

03/18/2022

**Kit Components**

Product code	Description
<b>CAY843-VxxAAH</b>	<b>CA7xMN Reagent Set for manganese</b>

Components:

51508295	Reagent MN1 for manganese
71256695	Reagent MN2, Component 1 for manganese
51509509	Reagent MN2, Component 2 for manganese
51508298	Reagent MN3 for manganese

## 1 Identification

### Product identifier

**Trade name:** Reagent MN1

**Synonym:** *for manganese*

**Article number:** 51508295

**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:** +1 604 682 5050

## 2 Hazard identification

### Classification of the substance or mixture



GHS05 Corrosion

*Skin Corrosion - Category 1B H314 Causes severe skin burns and eye damage.*

*Serious Eye Damage - Category 1 H318 Causes serious eye damage.*

### Label elements

#### GHS label elements

*The product is classified and labelled according to the Globally Harmonised System (GHS).*

#### Hazard pictograms



GHS05

**Signal word** *Danger*

#### Hazard-determining components of labelling:

*acetic acid*

#### Hazard statements

*Causes severe skin burns and eye damage.*

#### Precautionary statements

*IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*

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

*Immediately call a POISON CENTER/doctor.*

*Specific treatment (see on this label).*

*Store locked up.*

*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.*

(Contd. on page 2)




— CDN —

Trade name: Reagent MN1

(Contd. of page 1)

### 3 Composition/Information on ingredients

**Chemical characterisation: Mixtures**
**Description:** Mixture of substances listed below with nonhazardous additions.

Dangerous components:		
CAS: 64-19-7	acetic acid	15-40% *
 Flammable Liquids - Category 3, H226;  Skin Corrosion - Category 1A, H314;  Acute Toxicity (Dermal) – Category 4, H312		

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

### 4 First-aid measures

**Description of first aid measures**
**General information:** Immediately remove any clothing soiled by the product.

**After inhalation:** 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. Then consult a doctor.

**After swallowing:** Drink plenty of water and provide fresh air. Call for a doctor immediately.

**Information for 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.

### 5 Fire-fighting 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**

During heating or in case of fire poisonous gases are produced.

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

**Protective equipment:** Mount respiratory protective device.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

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).

Use neutralising agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Reference to other sections**

See Section 7 for information on safe handling.

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**Trade name: Reagent MN1**

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See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**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:** Keep respiratory protective device available.

**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:** Keep container tightly sealed.

**Storage class:** 8 B

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

**8 Exposure controls/ Personal protection**

**Additional information about design of technical facilities:** No further data; see item 7.

**Control parameters****Ingredients with limit values that require monitoring at the workplace:****CAS: 64-19-7 acetic acid**

EL STEL: 15 ppm

TWA: 10 ppm

EV STEL: 37 mg/m<sup>3</sup>, 15 ppm

TWA: 25 mg/m<sup>3</sup>, 10 ppm

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

**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

**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.

**Protection of hands:**

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.

**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.

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## Trade name: Reagent MN1

(Contd. of page 3)

**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 protection:**

Tightly sealed goggles

**Body protection:** Protective work clothing

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

**Appearance:**

<b>Form:</b>	Fluid
<b>Colour:</b>	Colourless
<b>Odour:</b>	Acrid
<b>Odour threshold:</b>	Not determined.
<b>pH-value at 20 °C:</b>	2.5-4

**Change in condition**

<b>Melting point/freezing point:</b>	Undetermined.
<b>Initial boiling point and boiling range:</b>	100 °C

**Flash point:** Not applicable.

**Flammability (solid, gas):** Not applicable.

**Ignition temperature:** 485 °C

**Decomposition temperature:** Not determined.

**Auto-ignition temperature:** Product is not selfigniting.

**Explosive properties:** Product does not present an explosion hazard.  
Not determined.

**Explosion limits:**

<b>Lower:</b>	4 Vol %
<b>Upper:</b>	17 Vol %

**Vapour pressure at 20 °C:** 23 hPa

**Density at 20 °C:** 1.014 g/cm<sup>3</sup>

**Relative density** Not determined.

**Vapour density** Not determined.

**Evaporation rate** Not determined.

**Solubility in / Miscibility with water:**

Fully miscible.

**Partition coefficient: n-octanol/water:** Not determined.

**Viscosity:**

<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.

**Solvent content:**

<b>Organic solvents:</b>	40.0 %
<b>Water:</b>	55.0 %

**Solids content:** 0.0 %

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Trade name: Reagent MN1

(Contd. of page 4)

Other information

No further relevant information available.

