SAFETY DATA SHEET

AZ 400K DEVELOPER

SECTION 1. IDENTIFICATION

Product identifier
Product name : AZ 400K DEVELOPER

Product number : 184432

Recommended use of the chemical and restrictions on use
Recommended use : Intermediate for electronic industry

Details of the supplier of the safety data sheet


Emergency telephone : 1-800-424-9300 CHEMTREC (USA)
1-703-741-5970 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Corrosive to Metals : Category 1
Eye irritation : Category 2A
Reproductive toxicity : Category 2

GHS label elements
Hazard pictograms :

Signal Word : Warning

Hazard Statements : H290 May be corrosive to metals.
H319 Causes serious eye irritation.
Precautionary Statements:

Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
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 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P390 Absorb spillage to prevent material damage.

Storage:
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Concentration (% w/w)</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium borate</td>
<td>&gt;= 10 - &lt; 20</td>
<td>20786-60-1</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>&gt;= 1 - &lt; 5</td>
<td>1310-58-3</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: First aider needs to protect himself.
SAFETY DATA SHEET

AZ 400K DEVELOPER

Version 3.6
Revision Date: 21.04.2020
SDS Number: 70MDGM184432

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 neutralize.

Most important symptoms and effects, both acute and delayed: Irritation and corrosion, Cough, Shortness of breath, Risk of blindness!

Notes to physician: No information available.

SECTION 5. FIRE-FIGHTING MEASURES

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.

Specific hazards during fire fighting: Not combustible.

Further information: Ambient fire may liberate hazardous vapors.

Special protective equipment for fire-fighters: Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURES
Personal precautions, protective equipment and emergency procedures:
- Advice for non-emergency personnel:
  - Do not breathe vapors, 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.
  - Indications about waste treatment see section 13.

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

Methods and materials for containment and 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.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:
- Advice on safe handling:
  - Observe label precautions.
  - Avoid contact with skin, eyes and clothing.

Conditions for safe storage, including any incompatibilities:
- Conditions for safe storage:
  - No metal containers.
  - Store in original container.
- Storage conditions:
  - Risks from decomposition products: see section 10
  - Tightly closed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>1310-58-3</td>
<td>C</td>
<td>2 mg/m3</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>2 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>2 mg/m3</td>
<td>OSHA P0</td>
</tr>
</tbody>
</table>

Hazardous components without workplace control parameters:

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium borate</td>
<td>20786-60-1</td>
</tr>
</tbody>
</table>
Engineering measures: Ensure that eye flushing systems and safety showers are located close to the working place. Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See section 7.

Personal protective equipment
Respiratory protection: required when vapors/aerosols are generated.
Hand protection
  Additional Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products.
Eye protection: Tightly fitting safety goggles

Hygiene measures: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. Avoid contact with skin, eyes and clothing. Wash hands and face before breaks and immediately after handling the product. Keep away from food and drink.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: liquid
Form: liquid
Color: clear colorless
Odor: odorless
Odor Threshold: No information available.
PH: 12.9
Freezing point: approximately 0 °C
Boiling point/boiling range: approximately 212 °F (100 °C)
Flash point: Not applicable
Evaporation rate: No information available.
Flammability (solid, gas): No information available.
Lower explosion limit: No information available.
Upper explosion limit: No information available.
Vapor pressure: 17.5 Torr at 68 °F (20 °C) (solvent)
Relative vapor density: No data available
Density: approximately 1.085 g/cm3
Relative density: No information available.
Water solubility: miscible in all proportions
Partition coefficient: n-octanol/water: No data available
Autoignition temperature: No information available.
Decomposition temperature: No information available.
Viscosity, dynamic: No information available.
Explosive properties: Not classified as explosive.
Oxidizing properties: none
Corrosion: Corrosive to metals

SECTION 10. STABILITY AND REACTIVITY

Reactivity: See below
Chemical stability: The product is chemically stable under standard ambient conditions (room temperature).
Possibility of hazardous: The generally known reaction partners of water.
Conditions to avoid: no information available

