

## Safety Data Sheet

# USP colorimetric solution (M)

Version : V2.0.0.1

Report No. : BWQ0251-2016-MSDS-US

Creation Date : 2025/10/09

Revision Date : -



\*Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)

## 1 Identification

### Product identifier

Product Name	USP colorimetric solution (M)
Cat No.	BWQ0251-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

### Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

### Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

### Emergency phone number

Emergency phone number	010-58103678
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## 2 Hazard(s) identification

### Hazard classification according to 29 CFR 1910.1200

Skin Corrosion/Irritation	Category 2
Sensitization - skin	Category 1
Serious eye damage/irritation	Category 2
Sensitization - respiratory	Category 1
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 1B
Specific target organ toxicity - single exposure	Category 1

### Label elements

Hazard pictograms	
Signal word	<b>Danger</b>

### Hazard statements

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350	May cause cancer (by inhalation)
H360	May damage fertility
H370	Causes damage to organs(whole body)

### Precautionary statements

#### ◆ Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe gas/mist/vapour/spray.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P284	In case of inadequate ventilation wear respiratory protection.

#### ◆ Response

P321	Specific treatment (see related instructions on the label).
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P362+P364	Take off contaminated clothing and wash it before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

#### ◆ Storage

P405	Store locked up.
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#### ◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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### Other hazards

	Not applicable.
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### Hazard description

#### ◆ Physical and chemical hazards

	No information available
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#### ◆ Health hazards

<b>Inhaled</b>	Inhalation of vapours may cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Ingestion</b>	Accidental ingestion of the product may be harmful to the health of the individual.
<b>Skin Contact</b>	The product may cause an allergic skin reaction following direct contact with the skin. The product can cause skin irritation following direct contact with the skin.
<b>Eye</b>	This product may cause serious eye irritation. Severe inflammation may be expected with pain following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.
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### 3 Composition/information on ingredients

#### Substance/mixture

	Mixture
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Component	CAS No.	EC No.	Concentration (wt, %)
Water	7732-18-5	231-791-2	97.914
Cobalt dichloride	7646-79-9	231-589-4	0.12
Iron trichloride	7705-08-0	231-729-4	1.84
Copper(II) sulfate pentahydrate	7758-99-8	616-477-9	0.126

### 4 First-aid measures

#### Description of first aid measures

<b>General advice</b>	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
<b>Inhalation</b>	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
<b>Protecting of first-aiders</b>	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

#### Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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#### Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

### 5 Fire-fighting measures

**| Extinguishing media**

<b>Suitable extinguishing media</b>	Use extinguishing media suitable for surrounding area.
<b>Unsuitable extinguishing media</b>	There is no restriction on the type of extinguisher which may be used.

**| Specific hazards arising from the substance or mixture**

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	May expansion or decompose explosively when heated or involved in fire.

**| Special protective equipment and precautions for fire-fighters**

1	As in any fire, wear self-contained breathing apparatus ( MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

**6 Accidental release measures****| Personal precautions, protective equipment and emergency procedures**

1	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
2	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
3	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**| Environmental precautions**

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

**| Methods and materials for containment and cleaning up**

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
4	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
5	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.

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

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

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

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

## 8 Exposure controls/personal protection

### Control parameters

#### ◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Cobalt dichloride	Japan - JSOH(2024–2025)	-	0.05 (as Co)	-	-
	Finland	-	0.02	-	-
	Spain	-	0.02	-	-
	Sweden	-	0.02	-	-
Iron trichloride	USA - ACGIH	-	1(as Fe)	-	-
Copper(II) sulfate pentahydrate	Finland	-	0.02	-	-

### Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

### Personal protection equipment

General requirement	    
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear appropriate chemical protective gloves.
Respiratory protection	Must wear appropriate personal respiratory protective equipment.
Skin and body protection	Must wear appropriate chemical protective clothing and chemical resistant shoes.