## 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.

## 11 Toxicological information

Information on toxicological effects

Acute toxicity

LD/LC50 values relevant for classification:

**CAS: 64-19-7 acetic acid**

Oral LD50 3,310 mg/kg (rat)

Dermal LD50 1,060 mg/kg (rbt)

**Primary irritant effect:****Skin corrosion/irritation** Caustic effect on skin and mucous membranes.**Serious eye damage/irritation**

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

**Respiratory or skin sensitisation** No sensitising effects known.**Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

## 12 Ecological information

Toxicity

Aquatic toxicity:

**CAS: 64-19-7 acetic acid**

EC50[48h] 36.9 mg/l (Daphnia Magna)

EC50[72h] &gt;1,000 mg/l (Algae)

**Persistence and degradability** No further relevant information available.**Behaviour in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**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.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

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—CDN—

**Trade name: Reagent MN1**

(Contd. of page 5)

**Other adverse effects** *No further relevant information available.*

**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.*

**\*14 Transport information**

**UN-Number**

UN2790

**IMDG, IATA**

**UN proper shipping name**

UN2790 ACETIC ACID SOLUTION

**ADR**

ACETIC ACID SOLUTION

**IMDG**

**IATA**

Acetic acid solution

**Transport hazard class(es)**

**ADR**



**Class**

8 (C3) Corrosive substances.

**Label**

8

**IMDG, IATA**



**Class**

8 Corrosive substances.

**Label**

8

**Packing group**

III

**ADR, IMDG, IATA**

**Environmental hazards:**

*Not applicable.*

**Special precautions for user**

*Warning: Corrosive substances.*

**Hazard identification number (Kemler code):**

80

**EMS Number:**

F-A,S-B

**Segregation groups**

Acids

**Stowage Category**

A

**Transport in bulk according to Annex II of**

**Marpol and the IBC Code**

*Not applicable.*

**Transport/Additional information:**

**ADR**

**Limited quantities (LQ)**

5L

**Transport category**

3

**Tunnel restriction code**

E

**IMDG**

**Limited quantities (LQ)**

5L

**Excepted quantities (EQ)**

Code: E1

*Maximum net quantity per inner packaging: 30 ml*

*Maximum net quantity per outer packaging: 1000 ml*

(Contd. on page 7)

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**Trade name: Reagent MN1**

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**UN "Model Regulation":**

UN 2790 ACETIC ACID SOLUTION, 8, III

(Contd. of page 6)

## 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**

GHS05

**Signal word** *Danger***Hazard-determining components of labelling:***acetic acid***Hazard statements***Causes severe skin burns and eye damage.***Precautionary statements***IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].**IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**Immediately call a POISON CENTER/doctor.**Specific treatment (see on this label).**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***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.*

## 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***Date of the latest revision of the safety data sheet** *03/18/2022 / 9***Abbreviations and acronyms:***ICAO: International Civil Aviation Organisation**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***\* Data compared to the previous version altered.**



## 1 Identification

### Product identifier

**Trade name:** Reagent MN2, Component 1

**Synonym:** *for manganese*

**Article number:** 71256695

### CAS Number:

7732-18-5

### EC number:

231-791-2

**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:** +1 604 682 5050

## 2 Hazard 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.*

## \* 3 Composition/Information on ingredients

### Chemical characterisation: Substances

#### CAS No. Description

*CAS: 7732-18-5 water*

#### Identification number(s)

*EC number: 231-791-2*

## 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.*

**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.*

(Contd. on page 2)

**Trade name: Reagent MN2, Component 1**

(Contd. of page 1)

**Information for 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.***5 Fire-fighting 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.***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.***7 Handling and storage****Precautions for safe handling** *No special measures required.***Information about fire - and explosion protection:** *No special measures required.***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.***8 Exposure controls/ Personal protection****Additional information about design of technical facilities:** *No further data; see item 7.***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****Personal protective equipment:****General protective and hygienic measures:***The usual precautionary measures are to be adhered to when handling chemicals.***Respiratory protection:** *Not required.***Protection of hands:** *No chemical-protective gloves required.*

(Contd. on page 3)

**Trade name: Reagent MN2, Component 1**

(Contd. of page 2)

**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 protection:** Not required.

**Body protection:** Protective work clothing

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

<b>Form:</b>	Fluid
<b>Colour:</b>	Colourless
<b>Odour:</b>	Odourless
<b>Odour threshold:</b>	Not determined.
<b>pH-value:</b>	Neutral

**Change in condition**

<b>Melting point/freezing point:</b>	0 °C
<b>Initial boiling point and boiling range:</b>	100 °C

**Flash point:** Not applicable.

**Flammability (solid, gas):** Not applicable.

**Decomposition temperature:** Not determined.

**Auto-ignition temperature:** Not determined.

**Explosive properties:** Product does not present an explosion hazard.  
Not determined.

**Explosion limits:**

<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.

