

03/19/2022

Kit Components

Product code	Description
--------------	-------------

CAY440-VxxAAE	CA71COD-A Reagent Set
----------------------	------------------------------

Components:

71251118	Reagent COD1 (A+B)
71251179	Reagent COD2 (A)
71251190A	Reagent COD3 (A+B)

1 Identification

Product identifier

Trade name: **Reagent COD1 (A+B)**

Article number: 71251118

Application of the substance / the mixture *Laboratory chemicals*

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Endress+Hauser Conducta Inc.
4123 E. La Palma Ave., Suite 200
Anaheim
CA 92807-1813
USA

Information department:

Phone: +49 (0)7156 209-10117
E-Mail: MSDS.PCC@endress.com

Emergency telephone number: 001 18000 222 1222

* 2 Hazard(s) identification

Classification of the substance or mixture



GHS05 Corrosion

Skin Corrosion 1A H314 Causes severe skin burns and eye damage.

Eye Damage 1 H318 Causes serious eye damage.

Label elements

GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS05

Signal word *Danger*

Hazard-determining components of labeling:

sulphuric 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/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.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 3

Fire = 0

Reactivity = 0

Trade name: Reagent COD1 (A+B)

(Contd. of page 1)

HMIS-ratings (scale 0 - 4)

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

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.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

CAS: 7664-93-9	sulphuric acid	 Skin Corrosion 1A, H314	60-80%
----------------	----------------	---	--------

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 copious amounts of water and provide fresh air. Immediately call a 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:

CO₂, extinguishing 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.

(Contd. on page 3)

Trade name: Reagent COD1 (A+B)

(Contd. of page 2)

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 neutralizing 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.**See Section 8 for information on personal protection equipment.**See Section 13 for disposal information.***Protective Action Criteria for Chemicals**

PAC-1:		
CAS: 7664-93-9	sulphuric acid	0.20 mg/m ³
PAC-2:		
CAS: 7664-93-9	sulphuric acid	8.7 mg/m ³
PAC-3:		
CAS: 7664-93-9	sulphuric acid	160 mg/m ³

7 Handling and storage**Precautions for safe handling***Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.**Ensure good ventilation/exhaustion at the workplace.**Prevent formation of aerosols.***Information about protection against explosions and fires:***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 receptacle 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 systems:** *No further data; see item 7.***Control parameters**

Components with limit values that require monitoring at the workplace:	
CAS: 7664-93-9 sulphuric acid	
PEL	Long-term value: 1 mg/m ³
REL	Long-term value: 1 mg/m ³
TLV	Long-term value: 0.2* mg/m ³
	*as thoracic fraction, A2

Additional information: *The lists that were valid during the creation 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.*

(Contd. on page 4)

Trade name: Reagent COD1 (A+B)

(Contd. of page 3)

Avoid contact with the eyes and skin.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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-labeling 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

Chloroprene rubber, CR

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

Penetration time of glove material

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

Eye 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:	<i>Fluid</i>
Color:	<i>Colorless</i>
Odor:	<i>Odorless</i>
Odor threshold:	<i>Not determined.</i>
pH-value at 20 °C (68 °F):	<i><1</i>

Change in condition

Melting point/Melting range:	<i>Undetermined.</i>
Boiling point/Boiling range:	<i>Undetermined.</i>

Flash point: *Not applicable.*

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

Decomposition temperature: *Not determined.*

Auto igniting: *Product is not selfigniting.*

Danger of explosion: *Product does not present an explosion hazard.
Not determined.*

Explosion limits:

Lower: *Not determined.*

(Contd. on page 5)

Trade name: Reagent COD1 (A+B)

(Contd. of page 4)

Upper:	<i>Not determined.</i>
Vapor pressure at 20 °C (68 °F):	<i>23 hPa (17.3 mm Hg)</i>
Density at 20 °C (68 °F):	<i>1.521 g/cm³ (12.693 lbs/gal)</i>
Relative density	<i>Not determined.</i>
Vapor density	<i>Not determined.</i>
Evaporation rate	<i>Not determined.</i>
Solubility in / Miscibility with	
Water:	<i>Fully miscible.</i>
Partition coefficient (n-octanol/water):	<i>Not determined.</i>
Viscosity:	
Dynamic:	<i>Not determined.</i>
Kinematic:	<i>Not determined.</i>
Solvent content:	
Water:	<i>25.0 %</i>
Solids content:	<i>0.0 %</i>
Other information	<i>No further relevant information available.</i>

