Internet: www.microchemicals.com

1.4. Emergency telephone number:
+49 (0) 731 977343 0

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
- Flammable liquid: Flam. Liq. 3
- Acute toxicity: Acute Tox. 4

Hazard Statements:
- Flammable liquid and vapour.
- Harmful if inhaled.

2.2. Label elements

Regulation (EC) No. 1272/2008

Signal word: Warning

Pictograms:

Hazard statements
- H226 Flammable liquid and vapour.
- H332 Harmful if inhaled.

Precautionary statements
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P370+P378 In case of fire: Use Dry extinguishing powder to extinguish.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of contents/container to disposal in accordance with government regulations.
Special labelling of certain mixtures
Restricted to professional users.

2.3. Other hazards
No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
<th>EC No</th>
<th>Index No</th>
<th>REACH No</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>95 - &lt;= 100 %</td>
<td>203-603-9</td>
<td>607-195-00-7</td>
<td>01-2119475791-29</td>
<td>Flam. Liq. 3; H226</td>
</tr>
<tr>
<td>70657-70-4</td>
<td>2-methoxypropyl acetate</td>
<td>&lt; 0,3 %</td>
<td>274-724-2</td>
<td>607-251-00-0</td>
<td></td>
<td>Flam. Liq. 3, Repr. 1B, STOT SE 3; H226 H360D *** H335</td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information
Remove contaminated, saturated clothing immediately. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Self-protection of the first aider

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. Call a physician immediately.

After contact with skin
After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse.

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
Do NOT induce vomiting. Call a physician immediately. Let water be drunken in little sips (dilution effect).

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.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2), alcohol resistant foam, Extinguishing powder.

5.2. Special hazards arising from the substance or mixture
Flammable. Vapours can form explosive mixtures with air. Carbon monoxide Carbon dioxide Nitrogen oxides
5.3. Advice for firefighters
Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Additional information
Use water spray jet to protect personnel and to cool endangered containers. 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
Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions
Do not allow uncontrolled discharge of product into the environment. Danger of explosion

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Collect in closed and suitable containers for disposal. Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal. Clean contaminated articles and floor according to the environmental legislation. Never return spills in original containers for re-use. Clean contaminated articles and floor according to the environmental legislation.

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
If handled uncovered, arrangements with local exhaust ventilation have to be used. Provide adequate ventilation as well as local exhaustion at critical locations. Do not breathe gas/fumes/vapour/spray.

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.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep container tightly closed. Provide adequate ventilation as well as local exhaustion at critical locations. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect against: Light

Advice on storage compatibility
Do not store together with: Oxidising agent. Pyrophoric or self-heating substances. Food and feedingstuffs.

Further information on storage conditions
Recommended storage temperature 5 - 15°C

7.3. Specific end use(s)
Electronic industry
Intermediate (precursor)
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

**Exposure limits (EH40)**

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>1-Methoxypropyl acetate</td>
<td>50</td>
<td>274</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>548</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

**DNEL/DMEL values**

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>DNEL type</th>
<th>Exposure route</th>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>Worker DNEL, long-term</td>
<td>inhalation</td>
<td>systemic</td>
<td>33 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, long-term</td>
<td>dermal</td>
<td>systemic</td>
<td>54.8 mg/kg (bw/day)</td>
</tr>
</tbody>
</table>

**PNEC values**

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>Environmental compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>Freshwater</td>
<td>0.635 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.635 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>3.29 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.329 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>0.29 mg/kg</td>
</tr>
</tbody>
</table>

Additional advice on limit values

Y: A risk of reproductive effects needs not to be feared if the occupational exposure limit value (AGW) and the biological limit value (BGW) is kept

8.2. Exposure controls

**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

**Protective and hygiene measures**

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. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin and eyes.

**Eye/face protection**

Suitable eye protection: Tightly sealed safety glasses.

