

### Safety data sheet according to 1907/2006/EC, Article 31

Printing date 16.11.2023

Version number 5 (replaces version 4)

Revision: 16.11.2023

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

· **1.1 Product identifier**

· **Product name:** Reference Standard AOCS 0.4R 2.0Y

· **Catalog number:** 56Z067998, 56L0679, 134240

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

· **Application of the substance / the preparation:** Coloured Standard Solution for calibration purposes

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

· **Supplier:**

Tintometer GmbH  
Schleefstraße 8-12  
44287 Dortmund  
Made in Germany  
www.lovibond.com

phone: +49 (0)231 94510-0  
e-mail: sales@lovibond.com

The Tintometer Limited  
Lovibond® House  
Sun Rise Way  
Amesbury  
Wiltshire SP4 7GR  
United Kingdom

phone : +44 1980 664800  
e-mail: SDS@lovibond.uk

· **Informing department:**

e-mail: sds@lovibond.com  
Product Safety Department

· **1.4 Emergency telephone number:**

+44 1235 239670  
Languages: English

#### SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Met. Corr.1 H290 May be corrosive to metals.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the GB CLP regulation.

· **Hazard pictograms**



GHS05

· **Signal word** Warning

· **Hazard statements**

H290 May be corrosive to metals.

· **Precautionary statements**

P234 Keep only in original packaging.

P390 Absorb spillage to prevent material damage.

· **2.3 Other hazards** No further relevant information available.

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**Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

**Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine disrupting properties.

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### SECTION 3: Composition/information on ingredients

**3.2 Mixtures**

**Description:** aqueous solution

**Dangerous components:**

The percent content of the cobalt compound mentioned below refers to the amount of the pure cobalt therein.

CAS: 7791-13-1 EINECS: 231-589-4 Index No: 027-004-00-5	cobalt dichloride hexahydrate ⚠ Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1B, H350i; Repr. 1B, H360F; ⚠ Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10); ⚠ Acute Tox. 4, H302; Skin Sens. 1, H317 Specific concentration limit: Carc. 1B; H350i: C ≥ 0.01 %	0.001-<0.01%
CAS: 7647-01-0 EINECS: 231-595-7 Index No: 017-002-01-X Reg.nr.: 01-2119484862-27-XXXX	hydrochloric acid ⚠ Met. Corr. 1, H290; Skin Corr. 1B, H314; ⚠ STOT SE 3, H335 Specific concentration limits: Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 % STOT SE 3; C ≥ 10 %	0.1-<1%

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

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### SECTION 4: First aid measures

**4.1 Description of first aid measures**

**General information** Instantly remove any clothing soiled by the product.

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

**After skin contact** Instantly wash with water and soap and rinse thoroughly.

**After eye contact**

Rinse opened eye for several minutes under running water (at least 15 min). If symptoms persist, consult doctor.

**After swallowing**

Rinse out mouth and then drink 1-2 glasses of water.

In case of persistent symptoms consult doctor.

**4.2 Most important symptoms and effects, both acute and delayed:** slight irritation may occur

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

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### SECTION 5: Firefighting measures

**5.1 Extinguishing media**

**Suitable extinguishing agents** Use fire fighting measures that suit the environment.

**5.2 Special hazards arising from the substance or mixture**

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

Can be released in case of fire:

Hydrogen chloride (HCl)

**5.3 Advice for firefighters**
**Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

**Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

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### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
  - **Advice for non-emergency personnel:**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation
  - **Advice for emergency responders:** Protective equipment: see section 8
  - **6.2 Environmental precautions:**  
Do not allow product to reach sewage system or water bodies.  
Dilute with much water.
  - **6.3 Methods and material for containment and cleaning up:**  
Ensure adequate ventilation.  
Absorb with liquid-binding material (sand, diatomite, universal binders).  
Dispose of contaminated material as waste according to item 13.
  - **6.4 Reference to other sections**  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.
- 