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:****Primary irritant effect:**

on the skin: *Strong caustic effect on skin and mucous membranes.*

on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

Sensitization: *No sensitizing effects known.*

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

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: *No further relevant information available.*

Persistence and degradability *No further relevant information available.*

Behavior in environmental systems:

Bioaccumulative potential *No further relevant information available.*

Mobility in soil *No further relevant information available.*

(Contd. on page 6)

Trade name: Reagent COD1 (A+B)

(Contd. of page 5)

Additional ecological information:**General notes:***Water hazard class 1 (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 bodies of water or drainage ditch undiluted or unneutralized.**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.***13 Disposal considerations****Waste treatment methods****Recommendation:***Must not be disposed of together with household garbage. Do not allow product to reach sewage system.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agent:** *Water, if necessary with cleansing agents.***14 Transport information****UN-Number****DOT, IMDG, IATA**

UN1830

UN proper shipping name**DOT**

Sulfuric acid

IMDG

SULPHURIC ACID

IATA

Sulphuric acid

Transport hazard class(es)**DOT****Class**

8 Corrosive substances

Label

8

IMDG, IATA**Class**

8 Corrosive substances

Label

8

Packing group**DOT, IMDG, IATA**

II

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

Strong acids

Stowage Category

C

Stowage Code

SW15 For metal drums, stowage category B.

(Contd. on page 7)

Trade name: Reagent COD1 (A+B)

(Contd. of page 6)

Segregation Code SG36 Stow "separated from" SGG18-alkalis.
SG49 Stow "separated from" SGG6-cyanides

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT
Quantity limitations On passenger aircraft/rail: 1 L
On cargo aircraft only: 30 L

IMDG
Limited quantities (LQ) 1L
Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation": UN 1830 SULPHURIC ACID, 8, II

***15 Regulatory information**

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

Section 355 (extremely hazardous substances):
CAS: 7664-93-9 sulphuric acid

Section 313 (Specific toxic chemical listings):
CAS: 7664-93-9 sulphuric acid

TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.

Hazardous Air Pollutants
None of the ingredients is listed.

Proposition 65
Chemicals known to cause cancer:
None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.

Chemicals known to cause developmental toxicity:
None of the ingredients is listed.

Carcinogenicity categories

EPA (Environmental Protection Agency)
None of the ingredients is listed.

TLV (Threshold Limit Value)	
CAS: 7664-93-9 sulphuric acid	A2

MAK (German Maximum Workplace Concentration)	
CAS: 7664-93-9 sulphuric acid	4

NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

GHS label elements
The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 8)

Trade name: Reagent COD1 (A+B)

(Contd. of page 7)

Hazard pictograms



GHS05

Signal word *Danger*

Hazard-determining components of labeling:

sulphuric 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/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:

Water hazard 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 preparation / last revision** *03/19/2022 / 6***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**DOT: US Department of Transportation**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)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Skin Corrosion 1A: Skin corrosion/irritation – Category 1A**Eye Damage 1: Serious eye damage/eye irritation – Category 1**** Data compared to the previous version altered.**

1 Identification

Product identifier

Trade name: **Reagent COD2 (A)**

Article number: 71251179

Application of the substance / the mixture *Laboratory chemicals*

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Endress+Hauser Conducta Inc.
4123 E. La Palma Ave., Suite 200
Anaheim
CA 92807-1813
USA

Information department:

Phone: +49 (0)7156 209-10117
E-Mail: MSDS.PCC@endress.com

Emergency telephone number: 001 18000 222 1222

* 2 Hazard(s) identification

Classification of the substance or mixture



GHS05 Corrosion

Skin Corrosion 1A H314 Causes severe skin burns and eye damage.

Eye Damage 1 H318 Causes serious eye damage.

Label elements

GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS05

Signal word *Danger*

Hazard-determining components of labeling:

sulphuric 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/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.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 3

Fire = 0

Reactivity = 0

(Contd. on page 2)

Trade name: Reagent COD2 (A)

(Contd. of page 1)

HMIS-ratings (scale 0 - 4)

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

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.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

CAS: 7664-93-9	sulphuric acid	 Skin Corrosion 1A, H314	10-20%
----------------	----------------	---	--------

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 copious amounts of water and provide fresh air. Immediately call a 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:

CO₂, extinguishing 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.

