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

1.1 Product identifier

Product number  697333

Product name  AZ 726 MIF Developer

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

Identified uses  Materials for use in technical applications

1.3 Details of the supplier of the safety data sheet

Company  Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72
Responsible Department  PM-OQR * e-mail: PM_SDS_Supply@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1  H290: May be corrosive to metals. On basis of test data.

Acute toxicity, Category 4  H302: Harmful if swallowed. Calculation method

Acute toxicity, Category 4  H312: Harmful in contact with skin. Calculation method

Skin corrosion, Category 1C  H314: Causes severe skin burns and eye damage. On basis of test data.

Serious eye damage, Category 1  H318: Causes serious eye damage. On basis of test data.

Specific target organ toxicity - single exposure, Category 2, Nervous system  H371: May cause damage to organs. Calculation method

Specific target organ toxicity - repeated exposure, Category 2, Eyes, Skin, Respiratory system, Heart, Liver, Nervous system  H373: May cause damage to organs through prolonged or repeated exposure. Calculation method

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

The Safety Data Sheets for catalogue items are available at www.merck-performance-materials.com
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

AZ 726 MIF Developer

Version: 1.2  Product number: 697333  Revision Date: 20.09.2017
Print Date: 05.02.2018

Hazard pictograms:

Signal word: Danger

Hazard statements:
H290  May be corrosive to metals.
H302 + H312  Harmful if swallowed or in contact with skin
H314  Causes severe skin burns and eye damage.
H371  May cause damage to organs (Nervous system).
H373  May cause damage to organs (Eyes, Skin, Respiratory system, Heart, Liver, Nervous system) through prolonged or repeated exposure.

Precautionary statements:
Prevention:
P280  Wear eye protection/ face protection.

Response:
P301 + P330 + P331  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P352  IF ON SKIN: Wash with plenty of 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.
P308 + P310  IF exposed or concerned: immediately call a POISON CENTER or doctor/physician.
P313  Get medical advice/attention.

Hazardous components which must be listed on the label:
Tetramethylammonium hydroxyde

Reduced Labelling (<= 125 ml)

Signal word: Danger

Hazard statements:
H314  Causes severe skin burns and eye damage.
H371  May cause damage to organs (Nervous system).
H373  May cause damage to organs (Eyes, Skin, Respiratory system, Heart, Liver, Nervous system) through prolonged or repeated exposure.

Precautionary statements:
P280  Wear eye protection/ face protection.
P301 + P330 + P331  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310  IF exposed or concerned: immediately call a POISON CENTER or doctor/physician.
P313  Get medical advice/attention.

2.3 Other hazards

The Safety Data Sheets for catalogue items are available at www.merck-performance-materials.com
**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

**AZ 726 MIF Developer**

**Version:** 1.2  
**Product number:** 697333  
**Revision Date:** 20.09.2017  
**Print Date:** 05.02.2018

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None known.

### SECTION 3: Composition/information on ingredients

**Chemical nature:** Aqueous solution

#### 3.1 Substance

Not applicable

#### 3.2 Mixtures

**Hazardous components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>75-59-2 01-2119970562-34-xxxx</td>
<td>Met. Corr. 1; H290 Acute Tox. 2; H300 Acute Tox. 1; H310 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT SE 1; H370 1; H372 Aquatic Chronic 2; H411</td>
<td>&gt;= 1 - &lt; 2.5</td>
</tr>
</tbody>
</table>

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**General advice:** First aider needs to protect himself.

**If inhaled:** fresh air. Call in physician.

**In case of skin contact:** Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

**In case of eye contact:** rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed:** make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

**Symptoms:** Irritation and corrosion  
Cough  
Shortness of breath  
Risk of blindness!
4.3 Indication of any immediate medical attention and special treatment needed

Treatment: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Not combustible.

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Special protective equipment for firefighters: Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information: Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Advice for non-emergency personnel:
Do not breathe vapours, aerosols.
Avoid substance contact.
Ensure adequate ventilation.
Evacuate the danger area, observe emergency procedures, consult an expert.
Advice for emergency responders:
Protective equipment see section 8.