## 9 Physical and chemical properties and safety characteristics

### Physical and chemical properties

Appearance (physical state, color, etc.)	Yellow, liquid
Odor	No information available
Odor threshold	No information available
pH	4.2 ( 0.2M,Cobalt dichloride )
Melting point/freezing point(°C)	735 ( Cobalt dichloride )
Initial boiling point and boiling range(°C)	1049 ( Cobalt dichloride )
Flash point(Closed cup,°C)	No information available
Evaporation rate	No information available
Flammability	No information available

<b>Upper/lower explosive limits[%(v/v)]</b>	Upper limit : No information available ; Lower limit : No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density(Air = 1)</b>	No information available
<b>Relative density(Water=1)</b>	3.4 ( Cobalt dichloride )
<b>Solubility</b>	530g/L ( 20°C,Cobalt dichloride )
<b>n-octanol/water partition coefficient</b>	0.85 ( Cobalt dichloride )
<b>Auto-ignition temperature(°C)</b>	No information available
<b>Decomposition temperature(°C)</b>	No information available
<b>Kinematic viscosity</b>	No information available

## 10 Stability and reactivity

### | Stability and reactivity

<b>Reactivity</b>	Contact with incompatible substances can cause decomposition or other chemical reactions.
<b>Chemical stability</b>	Stable under proper operation and storage conditions.
<b>Possibility of hazardous reactions</b>	In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen. Mixtures with active metals are sensitive to mechanical vibration and may cause a severe explosion.
<b>Conditions to avoid</b>	Incompatible materials, heat, flame and spark.
<b>Incompatible materials</b>	Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide. Active metal, nitric acid ester, epoxy compounds, alkenes and nitro compounds.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 Toxicological information

### | Acute toxicity

Component	LD <sub>50</sub> (oral)	LD <sub>50</sub> (dermal)	LC <sub>50</sub> (inhalation,4h)
<b>Copper(II) sulfate pentahydrate</b>	300mg/kg(Rat)	> 2000mg/kg(Rat)	No information available
<b>Cobalt dichloride</b>	766mg/kg(Rat)	> 2000mg/kg(Rat)	No information available
<b>Iron trichloride</b>	450mg/kg(Rat)	No information available	No information available

### | Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
<b>Water</b>	Not Listed	Not Listed	Not Listed
<b>Cobalt dichloride</b>	Category 2A(Remark 1)	Category R	Not Listed
<b>Iron trichloride</b>	Not Listed	Not Listed	Not Listed
<b>Copper(II) sulfate pentahydrate</b>	Not Listed	Not Listed	Not Listed

Remark 1: Soluble cobalt(II) salts

**| Others**

USP colorimetric solution (M)	
<b>Skin corrosion/irritation</b>	Causes skin irritation(Category 2)
<b>Serious eye damage/irritation</b>	Causes serious eye irritation(Category 2)
<b>Skin sensitization</b>	May cause an allergic skin reaction(Category 1)
<b>Respiratory sensitization</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled(Category 1)
<b>Reproductive toxicity</b>	May damage fertility(Category 1B)
<b>STOT-single exposure</b>	Causes damage to organs(whole body)(Category 1)
<b>STOT-repeated exposure</b>	Based on available data, the classification criteria are not met
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met

**12 Ecological information****| Acute aquatic toxicity**

Component	Fish	Crustaceans	Algae or other aquatic plants
<b>Copper(II) sulfate pentahydrate</b>	LC <sub>50</sub> : 0.31mg/L (96h)(Fish)	EC <sub>50</sub> : 0.06mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 0.05mg/L (96h)(Algae)
<b>Cobalt dichloride</b>	LC <sub>50</sub> : 1.5mg/L (96h)(Fish)	EC <sub>50</sub> : 1.49mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 9.02mg/L (96h)(Algae)
<b>Iron trichloride</b>	LC <sub>50</sub> : 21mg/L (96h)(Fish)	No information available	No information available

**| Chronic aquatic toxicity**

<b>Chronic aquatic toxicity</b>	No information available
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**| Persistence and degradability**