**Hand protection**

Breakthrough time (maximum wearing time): >10 min

Thickness of the glove material: > 0.4 mm

By short-term hand contact: NBR (Nitrile rubber)
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.

**Skin protection**
- Wear suitable protective clothing.

**Respiratory protection**
- Respiratory protection necessary at: insufficient exhaust, prolonged exposure

**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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic (Ether)</td>
</tr>
<tr>
<td>pH-Value</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

**Changes in the physical state**
- Initial boiling point and boiling range: 145 °C
- Flash point: 45 °C DIN 51755
- Lower explosion limits: 1 vol. %
- Upper explosion limits: 7 vol. %
- Ignition temperature: 315 °C DIN 51794
- Decomposition temperature: not determined

**Oxidizing properties**
- Not oxidising.

**Vapour pressure**
- (at 20 °C): 5 hPa

**Density**
- (at 20 °C): 0.97 g/cm³

**Water solubility**
- (at 20 °C): 200 g/L

**Solubility in other solvents**
- not determined

- Partition coefficient: not determined
- Vapour density: not determined
- Evaporation rate: not determined

### 9.2. Other information
- Solid content: not determined

## SECTION 10: Stability and reactivity

### 10.1. Reactivity
- Flammable, Ignition hazard.

### 10.2. Chemical stability
The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions. Incompatible materials: Oxidising substances.

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air.

10.5. Incompatible materials

Oxidising agent, Strong acid, Base

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicokinetics, metabolism and distribution
The product has not been tested.

Acute toxicity
The product has not been tested.

ATEmix tested

<table>
<thead>
<tr>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50, oral</td>
<td>&gt;8500 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>LD50, dermal</td>
<td>&gt;5000 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>LC50, inhalative (vapour)</td>
<td>&gt;23 mg/l</td>
<td>Rat</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>oral</td>
<td>LD50</td>
<td>8532</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>&gt;5000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalative (4 h) vapour</td>
<td>LC50</td>
<td>10.8 mg/l</td>
</tr>
</tbody>
</table>

| Irritation and corrosivity

Skin contact:
Species: Rabbit
Result: Not an irritant.

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

Aquatic toxicity:
LC50: 100-180 mg/l
Exposure time: 96h
Species: Oncorhynchus mykiss (Rainbow trout)
### Aquatic Toxicity

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Acute fish toxicity</th>
<th>Acute crustacea toxicity</th>
<th>Fish toxicity</th>
<th>Algae toxicity</th>
<th>Crustacea toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>LC50 100 mg/l</td>
<td>EC50 373 mg/l</td>
<td>NOEC 47.5 mg/l</td>
<td>NOEC 1000 mg/l</td>
<td>NOEC 100 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>96 h Oryzias latipes (Ricefish)</td>
<td>48 h Daphnia magna</td>
<td>14 d ECHA</td>
<td>1 d ECHA</td>
<td>21 d ECHA</td>
</tr>
</tbody>
</table>

### Persistence and Degradability

The product is: Biodegradable.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>99% 28</td>
</tr>
</tbody>
</table>

### Bioaccumulative Potential

The product has not been tested.
2-Methoxy-1-methylethyl acetate: On the basis of existing data about the elimination/degradation and bioaccumulation potential longer term damage to the environment is unlikely.

### Partition Coefficient n-octanol/water

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Mobility in Soil

The product has not been tested.
2-Methoxy-1-methylethyl acetate: Koc, 1.7

### Results of PBT and vPvB Assessment

The product has not been tested.
2-Methoxy-1-methylethyl acetate: The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

### Other Adverse Effects

No information available.

### Disposal Considerations

#### Waste Treatment Methods

**Advice on disposal**
Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

**Contaminated packaging**
This material and its container must be disposed of as hazardous waste. Handle contaminated packages in...
the same way as the substance itself.

