







Product code	Description
<b>CAY939-VxxAAH</b>	<b>CA71AL Reagent Set for aluminum</b>

## Components:

51517135	Reagent AL1, Component 1 for aluminum
51517136	Reagent AL1, Component 2 for aluminum
51517137	Reagent AL2, Component 1 for aluminum
51517138	Reagent AL2, Component 2 for aluminum
51517139	Reagent AL3 for aluminum

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier****Trade name:** Reagent AL1, Component 1**Synonym:** *for aluminum***Article number:** 51517135**Relevant identified uses of the substance or mixture and uses advised against***No further relevant information available.***Application of the substance / the mixture** *Laboratory chemicals***Details of the supplier of the safety data sheet****Manufacturer/Supplier:***Endress+Hauser**Conducta GmbH+Co. KG**Dieselstraße 24**D-70839 Gerlingen***Further information obtainable from:***Phone: +49 (0)7156 209-10117**E-Mail: MSDS.PCC@endress.com***Emergency telephone number:** 00971 800 424 ( *from 7 am to 3 pm, from Sunday to Thursday*)**SECTION 2: Hazards identification****Classification of the substance or mixture***Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.***Label elements****GHS label elements***The product is classified and labelled according to the Globally Harmonised System (GHS).***Hazard pictograms** *Void***Signal word** *Void***Hazard statements***Harmful to aquatic life with long lasting effects.***Precautionary statements***Avoid release to the environment.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Other hazards***The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.***\* SECTION 3: Composition/information on ingredients****Mixtures****Description:** *Mixture of substances listed below with nonhazardous additions.***Dangerous components:**

CAS: 7697-37-2 EINECS: 231-714-2	<i>nitric acid</i>  Ox. Liq. 3, H272;  Acute Tox. 3, H331;  Skin Corr. 1A, H314, EUH071 ATE: LC50/4 h inhalative: 2.65 mg/l Specific concentration limits: Ox. Liq. 3; H272: C ≥ 65 % Skin Corr. 1A; H314: C ≥ 20 % Skin Corr. 1B; H314: 5 % ≤ C < 20 %	0.1-1%
CAS: 18851-33-7 EINECS: 223-325-1	<i>1,10-phenanthroline chloride monohydrate</i>  Acute Tox. 3, H301;  Aquatic Acute 1, H400;  Aquatic Chronic 1, H410	0.1-1%

(Contd. on page 2)

**Trade name: Reagent AL1, Component 1**

(Contd. of page 1)

**Additional information:** *For the wording of the listed hazard phrases refer to section 16.***SECTION 4: First aid measures****Description of first aid measures****After inhalation:** *Supply fresh air; consult doctor in case of complaints.***After skin contact:** *Generally the product does not irritate the skin.***After eye contact:** *Rinse opened eye for several minutes under running water.***After swallowing:** *If symptoms persist consult doctor.***Most important symptoms and effects, both acute and delayed***No further relevant information available.***Indication of any immediate medical attention and special treatment needed***No further relevant information available.***SECTION 5: Firefighting measures****Extinguishing media****Suitable extinguishing agents:***CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.***For safety reasons unsuitable extinguishing agents:** *no further information***Special hazards arising from the substance or mixture** *No further relevant information available.***Advice for firefighters** *No further relevant information available.***Protective equipment:** *No special measures required.***SECTION 6: Accidental release measures****Personal precautions, protective equipment and emergency procedures** *Wear protective clothing.***Environmental precautions:***Do not allow product to reach sewage system or any water course.**Inform respective authorities in case of seepage into water course or sewage system.**Dilute with plenty of water.**Do not allow to enter sewers/ surface or ground water.***Methods and material for containment and cleaning up:***Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).**Dispose contaminated material as waste according to section 13.***Reference to other sections***See Section 7 for information on safe handling.**See Section 8 for information on personal protection equipment.**See Section 13 for disposal information.***SECTION 7: Handling and storage****Precautions for safe handling** *No special precautions are necessary if used correctly.***Information about fire - and explosion protection:** *No special measures required.***Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** *No special requirements.***Information about storage in one common storage facility:** *Not required.***Further information about storage conditions:** *None.***Storage class:** 12**Specific end use(s)** *No further relevant information available.*

(Contd. on page 3)

Trade name: Reagent AL1, Component 1

(Contd. of page 2)

**SECTION 8: Exposure controls/personal protection****Control parameters****Ingredients with limit values that require monitoring at the workplace:****CAS: 7697-37-2 nitric acid**

TLV (USA)	Short-term value: (4) NIC-0.025 ppm Long-term value: (2) ppm NIC-A4
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**Additional information:** *The lists valid during the making were used as basis.***Exposure controls****Appropriate engineering controls** *No further data; see section 7.***Individual protection measures, such as personal protective equipment****General protective and hygienic measures:** *Wash hands before breaks and at the end of work.***Respiratory protection:** *Not required.***Hand protection***To avoid skin problems reduce the wearing of gloves to the required minimum.**The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.**No chemical-protective gloves required.***Material of gloves***The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.***Penetration time of glove material***The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***Eye/face protection** *Goggles recommended during refilling***Body protection:** *Protective work clothing***SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****General Information****Physical state***Fluid***Colour:***Clear***Odour:***Odourless***Odour threshold:***Not determined.***Melting point/freezing point:***Undetermined.***Boiling point or initial boiling point and boiling range***>100 °C***Flammability***Not applicable.***Lower and upper explosion limit****Lower:***Not determined.***Upper:***Not determined.***Flash point:***Not applicable.***Decomposition temperature:***Not determined.***pH at 20 °C***<2***Viscosity:****Kinematic viscosity***Not determined.***Dynamic:***Not determined.***Solubility****water:***Fully miscible.***Partition coefficient n-octanol/water (log value)** *Not determined.*

(Contd. on page 4)

## Trade name: Reagent AL1, Component 1

(Contd. of page 3)

