18.03.2022 **Kit Components**

Product code	Description
CAY843-VxxAAH	**CA7xMN Reagent Set for manganese**

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

SECTION 1: Identification of the substance or mixture and of the supplier

1.1 Product identifier

Trade name: Reagent MN1
Synonym: *for manganese*

Article number: *51508295*

1.2 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*

1.3 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

1.4 Emergency telephone number: *0064 800 764 766*

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

C; Corrosive

R34: Causes burns.

Information concerning particular hazards for human and environment:
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
Classification system:
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

2.2 Label elements

Labelling according to EU guidelines:
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

Code letter and hazard designation of product:

C Corrosive

Hazard-determining components of labelling:
acetic acid

Risk phrases:
34 Causes burns.

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Safety phrases:
20 *When using do not eat or drink.*
26 *In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.*
36/37/39 *Wear suitable protective clothing, gloves and eye/face protection.*
45 *In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).*
60 *This material and its container must be disposed of as hazardous waste.*

2.3 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

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

Dangerous components:		
CAS: 64-19-7 *EINECS: 200-580-7*	*acetic acid* *C R35* *R10* *Flam. Liq. 3, H226; Skin Corr. 1A, H314; Acute Tox. 4, H312* *Specific concentration limits: Skin Corr. 1A; H314: C ≥ 90 %* *Skin Corr. 1B; H314: 25 % ≤ C < 90 %* *Skin Irrit. 2; H315: 10 % ≤ C < 25 %* *Eye Irrit. 2; H319: 10 % ≤ C < 25 %*	*20-40%*

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

SECTION 4: First aid measures

4.1 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.*

4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Fire fighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
For safety reasons unsuitable extinguishing agents: *no further information*

5.2 Special hazards arising from the substance or mixture
During heating or in case of fire poisonous gases are produced.

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

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Protective equipment: *Mount respiratory protective device.*

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
Wear protective clothing.
6.2 Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
6.3 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.
6.4 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

7.1 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.*

7.2 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: *Keep container tightly sealed.*
Storage class: *8 B*
7.3 Specific end use(s) *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:	
CAS: 64-19-7 acetic acid	
WES (New Zealand)	*Short-term value: 37 mg/m³, 15 ppm* *Long-term value: 25 mg/m³, 10 ppm*
IOELV (EU)	*Short-term value: 50 mg/m³, 20 ppm* *Long-term value: 25 mg/m³, 10 ppm*

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

8.2 Exposure controls
Appropriate engineering controls *No further data; see item 7.*
Individual protection measures, such as 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.

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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.

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.

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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye/face protection

Tightly sealed goggles

Body protection: *Protective work clothing*

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information	
Physical state	*Fluid*
Colour:	*Colourless*
Odour:	*Acrid*
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:	*4 Vol %*
Upper:	*17 Vol %*
Flash point:	*Not applicable.*
Ignition temperature:	*485 °C*
Decomposition temperature:	*Not determined.*
pH at 20 °C	*2.5-4*
Viscosity:	
Kinematic viscosity	*Not determined.*
Dynamic:	*Not determined.*
Solubility	
water:	*Fully miscible.*
Partition coefficient n-octanol/water (log value)	*Not determined.*
Vapour pressure at 20 °C:	*23 hPa*

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Density and/or relative density	
Density at 20 °C:	*1.014 g/cm³*
Relative density	*Not determined.*
Vapour density	*Not determined.*
9.2 Other information	
Appearance:	
Form:	*Fluid*
Important information on protection of health and environment, and on safety.	
Auto-ignition temperature:	*Product is not selfigniting.*
Explosive properties:	*Product does not present an explosion hazard.* *Not determined.*
Solvent content:	
Organic solvents:	*40.0 %*
Water:	*55.0 %*
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

10.1 Reactivity *No further relevant information available.*
10.2 Chemical stability
Thermal decomposition / conditions to be avoided:
No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions *No dangerous reactions known.*
10.4 Conditions to avoid *No further relevant information available.*
10.5 Incompatible materials: *No further relevant information available.*
10.6 Hazardous decomposition products: *No dangerous decomposition products known.*

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SECTION 11: Toxicological information