**Vapour pressure at 20 °C:** 23 hPa

<b>Density at 20 °C:</b>	1 g/cm <sup>3</sup>
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.

**Solubility in / Miscibility with water:**

Fully miscible.

**Partition coefficient: n-octanol/water:** Not determined.

**Viscosity:**

<b>Dynamic at 20 °C:</b>	0.952 mPas
<b>Kinematic:</b>	Not determined.
<b>Water:</b>	100.0 %

**Solids content:** 0.0 %

**Other information**

No further relevant information available.

(Contd. on page 4)

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**Trade name: Reagent MN2, Component 1**

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(Contd. of page 3)

## 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.*

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## 11 Toxicological information

**Information on toxicological effects**

**Acute toxicity**

**Primary irritant effect:**

**Skin corrosion/irritation** *No irritant effect.*

**Serious eye damage/irritation** *No irritating effect.*

**Respiratory or skin sensitisation** *No sensitising effects known.*

**Additional toxicological information:**

*When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.*

*The substance is not subject to classification according to the latest version of the EU lists.*

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## 12 Ecological information

**Toxicity**

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

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

**Behaviour in environmental systems:**

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

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

**Additional ecological information:**

**General notes:** *Not hazardous for water.*

**Results of PBT and vPvB assessment**

**PBT:** *Not applicable.*

**vPvB:** *Not applicable.*

**Other adverse effects** *No further relevant information available.*

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## 13 Disposal considerations

**Waste treatment methods**

**Recommendation**

*Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.*

*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.*

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## 14 Transport information

**UN-Number**

**ADN, IMDG, IATA**

*Void*

**UN proper shipping name**

**ADR, ADN, IMDG, IATA**

*Void*

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(Contd. on page 5)

**Trade name: Reagent MN2, Component 1**

(Contd. of page 4)

**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.

**Transport in bulk according to Annex II of****Marpol and the IBC Code**

Not applicable.

**Transport/Additional information:**

Not dangerous according to the above specifications.

**UN "Model Regulation":**

Void

**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

**GHS label elements** Void**Hazard pictograms** Void**Signal word** Void**Hazard statements** Void**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**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**Date of the latest revision of the safety data sheet** 03/18/2022 / 5**Abbreviations and acronyms:**

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)

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.**

## 1 Identification

### Product identifier

**Trade name:** Reagent MN2, Component 2

**Synonym:** *for manganese*

**Article number:** 51509509

**CAS Number:**

7790-21-8

**EC number:**

232-196-0

**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:** +1 604 682 5050

## 2 Hazard identification

### Classification of the substance or mixture



*GHS03 Flame over circle*

*Oxidizing Solids – Category 2*

*H272 May intensify fire; oxidizer.*



*GHS07*

*Skin Irritation - Category 2*

*H315 Causes skin irritation.*

*Eye Irritation - Category 2A*

*H319 Causes serious eye irritation.*

*Specific Target Organ Toxicity - Single Exposure - Category 3*

*H335 May cause respiratory irritation.*

### Label elements

**GHS label elements**

*The substance is classified and labelled according to the Globally Harmonised System (GHS).*

**Hazard pictograms**



GHS03 GHS07

**Signal word** *Danger*

**Hazard-determining components of labelling:**

*Potassium periodate*

**Hazard statements**

*May intensify fire; oxidizer.*

*Causes skin irritation.*

*Causes serious eye irritation.*

*May cause respiratory irritation.*

**Trade name: Reagent MN2, Component 2**

(Contd. of page 1)

**Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep away from clothing and other combustible materials.

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

Store locked up.

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.

**\* 3 Composition/Information on ingredients****Chemical characterisation: Substances****CAS No. Description**

CAS: 7790-21-8 Potassium periodate

**Identification number(s)**

EC number: 232-196-0

**4 First-aid measures****Description of first aid measures**

**General information:** Immediately remove any clothing soiled by the product.

**After inhalation:** 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. If symptoms persist, consult a doctor.

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

**Information for 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.

**5 Fire-fighting 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.

**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:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

(Contd. on page 3)

**Trade name: Reagent MN2, Component 2**

(Contd. of page 2)

**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.

**7 Handling and storage****Precautions for safe handling**

Keep away from heat and direct sunlight.

Ensure good ventilation/exhaustion at the workplace.