Vapour pressure at 20 °C:	23 hPa
Density and/or relative density	
Density at 20 °C:	1.12 g/cm <sup>3</sup>
Relative density	Not determined.
Vapour density	Not determined.
<b>Other information</b>	
<b>Appearance:</b>	
Form:	Liquid
<b>Important information on protection of health and environment, and on safety.</b>	
Ignition temperature:	Product is not selfigniting.
Explosive properties:	Product does not present an explosion hazard. Not determined.
<b>Solvent content:</b>	
Water:	>85.0 %
Solids content:	0.0 %
<b>Change in condition</b>	
Evaporation rate	Not determined.
<b>Information with regard to physical hazard classes</b>	
Explosives	Void
Flammable gases	Void
Aerosols	Void
Oxidising gases	Void
Gases under pressure	Void
Flammable liquids	Void
Flammable solids	Void
Self-reactive substances and mixtures	Void
Pyrophoric liquids	Void
Pyrophoric solids	Void
Self-heating substances and mixtures	Void
Substances and mixtures, which emit flammable gases in contact with water	Void
Oxidising liquids	Void
Oxidising solids	Void
Organic peroxides	Void
Corrosive to metals	Void
Desensitised explosives	Void

**SECTION 10: Stability and reactivity**

**Reactivity** No further relevant information available.

**Chemical stability****Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known.

**SECTION 11: Toxicological information****Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Acute toxicity** Based on available data, the classification criteria are not met.

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**Trade name: Reagent AL1, Component 1**

(Contd. of page 4)

**LD/LC50 values relevant for classification:****CAS: 7697-37-2 nitric acid***Inhalative* | LC50/4 h | 2.65 mg/l (ATE)**Skin corrosion/irritation** *Based on available data, the classification criteria are not met.***Serious eye damage/irritation** *Based on available data, the classification criteria are not met.***Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.***Germ cell mutagenicity** *Based on available data, the classification criteria are not met.***Carcinogenicity** *Based on available data, the classification criteria are not met.***Reproductive toxicity** *Based on available data, the classification criteria are not met.***STOT-single exposure** *Based on available data, the classification criteria are not met.***STOT-repeated exposure** *Based on available data, the classification criteria are not met.***Aspiration hazard** *Based on available data, the classification criteria are not met.***Information on other hazards****Endocrine disrupting properties***None of the ingredients is listed.***SECTION 12: Ecological information****Toxicity****Aquatic toxicity:** *No further relevant information available.***Persistence and degradability** *No further relevant information available.***Bioaccumulative potential** *No further relevant information available.***Mobility in soil** *No further relevant information available.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.***Endocrine disrupting properties***The product does not contain substances with endocrine disrupting properties.***Other adverse effects****Remark:** *Harmful to fish***Additional ecological information:****General notes:***Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water**Do not allow product to reach ground water, water course or sewage system.**Danger to drinking water if even small quantities leak into the ground.**Harmful to aquatic organisms**Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.***SECTION 13: Disposal considerations****Waste treatment methods****Recommendation***Must not be disposed together with household garbage. Do not allow product to reach sewage system.***Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***SECTION 14: Transport information****UN number or ID number****ADN, IMDG, IATA**

Void

**UN proper shipping name****ADR, ADN, IMDG, IATA**

Void

(Contd. on page 6)

**Trade name: Reagent AL1, Component 1**

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**Transport hazard class(es)****ADR, ADN, IMDG, IATA****Class** Void**Packing group****ADR, IMDG, IATA** Void**Environmental hazards:** Not applicable.**Special precautions for user** Not applicable.**Maritime transport in bulk according to IMO instruments** Not applicable.**UN "Model Regulation":** Void**SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements***The product is classified and labelled according to the Globally Harmonised System (GHS).***Hazard pictograms** Void**Signal word** Void**Hazard statements***Harmful to aquatic life with long lasting effects.***Precautionary statements***Avoid release to the environment.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Directive 2012/18/EU****Named dangerous substances - ANNEX I** *None of the ingredients is listed.***National regulations:****Waterhazard class:** *Water hazard class 2 (Self-assessment): hazardous for water.***Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***SECTION 16: Other information***This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.***Department issuing SDS:** PCC-TWR**Contact:** *MSDS.pcc@endress.com***Abbreviations and acronyms:***RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)**ICAO: International Civil Aviation Organisation**ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)**ADR: Accord relatif au transport international 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**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**ATE: Acute toxicity estimate values**Ox. Liq. 3: Oxidizing liquids – Category 3**Acute Tox. 3: Acute toxicity – Category 3**Skin Corr. 1A: Skin corrosion/irritation – Category 1A**Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1**Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1**Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3***\* Data compared to the previous version altered.**

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

### Product identifier

**Trade name:** Reagent AL1, Component 2

**Synonym:** *for aluminum*

**Article number:** 51517136

**CAS Number:**

50-81-7

**EC number:**

200-066-2

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

*No further relevant information available.*

**Application of the substance / the mixture** *Laboratory chemicals*

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

*Endress+Hauser*

*Conducta GmbH+Co. KG*

*Dieselstraße 24*

*D-70839 Gerlingen*

**Further information obtainable from:**

*Phone: +49 (0)7156 209-10117*

*E-Mail: MSDS.PCC@endress.com*

**Emergency telephone number:** 00971 800 424 (*from 7 am to 3 pm, from Sunday to Thursday*)

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

*The substance is not classified, according to the Globally Harmonised System (GHS).*

**Label elements**

**GHS label elements** *Void*

**Hazard pictograms** *Void*

**Signal word** *Void*

**Hazard statements** *Void*

**Other hazards**

*The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.*

**Results of PBT and vPvB assessment**

**PBT:** *Not applicable.*

**vPvB:** *Not applicable.*

## SECTION 3: Composition/information on ingredients

**Substances**

**CAS No. Description**

*CAS: 50-81-7 L (+) - ascorbic acid*

**Identification number(s)**

**EC number:** 200-066-2

## SECTION 4: First aid measures

**Description of first aid measures**

**General information:** *No special measures required.*

**After inhalation:** *Supply fresh air; consult doctor in case of complaints.*

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**Trade name: Reagent AL1, Component 2**

(Contd. of page 1)