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

Skin corrosion/irritation *Causes severe skin burns and eye damage.*
Serious eye damage/irritation *Causes serious eye damage.*
11.2 Information on other hazards

Endocrine disrupting properties
None of the ingredients is listed.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:	
CAS: 64-19-7 acetic acid	
EC50[48h]	*36.9 mg/l (Daphnia Magna)*
EC50[72h]	*>1,000 mg/l (Algae)*

12.2 Persistence and degradability *No further relevant information available.*
12.3 Bioaccumulative potential *No further relevant information available.*
12.4 Mobility in soil *No further relevant information available.*
12.5 Results of PBT and vPvB assessment
PBT: *Not applicable.*
vPvB: *Not applicable.*
12.6 Endocrine disrupting properties
The product does not contain substances with endocrine disrupting properties.
12.7 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.
Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations

13.1 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

14.1 UN number or ID number
IMDG, IATA *UN2790*
14.2 UN proper shipping name
ADR *UN2790 ACETIC ACID SOLUTION*
IMDG *ACETIC ACID SOLUTION*

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IATA *Acetic acid solution*
14.3 Transport hazard class(es)

ADR

Class *8 (C3) Corrosive substances.*
Label *8*

IMDG, IATA

Class *8 Corrosive substances.*
Label *8*
14.4 Packing group
ADR, IMDG, IATA *III*
14.5 Environmental hazards: *Not applicable.*
14.6 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*
14.7 Maritime transport in bulk according to IMO instruments *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
UN "Model Regulation": *UN 2790 ACETIC ACID SOLUTION, 8, III*

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

New Zealand Inventory of Chemicals
All ingredients are listed.

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.*
15.2 Chemical safety assessment: *A Chemical Safety Assessment has not been carried out.*

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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.

16.1 Relevant phrases
H226 Flammable liquid and vapour.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.

R10 Flammable.
R35 Causes severe burns.

16.3 Recommended restriction of use

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)
ICAO: International Civil Aviation Organisation
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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
*** Data compared to the previous version altered.**

SECTION 1: Identification of the substance or mixture and of the supplier

1.1 Product identifier

Trade name: **Reagent MN2, Component 1**
Synonym: *for manganese*

Article number: *71256695*

CAS Number:
7732-18-5
EC number:
231-791-2

1.2 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*

1.3 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

1.4 Emergency telephone number: *0064 800 764 766*

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
The substance is not classified, according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC *Not applicable.*

Information concerning particular hazards for human and environment: *Not applicable.*

2.2 Label elements

Labelling according to EU guidelines:
Observe the general safety regulations when handling chemicals.
The substance is not subject to classification according to EU lists and other sources of literature known to us.
2.3 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

3.1 Substances
CAS No. Description
CAS: 7732-18-5 water
Identification number(s)
EC number: *231-791-2*

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SECTION 4: First aid measures

4.1 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.*
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Fire fighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
For safety reasons unsuitable extinguishing agents: *no further information*
5.2 Special hazards arising from the substance or mixture *No further relevant information available.*
5.3 Advice for firefighters *No further relevant information available.*
Protective equipment: *No special measures required.*

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures *Wear protective clothing.*
6.2 Environmental precautions: *Dilute with plenty of water.*
6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
6.4 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

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

7.2 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*
7.3 Specific end use(s) *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

8.1 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.*

(Contd. on page 3)

(Contd. of page 2)

8.2 Exposure controls
Appropriate engineering controls *No further data; see item 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.*

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 trough 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

9.1 Information on basic physical and chemical properties

General Information	
Physical state	*Fluid*
Colour:	*Colourless*
Odour:	*Odourless*
Odour threshold:	*Not determined.*
Melting point/freezing point:	*0 °C*
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	*Neutral*
Viscosity:	
Kinematic viscosity	*Not determined.*
Dynamic at 20 °C:	*0.952 mPas*
Solubility	
water:	*Fully miscible.*
Partition coefficient n-octanol/water (log value)	*Not determined.*
Vapour pressure at 20 °C:	*23 hPa*
Density and/or relative density	
Density at 20 °C:	*1 g/cm³*
Relative density	*Not determined.*
Vapour density	*Not determined.*

