

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Version: 1.0

Product number: 697330

Date of first issue: 20.10.2017

Print Date: 05.02.2018

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

1.1 Product identifier

Product number	697330
Product name	AZ 400 K Developer

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

Identified uses	Materials for use in technical applications
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
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.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage. Calculation method
Serious eye damage, Category 1	H318: Causes serious eye damage. Calculation method

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

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

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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.

P313 Get medical advice/ attention.

Hazardous components which must be listed on the label:
potassium hydroxide

Reduced Labelling (<= 125 ml)

Hazard pictograms



Signal word
Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

P280 Wear eye protection/ face protection.

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

P313 Get medical advice/ attention.

Additional Labelling

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 4,9 %

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 4,9 %

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

Chemical nature : Aqueous solution

3.1 Substance

Not applicable

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. Registration number	Classification	Concentration (% w/w)
potassium hydroxide	1310-58-3 01-2119487136-33-xxxx	Met. Corr. 1; H290 Acute Tox. 4; H302 Skin Corr. 1A; H314 Eye Dam. 1; H318	>= 2 - < 3

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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 |
|---|---|--|

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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 with liquid-absorbent and neutralising material (e.g. Chemizorb® OH⁻, Merck Art. No. 101596). 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

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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:

Substance name	End Use	Exposure routes	Potential health effects	Value
potassium hydroxide	Workers	inhalation	Long-term local effects	1 mg/m ³
	Consumers	inhalation	Long-term local effects	1 mg/m ³

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).

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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.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	No information available.
pH	ca. 13 at 20 °C
Melting point	No information available.
Boiling point/boiling range	approximately 100 °C
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	approximately 23 mbar at 20 °C
Relative vapour density	No data available
Density	approximately 1,1 g/cm ³ at 20 °C
Solubility(ies)	No information available.
Water solubility	miscible in all proportions

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Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, kinematic	No information available.
Explosive properties	No information available.
Oxidizing properties	No information available.

9.2 Other data

Ignition temperature	Not applicable
Viscosity, dynamic	approximately 1 mPas at 20 °C
Corrosion	439 mm/a Corrosive to metals

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

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11.1 Information on toxicological effects

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

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

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

Acute dermal toxicity : Symptoms: Causes burns.

Components:

potassium hydroxide:

Acute oral toxicity : LD50 (Rat, male): 333 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity : No data available

Acute dermal toxicity : No data available

Skin corrosion/irritation

Product:

No data available

Components:

potassium hydroxide:

Species: Rabbit

Result: Causes severe burns.

Remarks: (IUCLID)

Species: In vitro study

Method: OECD Test Guideline 431

Result: Causes severe burns.

Result: Causes severe burns.

Serious eye damage/eye irritation

Product:

Remarks: Risk of blindness!

Components:

potassium hydroxide:

Species: Rabbit

Method: OECD Test Guideline 405

Result: Causes burns.

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Remarks: Causes serious eye damage.

Respiratory or skin sensitisation

Product:

No data available

Components:

potassium hydroxide:

Test Type: Sensitisation test:

Exposure routes: dermal

Species: Guinea pig

Result: negative

Remarks: (IUCLID)

Germ cell mutagenicity

Product:

No data available

Components:

potassium hydroxide:

Genotoxicity in vitro

: Test Type: Ames test

Species: Escherichia coli/Salmonella typhimurium

Result: negative

Remarks: (IUCLID)

Carcinogenicity

Product:

This information is not available.

Components:

This information is not available.

STOT - single exposure

Product:

No data available

Components:

No data available

STOT - repeated exposure

Product:

No data available

Components:

No data available

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Repeated dose toxicity

Product:

No data available

Components:

No data available

Aspiration toxicity

Product:

No data available

Components:

No data available

11.2 Other information

Product:

Other dangerous properties can not be excluded.

SECTION 12: Ecological information

12.1 Toxicity

Product:

No data available

Components:

potassium hydroxide:

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

12.2 Persistence and degradability

Product:

No data available

Components:

potassium hydroxide:

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

12.3 Bioaccumulative potential

Product:

No data available

Components:

potassium hydroxide:

Partition coefficient: n- : Remarks: Not applicable

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octanol/water

12.4 Mobility in soil

Product:

No data available

Components:

potassium hydroxide:

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:

potassium hydroxide:

Assessment : PBT/vPvB: Not applicable for inorganic substances.

12.6 Other adverse effects

Product:

Additional ecological information : Discharge into the environment must be avoided.

Components:

potassium hydroxide:

No data available

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 1814

14.2. Proper shipping name : Potassium hydroxide solution

14.3. Class : 8

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

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14.4. Packing group : II
14.5 Environmentally hazardous : --
14.6 Special precautions for user : no

Sea transport(IMDG)

14.1. UN number : UN 1814
14.2. Proper shipping name : POTASSIUM HYDROXIDE SOLUTION

14.3. Class : 8
14.4. Packing group : II
14.5 Environmentally hazardous : --
14.6 Special precautions for user : yes
EmS Code : F-A, S-B
Segregation group : Alkalies

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 1814
14.2. Proper shipping name : POTASSIUM HYDROXIDE SOLUTION
14.3. Class : 8
14.4. Packing group : II
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 pollutants : Not applicable

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 (Annex XVII) : Not applicable

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Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

Storage class : 8B

Other regulations : Take note of Dir 94/33/EC on the protection of young people at work.

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.
H302 : Harmful if swallowed.
H314 : Causes severe skin burns and eye damage.
H318 : Causes serious eye damage.

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

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AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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.