**After skin contact:** *Generally the product does not irritate the skin.*

**After eye contact:** *Rinse opened eye for several minutes under running water.*

**After swallowing:** *If symptoms persist consult doctor.*

**Most important symptoms and effects, both acute and delayed**

*No further relevant information available.*

**Indication of any immediate medical attention and special treatment needed**

*No further relevant information available.*

**SECTION 5: Firefighting measures**

**Extinguishing media**

**Suitable extinguishing agents:**

*CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.*

**For safety reasons unsuitable extinguishing agents:** *no further information*

**Special hazards arising from the substance or mixture** *No further relevant information available.*

**Advice for firefighters** *No further relevant information available.*

**Protective equipment:** *No special measures required.*

**SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures** *Wear protective clothing.*

**Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*

**Methods and material for containment and cleaning up:** *Pick up mechanically.*

**Reference to other sections**

*No dangerous substances are released.*

*See Section 7 for information on safe handling.*

*See Section 8 for information on personal protection equipment.*

*See Section 13 for disposal information.*

**SECTION 7: Handling and storage**

**Precautions for safe handling** *No special measures required.*

**Information about fire - and explosion protection:** *No special measures required.*

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** *No special requirements.*

**Information about storage in one common storage facility:** *Not required.*

**Further information about storage conditions:** *None.*

**Storage class:** 11

**Specific end use(s)** *No further relevant information available.*

**SECTION 8: Exposure controls/personal protection**

**Control parameters**

**Ingredients with limit values that require monitoring at the workplace:** *Not required.*

**Additional information:** *The lists valid during the making were used as basis.*

**Exposure controls**

**Appropriate engineering controls** *No further data; see section 7.*

**Individual protection measures, such as personal protective equipment**

**General protective and hygienic measures:**

*The usual precautionary measures are to be adhered to when handling chemicals.*

**Respiratory protection:** *Not required.*

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**Trade name: Reagent AL1, Component 2**

(Contd. of page 2)

**Hand protection** *No chemical-protective gloves required.***Material of gloves***The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.***Penetration time of glove material***The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***Eye/face protection** *Not required.***Body protection:** *Protective work clothing***SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****General Information****Physical state***Solid***Colour:***Whitish***Odour:***Odourless***Odour threshold:***Not determined.***Melting point/freezing point:***191 °C***Boiling point or initial boiling point and boiling range***Undetermined.***Flammability***Product is not flammable.***Lower and upper explosion limit****Lower:***Not determined.***Upper:***Not determined.***Flash point:***Not applicable.***Decomposition temperature:***Not determined.***pH***Slightly acidic***Viscosity:****Kinematic viscosity***Not applicable.***Dynamic:***Not applicable.***Solubility****water at 20 °C:***333 g/l***Partition coefficient n-octanol/water (log value)***Not determined.***Vapour pressure:***Not applicable.***Density and/or relative density****Density at 20 °C:***0.95 g/cm<sup>3</sup>***Relative density***Not determined.***Vapour density***Not applicable.***Other information****Appearance:****Form:***Crystalline powder***Important information on protection of health and environment, and on safety.****Ignition temperature:***Not determined.***Explosive properties:***Product does not present an explosion hazard.**Not determined.***Solids content:***100.0 %***Molecular weight***176.13 g/mol***Change in condition****Evaporation rate***Not applicable.***Information with regard to physical hazard classes****Explosives***Void***Flammable gases***Void*

(Contd. on page 4)

**Trade name: Reagent AL1, Component 2**

(Contd. of page 3)

<b>Aerosols</b>	Void
<b>Oxidising gases</b>	Void
<b>Gases under pressure</b>	Void
<b>Flammable liquids</b>	Void
<b>Flammable solids</b>	Void
<b>Self-reactive substances and mixtures</b>	Void
<b>Pyrophoric liquids</b>	Void
<b>Pyrophoric solids</b>	Void
<b>Self-heating substances and mixtures</b>	Void
<b>Substances and mixtures, which emit flammable gases in contact with water</b>	Void
<b>Oxidising liquids</b>	Void
<b>Oxidising solids</b>	Void
<b>Organic peroxides</b>	Void
<b>Corrosive to metals</b>	Void
<b>Desensitised explosives</b>	Void

**SECTION 10: Stability and reactivity**

**Reactivity** *No further relevant information available.*

**Chemical stability**

**Thermal decomposition / conditions to be avoided:**

*No decomposition if used according to specifications.*

**Possibility of hazardous reactions** *No dangerous reactions known.*

**Conditions to avoid** *No further relevant information available.*

**Incompatible materials:** *No further relevant information available.*

**Hazardous decomposition products:** *No dangerous decomposition products known.*

**SECTION 11: Toxicological information**

**Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Acute toxicity** *Based on available data, the classification criteria are not met.*

**LD/LC50 values relevant for classification:**

**CAS: 50-81-7 L (+) - ascorbic acid**

Oral	LD50	11,900 mg/kg (rat)
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**Skin corrosion/irritation** *Based on available data, the classification criteria are not met.*

**Serious eye damage/irritation** *Based on available data, the classification criteria are not met.*

**Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.*

**Germ cell mutagenicity** *Based on available data, the classification criteria are not met.*

**Carcinogenicity** *Based on available data, the classification criteria are not met.*

**Reproductive toxicity** *Based on available data, the classification criteria are not met.*

**STOT-single exposure** *Based on available data, the classification criteria are not met.*

**STOT-repeated exposure** *Based on available data, the classification criteria are not met.*

**Aspiration hazard** *Based on available data, the classification criteria are not met.*

**Information on other hazards**

**Endocrine disrupting properties**

*Substance is not listed.*

**SECTION 12: Ecological information**

**Toxicity**

**Aquatic toxicity:** *No further relevant information available.*

**Persistence and degradability** *No further relevant information available.*

**Bioaccumulative potential** *No further relevant information available.*

**Mobility in soil** *No further relevant information available.*

(Contd. on page 5)

**Trade name: Reagent AL1, Component 2**

(Contd. of page 4)