9.2 Other information

Appearance:	
Form:	*Fluid*
Important information on protection of health and environment, and on safety.	
Auto-ignition temperature:	*Not determined.*
Explosive properties:	*Product does not present an explosion hazard.*
	Not determined.
Water:	*100.0 %*

(Contd. on page 4)

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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

10.1 Reactivity *No further relevant information available.*
10.2 Chemical stability
Thermal decomposition / conditions to be avoided:
No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions *No dangerous reactions known.*
10.4 Conditions to avoid *No further relevant information available.*
10.5 Incompatible materials: *No further relevant information available.*
10.6 Hazardous decomposition products: *No dangerous decomposition products known.*

SECTION 11: Toxicological information

11.2 Information on other hazards

Endocrine disrupting properties
Substance is not listed.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: *No further relevant information available.*
12.2 Persistence and degradability *No further relevant information available.*
12.3 Bioaccumulative potential *No further relevant information available.*
12.4 Mobility in soil *No further relevant information available.*
12.5 Results of PBT and vPvB assessment
PBT: *Not applicable.*
vPvB: *Not applicable.*
12.6 Endocrine disrupting properties
The product does not contain substances with endocrine disrupting properties.

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(Contd. of page 4)

12.7 Other adverse effects
Additional ecological information:
General notes: *Not hazardous for water.*

SECTION 13: Disposal considerations

13.1 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.*

SECTION 14: Transport information

14.1 UN number or ID number
ADN, IMDG, IATA *Void*
14.2 UN proper shipping name
ADR, ADN, IMDG, IATA *Void*
14.3 Transport hazard class(es)

ADR, ADN, IMDG, IATA
Class *Void*
14.4 Packing group
ADR, IMDG, IATA *Void*
14.5 Environmental hazards:
Marine pollutant: *No*
14.6 Special precautions for user *Not applicable.*
14.7 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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

New Zealand Inventory of Chemicals
Substance is listed.

HSNO Approval numbers
Substance is not listed.

Directive 2012/18/EU
Named dangerous substances - ANNEX I *Substance is not listed.*
15.2 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.

16.3 Recommended restriction of use

Department issuing SDS: *PCC-TWR*
Contact: *MSDS.pcc@endress.com*

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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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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.**

SECTION 1: Identification of the substance or mixture and of the supplier

1.1 Product identifier

Trade name: **Reagent MN2, Component 2**
Synonym: *for manganese*

Article number: *51509509*

CAS Number:
7790-21-8
EC number:
232-196-0

1.2 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*

1.3 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

1.4 Emergency telephone number: *0064 800 764 766*

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

flame over circle

Ox. Sol. 2 H272 May intensify fire; oxidiser.

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Irritant

R36/37/38: Irritating to eyes, respiratory system and skin.

O; Oxidising

R8: Contact with combustible material may cause fire.

Information concerning particular hazards for human and environment: *Not applicable.*

2.2 Label elements

Labelling according to EU guidelines:
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

(Contd. on page 2)

(Contd. of page 1)

Code letter and hazard designation of product:

Xi Irritant
O Oxidising

Risk phrases:
8 Contact with combustible material may cause fire.
36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:
17 Keep away from combustible material.
24/25 Avoid contact with skin and eyes.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36 Wear suitable protective clothing.
2.3 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

3.1 Substances
CAS No. Description
CAS: 7790-21-8 Potassium periodate
Identification number(s)
EC number: *232-196-0*

SECTION 4: First aid measures

4.1 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.*
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Fire fighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
For safety reasons unsuitable extinguishing agents: *no further information*
5.2 Special hazards arising from the substance or mixture *No further relevant information available.*
5.3 Advice for firefighters *No further relevant information available.*

(Contd. on page 3)

(Contd. of page 2)

Protective equipment: *No special measures required.*

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures *Wear protective clothing.*
6.2 Environmental precautions: *Do not allow to enter sewers/ surface or ground water.*
6.3 Methods and material for containment and cleaning up:
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
6.4 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

7.1 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.*

7.2 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: *Keep container tightly sealed.*
Storage class: *5.1 B*
7.3 Specific end use(s) *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

8.1 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.*

8.2 Exposure controls
Appropriate engineering controls *No further data; see item 7.*
Individual protection measures, such as 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.

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.