(Contd. on page 3)

Trade name: Reagent COD2 (A)

(Contd. of page 2)

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 neutralizing 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.**See Section 8 for information on personal protection equipment.**See Section 13 for disposal information.***Protective Action Criteria for Chemicals**

PAC-1:		
CAS: 7664-93-9	sulphuric acid	0.20 mg/m ³
PAC-2:		
CAS: 7664-93-9	sulphuric acid	8.7 mg/m ³
PAC-3:		
CAS: 7664-93-9	sulphuric acid	160 mg/m ³

7 Handling and storage**Precautions for safe handling***Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.**Ensure good ventilation/exhaustion at the workplace.**Prevent formation of aerosols.***Information about protection against explosions and fires:***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 receptacle 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 systems:** *No further data; see item 7.***Control parameters**

Components with limit values that require monitoring at the workplace:	
CAS: 7664-93-9 sulphuric acid	
PEL	Long-term value: 1 mg/m ³
REL	Long-term value: 1 mg/m ³
TLV	Long-term value: 0.2* mg/m ³
	*as thoracic fraction, A2

Additional information: *The lists that were valid during the creation 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.*

(Contd. on page 4)

Trade name: Reagent COD2 (A)

(Contd. of page 3)

Avoid contact with the eyes and skin.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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-labeling 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

Chloroprene rubber, CR

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

Penetration time of glove material

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

Eye 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:	<i>Fluid</i>
Color:	<i>Light yellow</i>
Odor:	<i>Odorless</i>
Odor threshold:	<i>Not determined.</i>
pH-value at 20 °C (68 °F):	<i><1</i>

Change in condition

Melting point/Melting range:	<i>Undetermined.</i>
Boiling point/Boiling range:	<i>100 °C (212 °F)</i>

Flash point: *Not applicable.*

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

Decomposition temperature: *Not determined.*

Auto igniting: *Product is not selfigniting.*

Danger of explosion: *Product does not present an explosion hazard.
Not determined.*

Explosion limits:

Lower: *Not determined.*

(Contd. on page 5)

Trade name: Reagent COD2 (A)

(Contd. of page 4)

Upper:	<i>Not determined.</i>
Vapor pressure at 20 °C (68 °F):	<i>23 hPa (17.3 mm Hg)</i>
Density at 20 °C (68 °F):	<i>1.102 g/cm³ (9.196 lbs/gal)</i>
Relative density	<i>Not determined.</i>
Vapor density	<i>Not determined.</i>
Evaporation rate	<i>Not determined.</i>
Solubility in / Miscibility with	
Water:	<i>Fully miscible.</i>
Partition coefficient (n-octanol/water):	<i>Not determined.</i>
Viscosity:	
Dynamic:	<i>Not determined.</i>
Kinematic:	<i>Not determined.</i>
Solvent content:	
Water:	<i>79.8 %</i>
Solids content:	<i>0.0 %</i>
Other information	<i>No further relevant information available.</i>

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:****Primary irritant effect:**

on the skin: *Strong caustic effect on skin and mucous membranes.*

on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

Sensitization: *No sensitizing effects known.*

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

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: *No further relevant information available.*

Persistence and degradability *No further relevant information available.*

Behavior in environmental systems:

Bioaccumulative potential *No further relevant information available.*

Mobility in soil *No further relevant information available.*

(Contd. on page 6)

Trade name: Reagent COD2 (A)

(Contd. of page 5)

Additional ecological information:**General notes:***Water hazard class 1 (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 bodies of water or drainage ditch undiluted or unneutralized.**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.***13 Disposal considerations****Waste treatment methods****Recommendation:***Must not be disposed of together with household garbage. Do not allow product to reach sewage system.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***Recommended cleansing agent:** *Water, if necessary with cleansing agents.***14 Transport information****UN-Number****DOT, IMDG, IATA**

UN2796

UN proper shipping name**DOT, IMDG**

SULPHURIC ACID

IATA

Sulphuric acid

Transport hazard class(es)**DOT****Class**

8 Corrosive substances

Label

8

IMDG, IATA**Class**

8 Corrosive substances

Label

8

Packing group**DOT, IMDG, IATA**

II

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

Strong acids

Stowage Category

B

Segregation Code

SG36 Stow "separated from" SGG18-alkalis.