**Results of PBT and vPvB assessment**PBT: *Not applicable.*vPvB: *Not applicable.***Endocrine disrupting properties***The product does not contain substances with endocrine disrupting properties.***Other adverse effects****Additional ecological information:****General notes:***Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water**Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.***SECTION 13: Disposal considerations****Waste treatment methods****Recommendation** *Smaller quantities can be disposed of with household waste.***Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***SECTION 14: Transport information****UN number or ID number**ADN, IMDG, IATA *Void***UN proper shipping name**ADR, ADN, IMDG, IATA *Void***Transport hazard class(es)****ADR, ADN, IMDG, IATA**Class *Void***Packing group**ADR, IMDG, IATA *Void***Environmental hazards:****Marine pollutant:** *No***Special precautions for user** *Not applicable.***Maritime transport in bulk according to IMO****instruments** *Not applicable.***Transport/Additional information:***Not dangerous according to the above specifications.***UN "Model Regulation":** *Void***SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****GHS label elements** *Void***Hazard pictograms** *Void***Signal word** *Void***Hazard statements** *Void***Directive 2012/18/EU****Named dangerous substances - ANNEX I** *Substance is not listed.***National regulations:****Waterhazard class:** *Water hazard class 1 (Assessment by list): slightly hazardous for water.***Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

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**Trade name: Reagent AL1, Component 2**

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**SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**Department issuing SDS:** PCC-TWR

**Contact:** *MSDS.pcc@endress.com*

**Abbreviations and acronyms:**

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)*

*ICAO: International Civil Aviation Organisation*

*ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)*

*ADR: Accord relatif au transport international 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*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

**\* Data compared to the previous version altered.**

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

### Product identifier

**Trade name:** Reagent AL2, Component 1

**Synonym:** *for aluminum*

**Article number:** 51517137

**CAS Number:**

7732-18-5

**EC number:**

231-791-2

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

*No further relevant information available.*

**Application of the substance / the mixture** *Laboratory chemicals*

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

*Endress+Hauser*

*Conducta GmbH+Co. KG*

*Dieselstraße 24*

*D-70839 Gerlingen*

**Further information obtainable from:**

*Phone: +49 (0)7156 209-10117*

*E-Mail: MSDS.PCC@endress.com*

**Emergency telephone number:** 00971 800 424 (*from 7 am to 3 pm, from Sunday to Thursday*)

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

*The substance is not classified, according to the Globally Harmonised System (GHS).*

**Label elements**

**GHS label elements** *Void*

**Hazard pictograms** *Void*

**Signal word** *Void*

**Hazard statements** *Void*

**Other hazards**

*The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.*

**Results of PBT and vPvB assessment**

**PBT:** *Not applicable.*

**vPvB:** *Not applicable.*

## SECTION 3: Composition/information on ingredients

**Substances**

**CAS No. Description**

*CAS: 7732-18-5 water*

**Identification number(s)**

**EC number:** 231-791-2

## SECTION 4: First aid measures

**Description of first aid measures**

**General information:** *No special measures required.*

**After inhalation:** *Supply fresh air; consult doctor in case of complaints.*

(Contd. on page 2)

— UAE —

**Trade name: Reagent AL2, Component 1**

(Contd. of page 1)

**After skin contact:** *Generally the product does not irritate the skin.*

**After eye contact:** *Rinse opened eye for several minutes under running water.*

**After swallowing:** *If symptoms persist consult doctor.*

**Most important symptoms and effects, both acute and delayed**

*No further relevant information available.*

**Indication of any immediate medical attention and special treatment needed**

*No further relevant information available.*

**SECTION 5: Firefighting measures**

**Extinguishing media**

**Suitable extinguishing agents:**

*CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.*

**For safety reasons unsuitable extinguishing agents:** *no further information*

**Special hazards arising from the substance or mixture** *No further relevant information available.*

**Advice for firefighters** *No further relevant information available.*

**Protective equipment:** *No special measures required.*

**SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures** *Wear protective clothing.*

**Environmental precautions:** *Dilute with plenty of water.*

**Methods and material for containment and cleaning up:**

*Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).*

**Reference to other sections**

*No dangerous substances are released.*

*See Section 7 for information on safe handling.*

*See Section 8 for information on personal protection equipment.*

*See Section 13 for disposal information.*

**SECTION 7: Handling and storage**

**Precautions for safe handling** *No special measures required.*

**Information about fire - and explosion protection:** *No special measures required.*

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** *No special requirements.*

**Information about storage in one common storage facility:** *Not required.*

**Further information about storage conditions:** *None.*

**Storage class:** 12

**Specific end use(s)** *No further relevant information available.*

**SECTION 8: Exposure controls/personal protection**

**Control parameters**

**Ingredients with limit values that require monitoring at the workplace:** *Not required.*

**Additional information:** *The lists valid during the making were used as basis.*

**Exposure controls**

**Appropriate engineering controls** *No further data; see section 7.*

**Individual protection measures, such as personal protective equipment**

**General protective and hygienic measures:**

*The usual precautionary measures are to be adhered to when handling chemicals.*

**Respiratory protection:** *Not required.*

(Contd. on page 3)

**Trade name: Reagent AL2, Component 1**

(Contd. of page 2)

**Hand protection** *No chemical-protective gloves required.***Material of gloves***The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.***Penetration time of glove material***The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***Eye/face protection** *Not required.***Body protection:** *Protective work clothing***SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****General Information**

<b>Physical state</b>	<i>Fluid</i>
<b>Colour:</b>	<i>Colourless</i>
<b>Odour:</b>	<i>Odourless</i>
<b>Odour threshold:</b>	<i>Not determined.</i>
<b>Melting point/freezing point:</b>	<i>0 °C</i>
<b>Boiling point or initial boiling point and boiling range</b>	<i>100 °C</i>
<b>Flammability</b>	<i>Not applicable.</i>
<b>Lower and upper explosion limit</b>	
<b>Lower:</b>	<i>Not determined.</i>
<b>Upper:</b>	<i>Not determined.</i>
<b>Flash point:</b>	<i>Not applicable.</i>
<b>Decomposition temperature:</b>	<i>Not determined.</i>
<b>pH</b>	<i>Not determined.</i>
<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	<i>Not determined.</i>
<b>Dynamic at 20 °C:</b>	<i>0.952 mPas</i>
<b>Solubility</b>	
<b>water:</b>	<i>Fully miscible.</i>
<b>Partition coefficient n-octanol/water (log value)</b>	<i>Not determined.</i>
<b>Vapour pressure at 20 °C:</b>	<i>23 hPa</i>
<b>Density and/or relative density</b>	
<b>Density at 20 °C:</b>	<i>1 g/cm<sup>3</sup></i>
<b>Relative density</b>	<i>Not determined.</i>
<b>Vapour density</b>	<i>Not determined.</i>