(Contd. on page 4)

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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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye/face protection

Tightly sealed goggles

Body protection: *Protective work clothing*

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information	
Physical state	*Solid*
Colour:	*White*
Odour:	*Characteristic*
Odour threshold:	*Not determined.*
Melting point/freezing point:	*582 °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	*4.5-5.5*
Viscosity:	
Kinematic viscosity	*Not applicable.*
Dynamic:	*Not applicable.*
Solubility	
water at 25 °C:	*5.1 g/l*
Partition coefficient n-octanol/water (log value)	*Not determined.*
Vapour pressure:	*Not applicable.*
Density and/or relative density	
Density at 20 °C:	*3.618 g/cm³*
Relative density	*Not determined.*
Bulk density:	*1,650 kg/m³*
Vapour density	*Not applicable.*

9.2 Other information

Appearance:	
Form:	*Crystalline powder*
Important information on protection of health and environment, and on safety.	
Auto-ignition temperature:	*Not determined.*
Explosive properties:	*Product does not present an explosion hazard.*
	Not determined.
Solids content:	*100.0 %*

(Contd. on page 5)

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Change in condition	
Evaporation rate	*Not applicable.*
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	*May intensify fire; oxidiser.*
Organic peroxides	*Void*
Corrosive to metals	*Void*
Desensitised explosives	*Void*

SECTION 10: Stability and reactivity

10.1 Reactivity *No further relevant information available.*
10.2 Chemical stability
The material is under normal environmental conditions and under conditions of storage and handlingstable at expected temperature and pressure conditions.
Thermal decomposition / conditions to be avoided:
No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions
Reacts with powdered metals.
Reacts with organic substances.
Reacts with reducing agents.
10.4 Conditions to avoid *avoid extreme temperatures*
10.5 Incompatible materials:
reducing agent
Organic Substances
10.6 Hazardous decomposition products: *No dangerous decomposition products known.*

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Skin corrosion/irritation *Causes skin irritation.*
Serious eye damage/irritation *Causes serious eye irritation.*
STOT-single exposure *May cause respiratory irritation.*
11.2 Information on other hazards

Endocrine disrupting properties
Substance is not listed.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: *No further relevant information available.*
12.2 Persistence and degradability *No further relevant information available.*

(Contd. on page 6)

(Contd. of page 5)

12.3 Bioaccumulative potential *No further relevant information available.*
12.4 Mobility in soil *No further relevant information available.*
12.5 Results of PBT and vPvB assessment
PBT: *Not applicable.*
vPvB: *Not applicable.*
12.6 Endocrine disrupting properties
The product does not contain substances with endocrine disrupting properties.
12.7 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

13.1 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

14.1 UN number or ID number
IMDG, IATA *UN1479*
14.2 UN proper shipping name
ADR *UN1479 OXIDIZING SOLID, N.O.S. (Potassium periodate)*
IMDG *OXIDIZING SOLID, N.O.S. (Potassium periodate)*
IATA *Oxidizing solid, n.o.s. (containing Potassium periodate)*

14.3 Transport hazard class(es)

ADR

Class *5.1 (O2) Oxidising substances.*
Label *5.1*

IMDG, IATA

Class *5.1 Oxidising substances.*
Label *5.1*
14.4 Packing group
ADR, IMDG, IATA *II*
14.5 Environmental hazards: *Not applicable.*
14.6 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.*

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SG49 Stow "separated from" SGG6-cyanides
SG60 Stow "separated from" SGG16-peroxides
SG61 Stow "separated from" SGG15-powdered metals

14.7 Maritime transport in bulk according to IMO instruments *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*

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

New Zealand Inventory of Chemicals
Substance is listed.

HSNO Approval numbers
HSR001341

Directive 2012/18/EU
Named dangerous substances - ANNEX I *Substance is not listed.*
Seveso category *P8 OXIDISING LIQUIDS AND SOLIDS*
Qualifying quantity (tonnes) for the application of lower-tier requirements *50 t*
Qualifying quantity (tonnes) for the application of upper-tier requirements *200 t*

National regulations:

Waterhazard class: *Water hazard class 1 (Self-assessment): slightly hazardous for water.*
15.2 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.