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
  - **Advice on safe handling:** Ensure good ventilation/exhaustion at the workplace.
  - **Hygiene measures:**  
Take off immediately all contaminated clothing.  
Wash hands during breaks and at the end of the work.  
Do not eat, drink or smoke when using this product.
  - **7.2 Conditions for safe storage, including any incompatibilities**
  - **Requirements to be met by storerooms and containers:**  
Store in cool location.  
Keep only in original packaging.
  - **Information about storage in one common storage facility:** Store away from metals.
  - **Further information about storage conditions:**  
Protect from heat and direct sunlight.  
Protect from the effects of light.  
Protect from humidity and keep away from water.
  - **Recommended storage temperature:** 20°C +/- 5°C
  - **7.3 Specific end use(s)** No further relevant information available.
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### SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Components 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.
- **Recommended monitoring procedures:**  
Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **8.2 Exposure controls**
- **Engineering measures:**  
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.  
See item 7.
- **Individual protection measures, such as personal protective equipment**  
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Eye/face protection**  
Safety glasses  
use against the effects of fumes / dust  
Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.

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- **Hand protection**  
Preventive skin protection by use of skin-protecting agents is recommended.  
After use of gloves apply skin-cleaning agents and skin cosmetics.
  - **Material of gloves**  
nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.11$  mm
  - **Penetration time of glove material**  
Value for the permeation: Level = 1 ( < 10 min )  
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - **Other skin protection (body protection):** Protective work clothing.
  - **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
  - **Recommended filter device for short term use:** Filter P1
  - **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.
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### SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **Physical state** Fluid
- **Form:** Fluid
- **Colour:** Light yellow
- **Odour:** Odourless
- **Odour threshold:** Not applicable.
- **Melting point/Freezing point:** 0°C
- **Boiling point or initial boiling point and boiling range** 100°C (CAS: 7732-18-5 water)
- **Flammability** Not applicable.
- **Explosive properties:** Product is not explosive.
- **Lower and upper explosion limit**
  - Lower: Not applicable.
  - Upper: Not applicable.
- **Flash point:** Not applicable.
- **Auto-ignition temperature:** Not applicable.
- **Decomposition temperature:** Not determined.
- **pH** Acidic
- **Kinematic viscosity** Not determined.
- **Solubility**
- **Water:** Fully miscible
- **Partition coefficient n-octanol/water (log value)** Not applicable (mixture).
- **Vapour pressure at 20°C:** 23 hPa (CAS: 7732-18-5 water)
- **Density and/or relative density**
- **Density at 20°C:** ~1 g/cm<sup>3</sup>
- **Relative density:** Not determined.
- **Relative gas density** Not determined.
- **Particle characteristics** Not applicable (liquid).

#### · 9.2 Other information

- **Information with regard to physical hazard classes** .
  - **Corrosive to metals** May be corrosive to metals.
  - **Metals that are corroded by the substance or mixture** Information on incompatible materials can be found in Sections 7 and 10.
  - **Other safety characteristics**
  - **Oxidising properties:** none
  - **Additional information**
  - **Solids content:** < 0.1 %
  - **Solvent content:**
  - **Organic solvents:** 0 %
  - **Water:** > 99.0 %
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### SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).

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**10.3 Possibility of hazardous reactions**

Corrosive action on metals

Reacts with metals forming hydrogen (Danger of explosion in case of large amounts!)

Violent reactions possible with:

The generally known reaction partners of water.

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

**10.5 Incompatible materials:** metals

**10.6 Hazardous decomposition products:** see section 5

### SECTION 11: Toxicological information

**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
**Acute toxicity** Based on available data, the classification criteria are not met.

**LD/LC50 values that are relevant for classification:**
**CAS: 7791-13-1 cobalt dichloride hexahydrate**

Oral	LD50	766 mg/kg (rat) (RTECS)
Dermal	LD50	>2000 mg/kg (rat) (RTECS CAS 1308-06-1 tricobalt tetraoxide)

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

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

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

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

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

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

**STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.

**STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

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

**11.2 Information on other hazards**
**Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

**Other information**

According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

### SECTION 12: Ecological information

**12.1 Toxicity**
**Aquatic toxicity:**
**CAS: 7791-13-1 cobalt dichloride hexahydrate**

EC50	1.1–1.6 mg/l/48h (Daphnia magna)
EC50	0.5 mg/l/96h (Chlorella vulgaris)
IC50	0.33 mg/l/96 h (carp)

**Other information:**

Toxic for fish:

HCl &gt; 25 mg/l

**12.2 Persistence and degradability**
**Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

**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**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

**12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

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- **12.7 Other adverse effects** Avoid transfer into the environment.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Hand over to disposers of hazardous waste.