6.2 Environmental precautions

Environmental precautions: Do not flush into surface water or sanitary sewer system.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
6.4 Reference to other sections
Indications about waste treatment see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling: Observe label precautions.
Hygiene measures: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers: Store in original container. No metal containers.
Further information on storage conditions: Tightly closed.
Risks from decomposition products: see section 10.3
Recommended storage temperature: Recommended storage temperature see product label.

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

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>Workers</td>
<td>inhalation</td>
<td>Long-term systemic effects</td>
<td>0,49 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>dermal</td>
<td>Long-term systemic effects</td>
<td>0,14 mg/kg</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>Water</td>
<td>0,0005 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0,00005 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>0,03 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0,003 mg/kg</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Engineering measures
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Personal protective equipment
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled and must meet the specifications of a standard EN/ISO/DIN. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye protection : Tightly fitting safety goggles

Hand protection :

  splash contact

Glove material : Nitrile rubber

Glove thickness : 0.4 mm

Break through time : > 10 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example: KCL 730 Camatril® - Velours (splash contact);
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Protective measures : protective clothing

Respiratory protection : required when vapours/aerosols are generated.

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls
General advice : Do not flush into surface water or sanitary sewer system.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
### Form
- **Form**: liquid

### Colour
- **Colour**: colourless

### Odour
- **Odour**: characteristic

### Odour Threshold
- **Odour Threshold**: No information available.

### pH
- **pH**: ca. 13
  - at 20 °C

### Melting point
- **Melting point**: No information available.

### Boiling point/boiling range
- **Boiling point/boiling range**: ca. 100 °C

### Flash point
- **Flash point**: Not applicable

### Evaporation rate
- **Evaporation rate**: No data available

### Flammability (solid, gas)
- **Flammability (solid, gas)**: Not applicable

### Lower explosion limit
- **Lower explosion limit**: Not applicable

### Upper explosion limit
- **Upper explosion limit**: Not applicable

### Vapour pressure
- **Vapour pressure**: ca. 23 mbar
  - at 20 °C

### Relative vapour density
- **Relative vapour density**: No data available

### Density
- **Density**: ca. 1 g/cm³
  - at 20 °C

### Solubility(ies)
- **Solubility(ies)**: No information available.

### Water solubility
- **Water solubility**: miscible in all proportions

### Partition coefficient: n-octanol/water
- **Partition coefficient: n-octanol/water**: No information available.

### Auto-ignition temperature
- **Auto-ignition temperature**: No information available.

### Decomposition temperature
- **Decomposition temperature**: No information available.

### Viscosity, kinematic
- **Viscosity, kinematic**: No information available.

### Explosive properties
- **Explosive properties**: No information available.

### Oxidizing properties
- **Oxidizing properties**: No information available.

### 9.2 Other data

#### Ignition temperature
- **Ignition temperature**: Not applicable
SECTION 10: Stability and reactivity

10.1 Reactivity
See section 10.3

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Hazardous reactions: Violent reactions possible with:
The generally known reaction partners of water.

10.4 Conditions to avoid
Conditions to avoid: no information available

10.5 Incompatible materials
Materials to avoid: Metals

10.6 Hazardous decomposition products
no information available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:
Acute oral toxicity: Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
Acute toxicity estimate: 1.430 mg/kg
Method: Calculation method

Acute inhalation toxicity: Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:; damage of respiratory tract

Acute dermal toxicity: Acute toxicity estimate: 1.052 mg/kg
Method: Calculation method
Tetramethylammonium hydroxyde:

**Acute oral toxicity**: LD50 (Rat, male): \( \geq 34 \) mg/kg  
Method: OECD Test Guideline 401

**Acute inhalation toxicity**: No data available

**Acute dermal toxicity**: LD50 (Rat, male and female): 25 mg/kg  
Remarks: (ECHA)

### Skin corrosion/irritation

**Product:**

Result: Corrosive, category 1C - where responses occur after exposures between 1 hour and 4 hours and observations up to 14 days.  
Remarks: (in analogy to similar products)

Remarks: Mixture causes burns.