### SECTION 14: Transport information

#### Land transport (ADR/RID)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 3272</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
<td>ESTERS, N.O.S. (2-Methoxy-1-methylethylacetat)</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es):</td>
<td>3</td>
</tr>
<tr>
<td>14.4. Packing group:</td>
<td>III</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>3</td>
</tr>
<tr>
<td>Classification code:</td>
<td>F1</td>
</tr>
<tr>
<td>Special Provisions:</td>
<td>274</td>
</tr>
<tr>
<td>Limited quantity:</td>
<td>5 L</td>
</tr>
<tr>
<td>Excepted quantity:</td>
<td>E1</td>
</tr>
<tr>
<td>Transport category:</td>
<td>3</td>
</tr>
<tr>
<td>Hazard No:</td>
<td>30</td>
</tr>
<tr>
<td>Tunnel restriction code:</td>
<td>D/E</td>
</tr>
</tbody>
</table>

#### Inland waterways transport (ADN)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 3272</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
<td>ESTERS, N.O.S. (2-Methoxy-1-methylethylacetat)</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es):</td>
<td>3</td>
</tr>
<tr>
<td>14.4. Packing group:</td>
<td>III</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>3</td>
</tr>
<tr>
<td>Classification code:</td>
<td>F1</td>
</tr>
<tr>
<td>Special Provisions:</td>
<td>274 601</td>
</tr>
<tr>
<td>Limited quantity:</td>
<td>5 L</td>
</tr>
<tr>
<td>Excepted quantity:</td>
<td>E1</td>
</tr>
</tbody>
</table>

#### Marine transport (IMDG)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 3272</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
<td>ESTERS, N.O.S. (2-Methoxy-1-methylethylacetat)</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es):</td>
<td>3</td>
</tr>
<tr>
<td>14.4. Packing group:</td>
<td>III</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>3</td>
</tr>
<tr>
<td>Special Provisions:</td>
<td>223, 274</td>
</tr>
<tr>
<td>Limited quantity:</td>
<td>5 L</td>
</tr>
<tr>
<td>Excepted quantity:</td>
<td>E1</td>
</tr>
</tbody>
</table>

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

| 14.1. UN number: | UN 3272 |

---

The content above is a safety data sheet for a product identified as TI-Prime. It includes transport information categorized under Land transport (ADR/RID), Inland waterways transport (ADN), Marine transport (IMDG), and Air transport (ICAO-TI/IATA-DGR). Each section provides specific details about the UN number, proper shipping name, transport hazard class(es), packing group, and additional details such as limited and excepted quantities, special provisions, and classification codes.
14.2. UN proper shipping name: ESTERS, N.O.S.
14.3. Transport hazard class(es): III
14.4. Packing group: H3
14.5. Environmental hazards
  ENVIRONMENTALLY HAZARDOUS: no
14.6. Special precautions for user
  No information available.
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
EU regulatory information
Restrictions on use (REACH, annex XVII):
  Entry 3: 2-methoxy-1-methylethyl acetate
  Entry 30: 2-methoxypropyl acetate
2010/75/EU (VOC): 95 % (921,5 g/l)
2004/42/EC (VOC): 95,671 % (928,009 g/l)
Additional information
National regulatory information
Employment restrictions:
  Observe restrictions to employment for juvenils according to the "juvenile work protection guideline" (94/33/EC).
Water contaminating class (D):
  2 - clearly water contaminating

15.2. Chemical safety assessment
  Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes
  This data sheet contains changes from the previous version in section(s): 3, 7, 15.
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
Safety Data Sheet

MicroChemicals GmbH

according to Regulation (EC) No 1907/2006

TI- Prime
Product code: 91

Revision date: 14.03.2018

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]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Classification procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 3; H226</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>Acute Tox. 4; H332</td>
<td>On basis of test data</td>
</tr>
</tbody>
</table>

Relevant H and EUH statements (number and full text)

- **H226**: Flammable liquid and vapour.
- **H332**: Harmful if inhaled.
- **H335**: May cause respiratory irritation.
- **H360D**: May damage the unborn child.

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.

(\textit{The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety data sheet.})