<b>European waste catalogue</b>	
16 05 07*	discarded inorganic chemicals consisting of or containing hazardous substances

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

### SECTION 14: Transport information

- |                                       |                                |
|---------------------------------------|--------------------------------|
| · <b>14.1 UN number or ID number</b>  | UN1789                         |
| · <b>ADR, IMDG, IATA</b>              |                                |
| · <b>14.2 UN proper shipping name</b> | 1789 HYDROCHLORIC ACID mixture |
| · <b>ADR</b>                          |                                |
| · <b>IMDG, IATA</b>                   | HYDROCHLORIC ACID mixture      |

- **14.3 Transport hazard class(es)**
- **ADR**



- **Class** 8 (C1) 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.
- **Kemler Number:** 80
- **EMS Number:** F-A,S-B
- **Segregation groups** (SGG1) Acids
- **Stowage Category** E

- **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

- **Transport/Additional information:**

- **ADR**
- **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
- **Transport category** 3

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· <b>Tunnel restriction code</b>	E
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

### SECTION 15: Regulatory information

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

##### · Poisons Act UK

##### · Regulated explosives precursors

Products containing less than 1% of any of the reportable substances are in general of no concern:

CAS: 7647-01-0	hydrochloric acid	10%
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##### · Regulated poisons

None of the ingredients is listed.

##### · Reportable explosives precursors

None of the ingredients is listed.

##### · Reportable poisons

None of the ingredients is listed.

##### · Regulation (EU) 2019/1148 on the marketing and use of explosives precursors not regulated

##### · Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)

None of the ingredients is listed.

##### · Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:

None of the ingredients is listed.

##### · Regulation (EC) No 273/2004 on drug precursors

CAS: 7647-01-0	hydrochloric acid	3
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##### · Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

CAS: 7647-01-0	hydrochloric acid	3
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##### · Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

None of the ingredients is listed.

##### · REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)

None of the ingredients is listed.

##### · LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)

None of the ingredients is listed.

##### · Substances of very high concern (SVHC) according to REACH, Article 57

CAS 7791-13-1 Cobalt dichloride hexahydrate <0.1 %

This product does not contain any substances of very high concern above the legal concentration limit of  $\geq 0.1\%$  (w / w).

##### · Substances of very high concern (SVHC) according to UK REACH

This product does not contain any substances of very high concern above the legal concentration limit of  $\geq 0.1\%$  (w / w).

##### · Directive 2012/18/EU (SEVESO III):

##### · Named dangerous substances - ANNEX I None of the ingredients is listed.

##### · Information about limitation of use: Not required.

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

### SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

This Safety Data Sheet is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

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· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**

H290 May be corrosive to metals.  
 H302 Harmful if swallowed.  
 H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H335 May cause respiratory irritation.  
 H341 Suspected of causing genetic defects.  
 H350i May cause cancer by inhalation.  
 H360F May damage fertility.  
 H400 Very toxic to aquatic life.  
 H410 Very toxic to aquatic life with long lasting effects.

· **Abbreviations and acronyms:**

STOT: specific target organ toxicity  
 SE: single exposure  
 RE: repeated exposure  
 EC50: half maximal effective concentration  
 IC50: half maximal inhibitory concentration  
 NOEL or NOEC: No Observed Effect Level or Concentration  
 ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 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  
 SVHC: Substances of Very High Concern  
 vPvB: very Persistent and very Bioaccumulative  
 Met. Corr. 1: Corrosive to metals – Category 1  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Corr. 1B: Skin corrosion/irritation – Category 1B  
 Resp. Sens. 1: Respiratory sensitisation – Category 1  
 Skin Sens. 1: Skin sensitisation – Category 1  
 Muta. 2: Germ cell mutagenicity – Category 2  
 Carc. 1B: Carcinogenicity – Category 1B  
 Repr. 1B: Reproductive toxicity – Category 1B  
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3  
 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1  
 Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

· **Sources**

Data arise from safety data sheets, reference works and literature.  
 RTECS (Registry of Toxic Effects of Chemical Substances )

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