16.3 Recommended restriction of use

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)
ICAO: International Civil Aviation Organisation
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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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
Ox. Sol. 2: Oxidizing solids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2

(Contd. on page 8)

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Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
*** Data compared to the previous version altered.**

SECTION 1: Identification of the substance or mixture and of the supplier

1.1 Product identifier

Trade name: Reagent MN3
Synonym: *for manganese*

Article number: *51508298*

1.2 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*

1.3 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

1.4 Emergency telephone number: *0064 800 764 766*

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
The product is not classified, according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC *Not applicable.*

Information concerning particular hazards for human and environment:
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
Classification system:
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

2.2 Label elements

Labelling according to EU guidelines:
Observe the general safety regulations when handling chemicals.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

Safety phrases:
29 Do not empty into drains.
2.3 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

3.2 Mixtures
Description: *aqueous solution*

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

(Contd. on page 2)

(Contd. of page 1)

SECTION 4: First aid measures

4.1 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.*
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

*
SECTION 5: Fire fighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
For safety reasons unsuitable extinguishing agents: *no further information*
5.2 Special hazards arising from the substance or mixture *No further relevant information available.*
5.3 Advice for firefighters *No further relevant information available.*
Protective equipment: *No special measures required.*

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures *Wear protective clothing.*
6.2 Environmental precautions: *Dilute with plenty of water.*
6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
6.4 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

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

7.2 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*
7.3 Specific end use(s) *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

8.1 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.

(Contd. on page 3)

(Contd. of page 2)

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

8.2 Exposure controls
Appropriate engineering controls *No further data; see item 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.*

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. 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 trough 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

9.1 Information on basic physical and chemical properties

General Information	
Physical state	*Fluid*
Colour:	*Colourless*
Odour:	*Odourless*
Odour threshold:	*Not determined.*
Melting point/freezing point:	*0 °C*
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.*
Vapour pressure at 20 °C:	*23 hPa*
Density and/or relative density	
Density at 20 °C:	*1 g/cm³*
Relative density	*Not determined.*
Vapour density	*Not determined.*

9.2 Other information

Appearance:	
Form:	*Fluid*

(Contd. on page 4)

(Contd. of page 3)

Important information on protection of health and environment, and on safety.	
Auto-ignition temperature:	*Product is not selfigniting.*
Explosive properties:	*Product does not present an explosion hazard.*
	Not determined.
Solvent content:	
Water:	*99.7 %*
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

10.1 Reactivity *No further relevant information available.*
10.2 Chemical stability
Thermal decomposition / conditions to be avoided:
No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions *No dangerous reactions known.*
10.4 Conditions to avoid *No further relevant information available.*
10.5 Incompatible materials: *No further relevant information available.*
10.6 Hazardous decomposition products: *No dangerous decomposition products known.*

SECTION 11: Toxicological information

11.2 Information on other hazards

Endocrine disrupting properties
None of the ingredients is listed.

* SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: *No further relevant information available.*
12.2 Persistence and degradability *No further relevant information available.*
12.3 Bioaccumulative potential *No further relevant information available.*
12.4 Mobility in soil *No further relevant information available.*

(Contd. on page 5)

(Contd. of page 4)

12.5 Results of PBT and vPvB assessment
PBT: *Not applicable.*
vPvB: *Not applicable.*
12.6 Endocrine disrupting properties
The product does not contain substances with endocrine disrupting properties.
12.7 Other adverse effects
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.

SECTION 13: Disposal considerations

13.1 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

14.1 UN number or ID number
ADN, IMDG, IATA *Void*
14.2 UN proper shipping name
ADR, ADN, IMDG, IATA *Void*
14.3 Transport hazard class(es)

ADR, ADN, IMDG, IATA
Class *Void*
14.4 Packing group
ADR, IMDG, IATA *Void*
14.5 Environmental hazards:
Marine pollutant: *No*
14.6 Special precautions for user *Not applicable.*
14.7 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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

New Zealand Inventory of Chemicals
All ingredients are listed.

Directive 2012/18/EU
Named dangerous substances - ANNEX I *None of the ingredients is listed.*
15.2 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.

(Contd. on page 6)

(Contd. of page 5)

16.3 Recommended restriction of use

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)
ICAO: International Civil Aviation Organisation
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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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.**