### Components:

**Tetramethylammonium hydroxyde:**

Result: Causes burns.

### Serious eye damage/eye irritation

**Product:**

Remarks: Mixture causes serious eye damage.  
Risk of blindness!

### Respiratory or skin sensitisation

**Product:**

No data available

**Components:**

No data available

**Germ cell mutagenicity**

**Product:**

No data available

**Components:**

No data available
Carcinogenicity

Product:
This information is not available.

Components:
This information is not available.

STOT - single exposure

Product:
No data available

Components:
Tetramethylammonium hydroxyde:
Target Organs: Nervous system
Assessment: Causes damage to organs.

STOT - repeated exposure

Product:
No data available

Components:
Tetramethylammonium hydroxyde:
Target Organs: Eyes, Skin, Respiratory system, Heart, Liver, Nervous system
Assessment: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Product:
No data available

Components:
Tetramethylammonium hydroxyde:
Species: Rat, male and female
NOAEL: 2.5 mg/kg
Application Route: Dermal
Exposure time: 28 d
Number of exposures: daily
Remarks: (External MSDS)

Species: Rat, male and female
NOAEL: 5 mg/kg
Application Route: Oral
Exposure time: 28 d
Method: OECD Test Guideline 407
Aspiration toxicity

Product: No data available

Components: No data available

Experience with human exposure

Product: No data available

Components: No data available

11.2 Other information

Product: Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Product: No data available

Components:

Tetramethylammonium hydroxyde:

Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 359 mg/l
Exposure time: 96 h
Remarks: (Lit.)
The value is given in analogy to the following substances: Methylammonium, N,N,N-trimethyl-, Chlorid

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 3 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): 96 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.025 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

12.2 Persistence and degradability

Product: No data available
Components:

**Tetramethylammonium hydroxyde:**

Biodegradability: Result: Readily biodegradable.
Biodegradation: 100% 
Exposure time: 28 d 
Method: OECD Test Guideline 301B

12.3 Bioaccumulative potential

**Product:**
No data available

**Components:**

**Tetramethylammonium hydroxyde:**
Bioaccumulation: Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

**Product:**
No data available

**Components:**

**Tetramethylammonium hydroxyde:**
No data available

12.5 Results of PBT and vPvB assessment

**Product:**
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.

**Components:**

**Tetramethylammonium hydroxyde:**
Assessment: Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects

**Product:**
Additional ecological information: Discharge into the environment must be avoided.
SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product : See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

Air transport (IATA)
14.1. UN/ID No. : UN 1835
14.2. Proper shipping name : Tetramethylammonium hydroxide, solution
14.3. Class : 8
14.4. Packing group : III
14.5 Environmentally hazardous : --
14.6 Special precautions for user : no

Sea transport (IMDG)
14.1. UN number : UN 1835
14.2. Proper shipping name : TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION
14.3. Class : 8
14.4. Packing group : III
14.5 Environmentally hazardous : --
14.6 Special precautions for user : yes
EmS Code : F-A, S-B
Segregation group : Ammonium compounds, Alkalis
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

Land transport (ADR/RID)
14.1. UN number : UN 1835
14.2. Proper shipping name : TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION
14.3. Class : 8
14.4. Packing group : III
14.5 Environmentally hazardous : --

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Regulation (EC) No 850/2004 on persistent organic : Not applicable
pollutants

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (A : Not applicable


Storage class : 8B

Other regulations : Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Training advice
Provide adequate information, instruction and training for operators.

Full text of H-Statements

H290 : May be corrosive to metals.
H300 : Fatal if swallowed.
H310 : Fatal in contact with skin.
H314 : Causes severe skin burns and eye damage.
H318 : Causes serious eye damage.
H370 : Causes damage to organs.
H372 : Causes damage to organs through prolonged or repeated exposure.
H411 : Toxic to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet

The Safety Data Sheets for catalogue items are available at www.merck-performance-materials.com
Disclaimer
The information contained herein is based on the present state of our knowledge. It characterises
the product with regard to the appropriate safety precautions. It does not represent a guarantee of
any properties of the product.