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

**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:** Keep container tightly sealed.

**Storage class:** 5.1 B

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

**8 Exposure controls/ Personal protection**

**Additional information about design of technical facilities:** No further data; see item 7.

**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****Personal protective equipment:****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

**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.

**Protection of hands:**

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.

**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.

Nitrile rubber, NBR

Natural rubber, NR

**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.

(Contd. on page 4)



## Trade name: Reagent MN2, Component 2

(Contd. of page 3)

## Eye protection:



Tightly sealed goggles

Body protection: Protective work clothing

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

**Appearance:**

Form:	Crystalline powder
Colour:	White
Odour:	Characteristic
Odour threshold:	Not determined.
pH-value:	4.5-5.5

**Change in condition**

Melting point/freezing point:	582 °C
Initial boiling point and boiling range:	Undetermined.

Flash point: Not applicable.

Flammability (solid, gas): Product is not flammable.

Decomposition temperature: Not determined.

Auto-ignition temperature: Not determined.

Explosive properties: Product does not present an explosion hazard.  
Not determined.**Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

Vapour pressure: Not applicable.

Density at 20 °C: 3.618 g/cm<sup>3</sup>Bulk density: 1,650 kg/m<sup>3</sup>

Relative density: Not determined.

Vapour density: Not applicable.

Evaporation rate: Not applicable.

Solubility in / Miscibility with  
water at 25 °C:

5.1 g/l

Partition coefficient: n-octanol/water: Not determined.

**Viscosity:**

Dynamic: Not applicable.

Kinematic: Not applicable.

Solids content: 100.0 %

**Other information**

No further relevant information available.

## 10 Stability and reactivity

Reactivity No further relevant information available.

(Contd. on page 5)

**Trade name: Reagent MN2, Component 2**

(Contd. of page 4)

**Chemical stability**

The material is under normal environmental conditions and under conditions of storage and handling stable at expected temperature and pressure conditions.

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

No decomposition if used according to specifications.

**Possibility of hazardous reactions**

Reacts with powdered metals.

Reacts with organic substances.

Reacts with reducing agents.

**Conditions to avoid** avoid extreme temperatures

**Incompatible materials:**

reducing agent

Organic Substances

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

**11 Toxicological information****Information on toxicological effects****Acute toxicity****Primary irritant effect:**

**Skin corrosion/irritation** Irritant to skin and mucous membranes.

**Serious eye damage/irritation** Irritating effect.

**Respiratory or skin sensitisation** No sensitising effects known.

**12 Ecological information****Toxicity**

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

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

**Behaviour in environmental systems:**

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

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

**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.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

**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.

**\*14 Transport information****UN-Number****IMDG, IATA**

UN1479

**UN proper shipping name****ADR**

UN1479 OXIDIZING SOLID, N.O.S. (Potassium periodate)

(Contd. on page 6)

**Trade name: Reagent MN2, Component 2**

(Contd. of page 5)

**IMDG**

**IATA**

**Transport hazard class(es)**

*OXIDIZING SOLID, N.O.S. (Potassium periodate)*

*Oxidizing solid, n.o.s. (containing Potassium periodate)*

**ADR**



**Class**

5.1 (O2) Oxidising substances.

**Label**

5.1

**IMDG, IATA**



**Class**

5.1 Oxidising substances.

**Label**

5.1

**Packing group**

**ADR, IMDG, IATA**

II

**Environmental hazards:**

Not applicable.

**Special precautions for user**

Warning: Oxidising substances.

**Hazard identification number (Kemler code):**

50

**EMS Number:**

F-A,S-Q

**Stowage Category**

B

**Segregation Code**

SG38 Stow "separated from" SGG2-ammonium compounds.  
 SG49 Stow "separated from" SGG6-cyanides  
 SG60 Stow "separated from" SGG16-peroxides  
 SG61 Stow "separated from" SGG15-powdered metals

**Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

**Transport/Additional information:**

**ADR**

**Limited quantities (LQ)**

1 kg

**Transport category**

2

**Tunnel restriction code**

E

**IMDG**

**Limited quantities (LQ)**

1 kg

**Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

**UN "Model Regulation":**

UN 1479 OXIDIZING SOLID, N.O.S. (POTASSIUM PERIODATE), 5.1, II

**15 Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**GHS label elements**

*The substance is classified and labelled according to the Globally Harmonised System (GHS).*

(Contd. on page 7)

**Trade name: Reagent MN2, Component 2**

(Contd. of page 6)