**Other information****Appearance:****Form:** *Fluid***Important information on protection of health and environment, and on safety.****Ignition temperature:***Not determined.***Explosive properties:***Product does not present an explosion hazard.**Not determined.***Water:***100.0 %***Solids content:***0.0 %***Molecular weight***18.02 g/mol***Change in condition****Evaporation rate***Not determined.***Information with regard to physical hazard classes****Explosives***Void*

(Contd. on page 4)

**Trade name: Reagent AL2, Component 1**

(Contd. of page 3)

Flammable gases	Void
Aerosols	Void
Oxidising gases	Void
Gases under pressure	Void
Flammable liquids	Void
Flammable solids	Void
Self-reactive substances and mixtures	Void
Pyrophoric liquids	Void
Pyrophoric solids	Void
Self-heating substances and mixtures	Void
Substances and mixtures, which emit flammable gases in contact with water	Void
Oxidising liquids	Void
Oxidising solids	Void
Organic peroxides	Void
Corrosive to metals	Void
Desensitised explosives	Void

**SECTION 10: Stability and reactivity****Reactivity** *No further relevant information available.***Chemical stability****Thermal decomposition / conditions to be avoided:***No decomposition if used according to specifications.***Possibility of hazardous reactions** *No dangerous reactions known.***Conditions to avoid** *No further relevant information available.***Incompatible materials:** *No further relevant information available.***Hazardous decomposition products:** *No dangerous decomposition products known.***SECTION 11: Toxicological information****Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity** *Based on available data, the classification criteria are not met.***Skin corrosion/irritation** *Based on available data, the classification criteria are not met.***Serious eye damage/irritation** *Based on available data, the classification criteria are not met.***Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.***Germ cell mutagenicity** *Based on available data, the classification criteria are not met.***Carcinogenicity** *Based on available data, the classification criteria are not met.***Reproductive toxicity** *Based on available data, the classification criteria are not met.***STOT-single exposure** *Based on available data, the classification criteria are not met.***STOT-repeated exposure** *Based on available data, the classification criteria are not met.***Aspiration hazard** *Based on available data, the classification criteria are not met.***Information on other hazards****Endocrine disrupting properties***Substance is not listed.***SECTION 12: Ecological information****Toxicity****Aquatic toxicity:** *No further relevant information available.***Persistence and degradability** *No further relevant information available.***Bioaccumulative potential** *No further relevant information available.***Mobility in soil** *No further relevant information available.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.*

(Contd. on page 5)

**Trade name: Reagent AL2, Component 1**

(Contd. of page 4)

**Endocrine disrupting properties***The product does not contain substances with endocrine disrupting properties.***Other adverse effects****Additional ecological information:****General notes:** *Not hazardous for water.***SECTION 13: Disposal considerations****Waste treatment methods****Recommendation** *Smaller quantities can be disposed of with household waste.***Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***SECTION 14: Transport information****UN number or ID number****ADN, IMDG, IATA** *Void***UN proper shipping name****ADR, ADN, IMDG, IATA** *Void***Transport hazard class(es)****ADR, ADN, IMDG, IATA****Class** *Void***Packing group****ADR, IMDG, IATA** *Void***Environmental hazards:****Marine pollutant:** *No***Special precautions for user** *Not applicable.***Maritime transport in bulk according to IMO instruments***Not applicable.***Transport/Additional information:***Not dangerous according to the above specifications.***UN "Model Regulation":** *Void***SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****GHS label elements** *Void***Hazard pictograms** *Void***Signal word** *Void***Hazard statements** *Void***Directive 2012/18/EU****Named dangerous substances - ANNEX I** *Substance is not listed.***Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***SECTION 16: Other information***This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.***Department issuing SDS:** *PCC-TWR***Contact:** *MSDS.pcc@endress.com***Abbreviations and acronyms:***RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)**ICAO: International Civil Aviation Organisation**ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)*

(Contd. on page 6)

**Trade name: Reagent AL2, Component 1**

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(Contd. of page 5)

*ADR: Accord relatif au transport international 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*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

**\* Data compared to the previous version altered.**

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—UAE—

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

### Product identifier

**Trade name:** Reagent AL2, Component 2

**Synonym:** *for aluminum*

**Article number:** 51517138

**CAS Number:**

115-41-3

**EC number:**

204-088-3

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

*No further relevant information available.*

**Application of the substance / the mixture** *Laboratory chemicals*

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

*Endress+Hauser*

*Conducta GmbH+Co. KG*

*Dieselstraße 24*

*D-70839 Gerlingen*

**Further information obtainable from:**

*Phone: +49 (0)7156 209-10117*

*E-Mail: MSDS.PCC@endress.com*

**Emergency telephone number:** 00971 800 424 (*from 7 am to 3 pm, from Sunday to Thursday*)

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

*The substance is not classified, according to the Globally Harmonised System (GHS).*

**Label elements**

**GHS label elements** *Void*

**Hazard pictograms** *Void*

**Signal word** *Void*

**Hazard statements** *Void*

**Other hazards**

*The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.*

**Results of PBT and vPvB assessment**

**PBT:** *Not applicable.*

**vPvB:** *Not applicable.*

## SECTION 3: Composition/information on ingredients

**Substances**

**CAS No. Description**

*CAS: 115-41-3 pyrocatechol violet*

**Identification number(s)**

**EC number:** *204-088-3*

## SECTION 4: First aid measures

**Description of first aid measures**

**General information:** *No special measures required.*

**After inhalation:** *Supply fresh air; consult doctor in case of complaints.*

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**Trade name: Reagent AL2, Component 2**