Incompatible materials:
- Metals
- Acids
- Bases
- Oxidizing agents

Hazardous decomposition products: no information available

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

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

OSHA
No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Likely route of exposure
Inhalation, Eye contact, Skin contact

Acute oral toxicity
Acute toxicity estimate: > 5,000 mg/kg
Calculation method

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

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

Skin irritation
Rabbit
Result: No skin irritation
Eye irritation
Rabbit
Result: Eye irritation

Teratogenicity / Reproductive toxicity:
Suspected of damaging fertility.

Experience with human exposure
Other Relevant Toxicity Information:
Other dangerous properties can not be excluded., This substance should be handled with particular care.

Components

Potassium borate (20786-60-1):

CMR effects
Reproductive toxicity:
Some evidence of adverse effects on sexual function and fertility, based on animal experiments.

Potassium hydroxide (1310-58-3):

Acute oral toxicity
LD50 Rat: 333 mg/kg
OECD Test Guideline 425

Skin irritation
In vitro study
Result: Causes severe burns.
OECD Test Guideline 431 (ECHA)

Eye irritation
Rabbit
Result: Causes burns.
OECD Test Guideline 405

Sensitization
Sensitization test: Guinea pig
Result: negative (IUCLID)

Germ cell mutagenicity
Genotoxicity in vitro
Ames test
Escherichia coli/Salmonella typhimurium
Result: negative
Metabolic activation: with and without metabolic activation (IUCLID)
SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Product Persistence and degradability
No information available.

Bioaccumulative potential
Partition coefficient: n-octanol/water
No data available

Mobility in soil
No information available.

Additional ecological information
Do not allow contact with soil, surface or ground water. No ecological problems are to be expected when the product is handled and used with due care and attention.
Discharge into the environment must be avoided.

Components

Potassium borate (20786-60-1):

Partition coefficient: n-octanol/water
log Pow: -1.09 (22 °C) (ECHA)

Potassium hydroxide (1310-58-3):

Toxicity to fish
LC50 Gambusia affinis (Mosquito fish): 80 mg/l; 96 h (IUCLID)

Biodegradability
The methods for determining the biological degradability are not applicable to inorganic substances.

Partition coefficient: n-octanol/water
Not applicable for inorganic substances

PBT/vPvB: Not applicable for inorganic substances
SECTION 13. DISPOSAL CONSIDERATIONS

Product Waste: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

DOT / 49CFR
UN/ID/NA number: UN 1814
Proper shipping name: Potassium hydroxide, solution

Class: 8
Packing group: III
Labels: CORROSIVE
ERG Code: 154
Marine pollutant: no
Remarks: LTD QTY =< 5 L or 5 KG net capacity, as per 49 CFR 173.154

International Regulations

IATA-DGR
UN/ID No.: UN 1814
Proper shipping name: Potassium hydroxide solution
Class: 8
Packing group: III
Labels: Corrosive
Packing instruction (cargo aircraft): 856
Packing instruction (passenger aircraft): 852

IMDG-Code
UN number: UN 1814
Proper shipping name: POTASSIUM HYDROXIDE SOLUTION

Class: 8
Packing group: III
Labels: 8
EmS Code: F-A, S-B
Marine pollutant: no
Remarks: Alkalis

Special precautions for user
Not applicable
SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
Potassium hydroxide 1310-58-3 1000lbs

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act
The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:
Potassium hydroxide 1310-58-3

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:
Potassium hydroxide 1310-58-3

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know
Potassium hydroxide 1310-58-3

Pennsylvania Right To Know
Potassium hydroxide 1310-58-3
New Jersey Right To Know
Potassium hydroxide 1310-58-3

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:
- DSL: All components of this product are on the Canadian DSL
- TSCA: All substances listed on the TSCA Active Inventory.

SECTION 16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.