**Hazard pictograms**

GHS03 GHS07

**Signal word** *Danger***Hazard-determining components of labelling:***Potassium periodate***Hazard statements***May intensify fire; oxidizer.**Causes skin irritation.**Causes serious eye irritation.**May cause respiratory irritation.***Precautionary statements***Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.**Keep away from clothing and other combustible materials.**IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***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.***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***Date of the latest revision of the safety data sheet** *03/18/2022 / 10***Abbreviations and acronyms:***ICAO: International Civil Aviation Organisation**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.**

## 1 Identification

### Product identifier

**Trade name:** Reagent MN3

**Synonym:** *for manganese*

**Article number:** 51508298

**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:** +1 604 682 5050

## 2 Hazard identification

### Classification of the substance or mixture

*The product 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.*

## 3 Composition/Information on ingredients

### Chemical characterisation: Mixtures

**Description:** *aqueous solution*

**Dangerous components:** *Void*

**Additional information:** *For the wording of the listed hazard phrases refer to section 16.*

## 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.*

**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.*

### Information for 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.*

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**Trade name: Reagent MN3**

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(Contd. of page 1)

## \* 5 Fire-fighting 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.*

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## 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.*

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## 7 Handling and storage

**Precautions for safe handling** *No special measures required.***Information about fire - and explosion protection:** *No special measures required.***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.*

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## 8 Exposure controls/ Personal protection

**Additional information about design of technical facilities:** *No further data; see item 7.***Control parameters****Ingredients with limit values that require monitoring at the workplace:***The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.***Additional information:** *The lists valid during the making were used as basis.***Exposure controls****Personal protective equipment:****General protective and hygienic measures:***The usual precautionary measures are to be adhered to when handling chemicals.***Respiratory protection:** *Not required.***Protection of hands:** *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.*

(Contd. on page 3)

**Trade name: Reagent MN3**

(Contd. of page 2)

**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 protection:** *Not required.*

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

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

<b>Form:</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>pH-value at 20 °C:</b>	<i>&lt;2</i>

**Change in condition**

<b>Melting point/freezing point:</b>	<i>0 °C</i>
<b>Initial boiling point and boiling range:</b>	<i>100 °C</i>

**Flash point:** *Not applicable.*

**Flammability (solid, gas):** *Not applicable.*

**Decomposition temperature:** *Not determined.*

**Auto-ignition temperature:** *Product is not selfigniting.*

**Explosive properties:** *Product does not present an explosion hazard.  
Not determined.*

**Explosion limits:**

<b>Lower:</b>	<i>Not determined.</i>
<b>Upper:</b>	<i>Not determined.</i>

**Vapour pressure at 20 °C:** *23 hPa*

<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>
<b>Evaporation rate</b>	<i>Not determined.</i>

**Solubility in / Miscibility with water:**

*Fully miscible.*

**Partition coefficient: n-octanol/water:** *Not determined.*

**Viscosity:**

<b>Dynamic:</b>	<i>Not determined.</i>
<b>Kinematic:</b>	<i>Not determined.</i>

**Solvent content:**

<b>Water:</b>	<i>99.7 %</i>
<b>Solids content:</b>	<i>0.0 %</i>

**Other information** *No further relevant information available.*

**10 Stability and reactivity**

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

(Contd. on page 4)

— CDN —

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**Trade name: Reagent MN3**

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(Contd. of page 3)

**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.*

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**11 Toxicological information****Information on toxicological effects****Acute toxicity****Primary irritant effect:****Skin corrosion/irritation** *No irritant effect.***Serious eye damage/irritation** *No irritating effect.***Respiratory or skin sensitisation** *No sensitising effects known.***Additional toxicological information:***The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.**When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.*

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**\*12 Ecological information****Toxicity****Aquatic toxicity:** *No further relevant information available.***Persistence and degradability** *No further relevant information available.***Behaviour in environmental systems:****Bioaccumulative potential** *No further relevant information available.***Mobility in soil** *No further relevant information available.***Additional ecological information:****General notes:***Not hazardous for water.**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.***Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.***Other adverse effects** *No further relevant information available.*

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**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.*

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**\*14 Transport information****UN-Number****ADN, IMDG, IATA**

Void

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

Void

(Contd. on page 5)



**Trade name: Reagent MN3**

(Contd. of page 4)

**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.

**Transport in bulk according to Annex II of****Marpol and the IBC Code**

Not applicable.

**Transport/Additional information:**

Not dangerous according to the above specifications.

**UN "Model Regulation":**

Void

**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

**GHS label elements** Void**Hazard pictograms** Void**Signal word** Void**Hazard statements** Void**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**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**Date of the latest revision of the safety data sheet** 03/18/2022 / 4**Abbreviations and acronyms:**

ICAO: International Civil Aviation Organisation

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

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