(Contd. of page 1)

**After skin contact:** *Generally the product does not irritate the skin.*

**After eye contact:** *Rinse opened eye for several minutes under running water.*

**After swallowing:** *If symptoms persist consult doctor.*

**Most important symptoms and effects, both acute and delayed**

*No further relevant information available.*

**Indication of any immediate medical attention and special treatment needed**

*No further relevant information available.*

**SECTION 5: Firefighting measures**

**Extinguishing media**

**Suitable extinguishing agents:**

*CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.*

**For safety reasons unsuitable extinguishing agents:** *no further information*

**Special hazards arising from the substance or mixture** *No further relevant information available.*

**Advice for firefighters** *No further relevant information available.*

**Protective equipment:** *No special measures required.*

**SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures** *Wear protective clothing.*

**Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*

**Methods and material for containment and cleaning up:** *Pick up mechanically.*

**Reference to other sections**

*No dangerous substances are released.*

*See Section 7 for information on safe handling.*

*See Section 8 for information on personal protection equipment.*

*See Section 13 for disposal information.*

**SECTION 7: Handling and storage**

**Precautions for safe handling** *No special measures required.*

**Information about fire - and explosion protection:** *No special measures required.*

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** *No special requirements.*

**Information about storage in one common storage facility:** *Not required.*

**Further information about storage conditions:** *None.*

**Storage class:** 11

**Specific end use(s)** *No further relevant information available.*

**SECTION 8: Exposure controls/personal protection**

**Control parameters**

**Ingredients with limit values that require monitoring at the workplace:** *Not required.*

**Additional information:** *The lists valid during the making were used as basis.*

**Exposure controls**

**Appropriate engineering controls** *No further data; see section 7.*

**Individual protection measures, such as personal protective equipment**

**General protective and hygienic measures:**

*The usual precautionary measures are to be adhered to when handling chemicals.*

**Respiratory protection:** *Not required.*

(Contd. on page 3)

**Trade name: Reagent AL2, Component 2**

(Contd. of page 2)

**Hand protection** *No chemical-protective gloves required.***Material of gloves***The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.***Penetration time of glove material***The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***Eye/face protection** *Not required.***Body protection:** *Protective work clothing***SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****General Information****Physical state***Solid***Colour:***Dark red***Odour:***Odourless***Odour threshold:***Not determined.***Melting point/freezing point:***Undetermined.***Boiling point or initial boiling point and boiling range***Undetermined.***Flammability***Product is not flammable.***Lower and upper explosion limit****Lower:***Not determined.***Upper:***Not determined.***Flash point:***Not applicable.***Decomposition temperature:***Not determined.***pH***Not applicable.***Viscosity:****Kinematic viscosity***Not applicable.***Dynamic:***Not applicable.***Solubility****water:***Soluble.***Partition coefficient n-octanol/water (log value)** *Not determined.***Vapour pressure:***Not applicable.***Density and/or relative density****Density:***Not determined.***Relative density***Not determined.***Vapour density***Not applicable.***Other information****Appearance:****Form:***Crystalline powder***Important information on protection of health and environment, and on safety.****Ignition temperature:***Not determined.***Explosive properties:***Product does not present an explosion hazard.**Not determined.***Molecular weight***386.38 g/mol***Change in condition****Evaporation rate***Not applicable.***Information with regard to physical hazard classes****Explosives***Void***Flammable gases***Void***Aerosols***Void*

(Contd. on page 4)

## Trade name: Reagent AL2, Component 2

(Contd. of page 3)

Oxidising gases	Void
Gases under pressure	Void
Flammable liquids	Void
Flammable solids	Void
Self-reactive substances and mixtures	Void
Pyrophoric liquids	Void
Pyrophoric solids	Void
Self-heating substances and mixtures	Void
Substances and mixtures, which emit flammable gases in contact with water	Void
Oxidising liquids	Void
Oxidising solids	Void
Organic peroxides	Void
Corrosive to metals	Void
Desensitised explosives	Void

**SECTION 10: Stability and reactivity****Reactivity** *No further relevant information available.***Chemical stability****Thermal decomposition / conditions to be avoided:***No decomposition if used according to specifications.***Possibility of hazardous reactions** *No dangerous reactions known.***Conditions to avoid** *No further relevant information available.***Incompatible materials:** *No further relevant information available.***Hazardous decomposition products:** *No dangerous decomposition products known.***SECTION 11: Toxicological information****Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity** *Based on available data, the classification criteria are not met.***Skin corrosion/irritation** *Based on available data, the classification criteria are not met.***Serious eye damage/irritation** *Based on available data, the classification criteria are not met.***Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.***Germ cell mutagenicity** *Based on available data, the classification criteria are not met.***Carcinogenicity** *Based on available data, the classification criteria are not met.***Reproductive toxicity** *Based on available data, the classification criteria are not met.***STOT-single exposure** *Based on available data, the classification criteria are not met.***STOT-repeated exposure** *Based on available data, the classification criteria are not met.***Aspiration hazard** *Based on available data, the classification criteria are not met.***Information on other hazards****Endocrine disrupting properties***Substance is not listed.***SECTION 12: Ecological information****Toxicity****Aquatic toxicity:** *No further relevant information available.***Persistence and degradability** *No further relevant information available.***Bioaccumulative potential** *No further relevant information available.***Mobility in soil** *No further relevant information available.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.***Endocrine disrupting properties***The product does not contain substances with endocrine disrupting properties.*

(Contd. on page 5)

**Trade name: Reagent AL2, Component 2**

(Contd. of page 4)