SG49 Stow "separated from" SGG6-cyanides

(Contd. on page 7)

Trade name: Reagent COD2 (A)

(Contd. of page 6)

Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code

Not applicable.

Transport/Additional information:

DOT

Quantity limitations

On passenger aircraft/rail: 1 L
On cargo aircraft only: 30 L

IMDG

Limited quantities (LQ)

1L

Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

UN "Model Regulation":

UN 2796 SULPHURIC ACID, 8, II

*15 Regulatory information

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

Section 355 (extremely hazardous substances):

CAS: 7664-93-9 | sulphuric acid

Section 313 (Specific toxic chemical listings):

CAS: 7664-93-9 | sulphuric acid

CAS: 10294-26-5 | silver sulfate

CAS: 7778-50-9 | Potassium dichromate

TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

Hazardous Air Pollutants

CAS: 7778-50-9 | Potassium dichromate

Proposition 65

Chemicals known to cause cancer:

CAS: 7778-50-9 | Potassium dichromate

Chemicals known to cause reproductive toxicity for females:

CAS: 7778-50-9 | Potassium dichromate

Chemicals known to cause reproductive toxicity for males:

CAS: 7778-50-9 | Potassium dichromate

Chemicals known to cause developmental toxicity:

CAS: 7778-50-9 | Potassium dichromate

Carcinogenicity categories

EPA (Environmental Protection Agency)

CAS: 7778-50-9 | Potassium dichromate

A(inh), D(oral), K/L(inh), CBD(oral)

TLV (Threshold Limit Value)

CAS: 7664-93-9 | sulphuric acid

A2

CAS: 7778-50-9 | Potassium dichromate

A1

MAK (German Maximum Workplace Concentration)

CAS: 7664-93-9 | sulphuric acid

4

CAS: 7778-50-9 | Potassium dichromate

2

NIOSH-Ca (National Institute for Occupational Safety and Health)

CAS: 7778-50-9 | Potassium dichromate

GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 8)

Trade name: Reagent COD2 (A)

(Contd. of page 7)

Hazard pictograms



GHS05

Signal word *Danger*

Hazard-determining components of labeling:

sulphuric 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/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:

Water hazard 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 preparation / last revision** *03/19/2022 / 4***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**DOT: US Department of Transportation**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)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Skin Corrosion 1A: Skin corrosion/irritation – Category 1A**Eye Damage 1: Serious eye damage/eye irritation – Category 1**** Data compared to the previous version altered.**

1 Identification

Product identifier

Trade name: **Reagent COD3 (A+B)**

Article number: 71251190A

CAS Number:

57-50-1

EC number:

200-334-9

Application of the substance / the mixture *Laboratory chemicals*

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Endress+Hauser Conducta Inc.
4123 E. La Palma Ave., Suite 200
Anaheim
CA 92807-1813
USA

Information department:

Phone: +49 (0)7156 209-10117
E-Mail: MSDS.PCC@endress.com

Emergency telephone number: 001 18000 222 1222

2 Hazard(s) identification

Classification of the substance or mixture

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

Label elements

GHS label elements *Void*

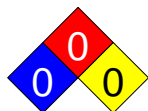
Hazard pictograms *Void*

Signal word *Void*

Hazard statements *Void*

Classification system:

NFPA ratings (scale 0 - 4)



Health = 0

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH 0

Health = 0

FIRE 0

Fire = 0

REACTIVITY 0

Reactivity = 0

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.*

* 3 Composition/information on ingredients

Chemical characterization: Substances

CAS No. Description

CAS: 57-50-1 *sucrose*

(Contd. on page 2)

— USA —

Trade name: Reagent COD3 (A+B)

(Contd. of page 1)

Identification number(s)

EC number: 200-334-9

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.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents:

CO₂, extinguishing 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: *No special measures required.*

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

Reference to other sections

No dangerous substances are released.

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-1:
<i>Substance is not listed.</i>
PAC-2:
<i>Substance is not listed.</i>
PAC-3:
<i>Substance is not listed.</i>

7 Handling and storage

Precautions for safe handling

Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.