Component	Persistence (water/soil)	Persistence (air)
<b>Cobalt dichloride</b>	High	High
<b>Copper(II) sulfate pentahydrate</b>	High	High

**| Bioaccumulative potential**

Component	Bioaccumulative potential	Comments
<b>Cobalt dichloride</b>	Low	Log Kow=0.85
<b>Copper(II) sulfate pentahydrate</b>	Low	Log Kow=-2.2002

**| Mobility in soil**

Component	log Koc	Remark
<b>Cobalt dichloride</b>	1.375	
<b>Copper(II) sulfate pentahydrate</b>	0.787	

## 13 Disposal considerations

### Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

## 14 Transport information

### Label and Mark

Transporting Label	Not applicable
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### IMDG-CODE

IMDG-CODE	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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### IATA-DGR

IATA-DGR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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### UN-ADR

UN-ADR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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### Transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
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- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
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- ◆ Transport in bulk in accordance with the IGC Code

	Not Available
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### Others

Precautions for transport	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.
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## 15 Regulatory information

### International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
Water	√	√	√	√	√	√	√	√	√	√	√	√	√
Cobalt dichloride	√	√	√	√	√	√	√	√	√	√	√	√	√
Iron trichloride	√	√	√	√	√	√	√	√	√	√	√	√	√
Copper(II) sulfate pentahydrate	√	×	×	×	√	√	√	√	×	√	×	√	√

[A] China Inventory of Existing Chemical Substances(IECSC)

[B] European Inventory of Existing Commercial Chemical Substances(EC inventory)



- 【C】 United States Toxic Substances Control Act Inventory(TSCA)
- 【D】 Canadian Domestic Substances List(DSL)
- 【E】 New Zealand Inventory of Chemicals(NZIoC)
- 【F】 Philippines Inventory of Chemicals and Chemical Substances(PICCS)
- 【G】 Korea Existing Chemicals Inventory(KECL)
- 【H】 Australian. Inventory of Industrial Chemical (AIICS)
- 【I】 Japan Inventory of Existing & New Chemical Substances(ENCS)
- 【J】 Thailand Existing Chemicals Inventory(TECI)
- 【K】 Mexico National Inventory of Chemical Substances (INSQ)
- 【L】 Russia Inventory of Existing Substances(DRAFT)
- 【M】 Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

**List of Chemical Substances under International Conventions**

Component	A	B	C
Water	×	×	×
Cobalt dichloride	×	×	×
Iron trichloride	×	×	×
Copper(II) sulfate pentahydrate	×	×	×

- 【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer
- 【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)
- 【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

**US chemical inventory**

Component	A	B	C	D	E	F	G	H
Water	×	×	×	×	×	×	×	×
Cobalt dichloride	×	×	×	×	×	×	×	×
Iron trichloride	×	×	√	√	√	√	√	×
Copper(II) sulfate pentahydrate	×	×	×	×	×	×	×	×

- 【A】 US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants
- 【B】 US SARA 302- Extremely Hazardous Substance List
- 【C】 US CERCLA- Hazardous Substances List
- 【D】 US Massachusetts Right-to-Know Substance List
- 【E】 US New Jersey Right to Know Hazardous Substance List
- 【F】 US Pennsylvania Right to Know Hazardous Substance List
- 【G】 US New York City Right-to-Know Hazardous Substance List
- 【H】 US California Proposition 65 List

Note:

“√” Indicates that the substance included in the regulations.

“×” No data or not included in the regulations.

**16 Other information**

**Information on revision**

Creation Date	2025/10/09
Revision Date	-
Reason for revision	-

**Reference**

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.chemportal.org/chemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

## Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC <sub>50</sub>	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD <sub>50</sub>	Lethal Dose 50%	NTP	National Toxicology Program
EC <sub>50</sub>	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC <sub>X</sub>	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P <sub>OW</sub>	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

## Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.