**Other adverse effects****Additional ecological information:****General notes:***Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water**Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.***SECTION 13: Disposal considerations****Waste treatment methods****Recommendation** *Smaller quantities can be disposed of with household waste.***Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***SECTION 14: Transport information****UN number or ID number****ADN, IMDG, IATA** *Void***UN proper shipping name****ADR, ADN, IMDG, IATA** *Void***Transport hazard class(es)****ADR, ADN, IMDG, IATA****Class** *Void***Packing group****ADR, IMDG, IATA** *Void***Environmental hazards:****Marine pollutant:** *No***Special precautions for user** *Not applicable.***Maritime transport in bulk according to IMO instruments** *Not applicable.***Transport/Additional information:** *Not dangerous according to the above specifications.***UN "Model Regulation":** *Void***SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****GHS label elements** *Void***Hazard pictograms** *Void***Signal word** *Void***Hazard statements** *Void***Directive 2012/18/EU****Named dangerous substances - ANNEX I** *Substance is not listed.***National regulations:****Waterhazard class:** *Water hazard class 1 (Self-assessment): slightly hazardous for water.***Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***SECTION 16: Other information***This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.***Department issuing SDS:** *PCC-TWR***Contact:** *MSDS.pcc@endress.com*

(Contd. on page 6)

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**Trade name: Reagent AL2, Component 2**

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**Abbreviations and acronyms:**

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)*

*ICAO: International Civil Aviation Organisation*

*ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)*

*ADR: Accord relatif au transport international 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*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

**\* Data compared to the previous version altered.**

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UAE

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier****Trade name:** Reagent AL3**Synonym:** *for aluminum***Article number:** 51517139**Relevant identified uses of the substance or mixture and uses advised against***No further relevant information available.***Application of the substance / the mixture** *Laboratory chemicals***Details of the supplier of the safety data sheet****Manufacturer/Supplier:***Endress+Hauser**Conducta GmbH+Co. KG**Dieselstraße 24**D-70839 Gerlingen***Further information obtainable from:***Phone: +49 (0)7156 209-10117**E-Mail: MSDS.PCC@endress.com***Emergency telephone number:** 00971 800 424 ( *from 7 am to 3 pm, from Sunday to Thursday*)**SECTION 2: Hazards identification****Classification of the substance or mixture***Skin Sens. 1 H317 May cause an allergic skin reaction.***Label elements****GHS label elements***The product is classified and labelled according to the Globally Harmonised System (GHS).***Hazard pictograms**

GHS07

**Signal word** *Warning***Hazard-determining components of labelling:***Hexamethylenetetramine***Hazard statements***May cause an allergic skin reaction.***Precautionary statements***Avoid breathing dust/fume/gas/mist/vapours/spray.**Wear protective gloves.**If skin irritation or rash occurs: Get medical advice/attention.**Specific treatment (see on this label).**Dispose of contents/container in accordance with local/regional/national/international regulations.***Additional information:***Product contains: Reportable explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 9.***Other hazards***The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.*

**Trade name: Reagent AL3**

(Contd. of page 1)

**Results of PBT and vPvB assessment**PBT: *Not applicable.*vPvB: *Not applicable.***SECTION 3: Composition/information on ingredients****Mixtures****Description:** *Mixture of substances listed below with nonhazardous additions.***Dangerous components:**

CAS: 100-97-0	Hexamethylenetetramine	⚠ Flam. Sol. 2, H228; ⚠ Skin Sens. 1, H317	20-40%
EINECS: 202-905-8			

**Additional information:** *For the wording of the listed hazard phrases refer to section 16.***SECTION 4: First aid measures****Description of first aid measures****General information:** *Immediately remove any clothing soiled by the product.***After inhalation:***Supply fresh air and to be sure call for a doctor.**In case of unconsciousness place patient stably in side position for transportation.***After skin contact:***Immediately wash with water and soap and rinse thoroughly.**Immediately rinse with water.***After eye contact:** *Rinse opened eye for several minutes under running water.***After swallowing:** *If symptoms persist consult doctor.***Most important symptoms and effects, both acute and delayed***No further relevant information available.***Indication of any immediate medical attention and special treatment needed***No further relevant information available.***SECTION 5: Firefighting measures****Extinguishing media****Suitable extinguishing agents:***CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.***For safety reasons unsuitable extinguishing agents:** *no further information***Special hazards arising from the substance or mixture** *No further relevant information available.***Advice for firefighters** *No further relevant information available.***Protective equipment:** *No special measures required.***SECTION 6: Accidental release measures****Personal precautions, protective equipment and emergency procedures** *Wear protective clothing.***Environmental precautions:***Dilute with plenty of water.**Do not allow to enter sewers/ surface or ground water.***Methods and material for containment and cleaning up:***Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).**Dispose contaminated material as waste according to section 13.**Ensure adequate ventilation.***Reference to other sections***See Section 7 for information on safe handling.**See Section 8 for information on personal protection equipment.*

(Contd. on page 3)

**Trade name: Reagent AL3**

(Contd. of page 2)

See Section 13 for disposal information.

**SECTION 7: Handling and storage**

**Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

**Information about fire - and explosion protection:** No special measures required.

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** None.

**Storage class:** 12

**Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

**Control parameters**

**Ingredients with limit values that require monitoring at the workplace:**

**CAS: 100-97-0 Hexamethylenetetramine**

TLV (USA)	Long-term value: 1 mg/m <sup>3</sup> *inhalable fraction, A4, DSEN
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**DNELs**

**CAS: 100-97-0 Hexamethylenetetramine**

Oral	DNEL long term exposure	0.8 mg/kg (consumer) (systemic effect)
Dermal	DNEL long term	3.2 mg/kg (consumer) (systemic effect)
Inhalative	DNEL long-term	5.6 mg/m <sup>3</sup> (worker) (systemic effect) 1.2 mg/m <sup>3</sup> (consumer) (systemic effect)

**PNECs**

**CAS: 100-97-0 Hexamethylenetetramine**

PNEC	100 mg/L (Wastewater treatment plant)
	3 mg/L (fresh water)
	0.3 mg/L (sea water)
PNEC	1.02 mg/kg (marine sediment)
	10.2 mg/kg (freshwater sediment)
	0.28 mg/kg (soil)

**Additional information:** The lists valid during the making were used as basis.

**Exposure controls**

**Appropriate engineering controls** No further data; see section 7.

**Individual protection measures, such as personal protective equipment**

**General protective and hygienic measures:**

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

**Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

(Contd. on page 4)

**Trade name: Reagent AL3**

(Contd. of page 3)

**Hand protection***Protective gloves*

To avoid skin problems reduce the wearing of gloves to the required minimum.  
Only use chemical-protective gloves with CE-labelling of category III.  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
No chemical-protective gloves required.