No special measures required.

Information about protection against explosions and fires: *No special measures required.*

(Contd. on page 3)

Trade name: Reagent COD3 (A+B)

(Contd. of page 2)

Storage:**Requirements to be met by storerooms and receptacles:** *No special requirements.***Information about storage in one common storage facility:** *Not required.***Further information about storage conditions:** *None.***Storage class:** 11**Specific end use(s)** *No further relevant information available.***8 Exposure controls/personal protection****Additional information about design of technical systems:** *No further data; see item 7.***Control parameters****Components with limit values that require monitoring at the workplace:****CAS: 57-50-1 sucrose**

PEL	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction
REL	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV	Long-term value: 10 mg/m ³ A4

Additional information: *The lists that were valid during the creation were used as basis.***Exposure controls****Personal protective equipment:****General protective and hygienic measures:***The usual precautionary measures for handling chemicals should be followed.***Breathing equipment:** *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.***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:****Form:** *Crystalline powder***Color:** *Colorless***Odor:** *Odorless***Odor threshold:** *Not determined.***pH-value:** *Not applicable.***Change in condition****Melting point/Melting range:** *Undetermined.***Boiling point/Boiling range:** *Undetermined.***Flash point:** *Not applicable.*

(Contd. on page 4)

Trade name: Reagent COD3 (A+B)

(Contd. of page 3)

Flammability (solid, gaseous):	<i>Product is not flammable.</i>
Decomposition temperature:	<i>Not determined.</i>
Auto igniting:	<i>Not determined.</i>
Danger of explosion:	<i>Product does not present an explosion hazard. Not determined.</i>
Explosion limits:	
Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>
Vapor pressure:	<i>Not applicable.</i>
Density at 20 °C (68 °F):	<i>0.94 g/cm³ (7.844 lbs/gal)</i>
Relative density	<i>Not determined.</i>
Vapor density	<i>Not applicable.</i>
Evaporation rate	<i>Not applicable.</i>
Solubility in / Miscibility with	
Water:	<i>Soluble.</i>
Partition coefficient (n-octanol/water):	<i>Not determined.</i>
Viscosity:	
Dynamic:	<i>Not applicable.</i>
Kinematic:	<i>Not applicable.</i>
Other information	<i>No further relevant information available.</i>

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 that are relevant for classification:
CAS: 57-50-1 sucrose
Oral LD50 29,700 mg/kg (rat)

Primary irritant effect:

on the skin: *No irritant effect.*

on the eye: *No irritating effect.*

Sensitization: *No sensitizing effects known.*

Additional toxicological information:

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

The substance is not subject to classification.

(Contd. on page 5)

— USA —

Trade name: Reagent COD3 (A+B)

(Contd. of page 4)

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior 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.

13 Disposal considerations

Waste treatment methods

Recommendation: Smaller quantities can be disposed of with household waste.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

UN-Number

DOT, ADN, IMDG, IATA Void

UN proper shipping name

DOT, ADN, IMDG, IATA Void

Transport hazard class(es)

DOT, ADN, IMDG, IATA

Class Void

Packing group

DOT, IMDG, IATA Void

Environmental hazards:

Marine pollutant: No

Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 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.

Sara

Section 355 (extremely hazardous substances):

Substance is not listed.

Section 313 (Specific toxic chemical listings):

Substance is not listed.

TSCA (Toxic Substances Control Act):

ACTIVE

(Contd. on page 6)

— USA —

Trade name: Reagent COD3 (A+B)

(Contd. of page 5)

Hazardous Air Pollutants*Substance is not listed.***Proposition 65****Chemicals known to cause cancer:***Substance is not listed.***Chemicals known to cause reproductive toxicity for females:***Substance is not listed.***Chemicals known to cause reproductive toxicity for males:***Substance is not listed.***Chemicals known to cause developmental toxicity:***Substance is not listed.***Carcinogenicity categories****EPA (Environmental Protection Agency)***Substance is not listed.***TLV (Threshold Limit Value)**

A4

MAK (German Maximum Workplace Concentration)*Substance is not listed.***NIOSH-Ca (National Institute for Occupational Safety and Health)***Substance is not listed.***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 preparation / last revision** *03/19/2022 / 4***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)

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

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

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