**Material of gloves***Nitrile rubber, NBR**Natural rubber, NR*

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye/face protection** *Goggles recommended during refilling*

**Body protection:** *Protective work clothing*

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****General Information**

<b>Physical state</b>	<i>Fluid</i>
<b>Colour:</b>	<i>Clear</i>
<b>Odour:</b>	<i>Amine-like</i>
<b>Odour threshold:</b>	<i>Not determined.</i>
<b>Melting point/freezing point:</b>	<i>Undetermined.</i>
<b>Boiling point or initial boiling point and boiling range</b>	<i>&gt;100 °C</i>
<b>Flammability</b>	<i>Not applicable.</i>
<b>Lower and upper explosion limit</b>	
<b>Lower:</b>	<i>Not determined.</i>
<b>Upper:</b>	<i>Not determined.</i>
<b>Flash point:</b>	<i>Not applicable.</i>
<b>Decomposition temperature:</b>	<i>Not determined.</i>
<b>pH at 20 °C</b>	<i>8.5-10.5</i>
<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	<i>Not determined.</i>
<b>Dynamic:</b>	<i>Not determined.</i>
<b>Solubility</b>	
<b>water:</b>	<i>Fully miscible.</i>
<b>Partition coefficient n-octanol/water (log value)</b>	<i>Not determined.</i>
<b>Vapour pressure at 20 °C:</b>	<i>23 hPa</i>
<b>Density and/or relative density</b>	
<b>Density at 20 °C:</b>	<i>1.122 g/cm<sup>3</sup></i>
<b>Relative density</b>	<i>Not determined.</i>
<b>Vapour density</b>	<i>Not determined.</i>

**Other information****Appearance:****Form:** *Fluid*

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## Trade name: Reagent AL3

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**Important information on protection of health and environment, and on safety.****Ignition temperature:***Product is not selfigniting.***Explosive properties:***Product does not present an explosion hazard.**Not determined.***Solvent content:****Water:**

63.0 %

**Solids content:**

0.0 %

**Change in condition****Evaporation rate***Not determined.***Information with regard to physical hazard classes****Explosives***Void***Flammable gases***Void***Aerosols***Void***Oxidising gases***Void***Gases under pressure***Void***Flammable liquids***Void***Flammable solids***Void***Self-reactive substances and mixtures***Void***Pyrophoric liquids***Void***Pyrophoric solids***Void***Self-heating substances and mixtures***Void***Substances and mixtures, which emit flammable gases in contact with water***Void***Oxidising liquids***Void***Oxidising solids***Void***Organic peroxides***Void***Corrosive to metals***Void***Desensitised explosives***Void***SECTION 10: Stability and reactivity****Reactivity** *No further relevant information available.***Chemical stability****Thermal decomposition / conditions to be avoided:***No decomposition if used according to specifications.***Possibility of hazardous reactions** *No dangerous reactions known.***Conditions to avoid** *No further relevant information available.***Incompatible materials:** *No further relevant information available.***Hazardous decomposition products:** *No dangerous decomposition products known.***SECTION 11: Toxicological information****Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity** *Based on available data, the classification criteria are not met.***Respiratory or skin sensitisation** *May cause an allergic skin reaction.***Information on other hazards****Endocrine disrupting properties***None of the ingredients is listed.***SECTION 12: Ecological information****Toxicity****Aquatic toxicity:** *No further relevant information available.***Persistence and degradability** *No further relevant information available.*

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**Bioaccumulative potential** *No further relevant information available.***Mobility in soil** *No further relevant information available.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.***Endocrine disrupting properties***The product does not contain substances with endocrine disrupting properties.***Other adverse effects****Additional ecological information:****General notes:***Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water**Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.***SECTION 13: Disposal considerations****Waste treatment methods****Recommendation***Must not be disposed together with household garbage. Do not allow product to reach sewage system.***Uncleaned packaging:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agents:** *Water, if necessary together with cleansing agents.***SECTION 14: Transport information****UN number or ID number****ADN, IMDG, IATA** *Void***UN proper shipping name****ADR, ADN, IMDG, IATA** *Void***Transport hazard class(es)****ADR, ADN, IMDG, IATA****Class** *Void***Packing group****ADR, IMDG, IATA** *Void***Environmental hazards:** *Not applicable.***Special precautions for user** *Not applicable.***Maritime transport in bulk according to IMO****instruments** *Not applicable.***UN "Model Regulation":** *Void***\* SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****GHS label elements***The product is classified and labelled according to the Globally Harmonised System (GHS).***Hazard pictograms**

GHS07

**Signal word** *Warning***Hazard-determining components of labelling:***Hexamethylenetetramine*

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**Trade name: Reagent AL3**

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**Hazard statements***May cause an allergic skin reaction.***Precautionary statements***Avoid breathing dust/fume/gas/mist/vapours/spray.**Wear protective gloves.**If skin irritation or rash occurs: Get medical advice/attention.**Specific treatment (see on this label).**Dispose of contents/container in accordance with local/regional/national/international regulations.***Directive 2012/18/EU****Named dangerous substances - ANNEX I** *None of the ingredients is listed.***National regulations:****Waterhazard class:** *Water hazard class 1 (Self-assessment): slightly hazardous for water.***Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**Department issuing SDS:** *PCC-TWR***Contact:** *MSDS.pcc@endress.com***Abbreviations and acronyms:***RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)**ICAO: International Civil Aviation Organisation**ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)**ADR: Accord relatif au transport international 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**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**DNEL: Derived No-Effect Level (REACH)**PNEC: Predicted No-Effect Concentration (REACH)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Flam. Sol. 2: Flammable solids – Category 2**Skin Sens. 1: Skin sensitisation – Category 1***\* Data compared to the previous version altered.**