

SAFETY DATA SHEET (SDS)




Benedict's solution

Issue date: 10-09-2025

Section 1: Product Identifier and Chemical Identity

Product Identifier	
Product Name:	Benedict's solution
Product Codes:	MC4.1, MC4.2
Other means of identification:	
Chemical formula, alternative names:	Benedict's reagent Benedict's qualitative solution
Recommended use of the chemical and restrictions on use	
Recommended Use:	For laboratory use only.
Suppliers name, address and phone number	
Supplier's Name:	Southern Biological
Supplier's ABN:	94 630 703 810
Supplier's Address:	168 Fulham Road Alphington Victoria 3078 Australia
Supplier's Phone No.:	1300 138 561
Emergency Phone number (BH)	1300 138 561

Section 2: Hazard Identification

Classification of the Hazardous Chemical	
Hazard Category	Acute toxicity (ingestion) category 4 Causes serious eye damage category 1 Hazardous to the aquatic environment (acute) category 1 Hazardous to the aquatic environment (chronic) category 1
Label elements	
Hazard Pictograms:	   corrosion exclamation mark environment
Signal Word:	Danger
Hazard Statements:	Harmful if swallowed Causes serious eye damage Very toxic to aquatic life with long-lasting effects
Precautionary Statements:	Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not ingest. Avoid release to the environment

Other Hazards	
Results of PBT and vPvB assessment:	PBT: Not applicable vPvB: Not applicable

Section 3: Composition/information on ingredients

Ingredients		
Name	CAS	Proportion
Water	7732-18-5	Balance
Sodium citrate	68-04-2	17%
Sodium carbonate	497-19-8	10%
Copper (II) sulphate	7758-99-8	1.7%

Section 4: First Aid Measures

Necessary first aid measures	
After inhalation:	Remove person to fresh air and keep comfortable for breathing. If breathing has stopped, apply artificial respiration. If experiencing respiratory symptoms; call a doctor.
After skin contact:	Wash with water and soap and rinse thoroughly. If skin irritation occurs: Get medical advice/ attention.
After eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
After swallowing:	DO NOT INDUCE VOMITING. Wash out mouth with water immediately, repeat until all traces of product have been removed. Obtain emergency medical attention. Call a POISON CENTRE or doctor/physician if you feel unwell.
Medical attention and special treatment	
Indications of any immediate medical attention and special treatment needed	No further relevant information available.

Section 5: Firefighting measures

Extinguishing media	
Suitable extinguishing equipment:	Use extinguishing measures that are appropriate to local circumstances and the surrounding fire
Specific hazards arising from the chemical:	Highly toxic fumes of sulphur oxides, oxides of copper, carbon monoxide, carbon dioxide and nitrous oxides.
Advice for firefighters	
Special protective equipment and precautions:	Do not enter the fire area without proper protective equipment including respiratory equipment.

Section 6: Accidental release measures

General Information	
Personal precautions, protective equipment and emergency procedures:	Avoid contact with eyes, skin and clothing. Follow personal protective equipment recommendations found in Section 8 of this SDS. Prevent the spread of any spill to minimise harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum.

Environmental precautions:	Prevent entry to sewers and public waters. Avoid release to the environment. Notify authorities if spill to sewers or public waters. Absorb or contain liquid with sand, earth or spill control material. Shovel up using non-sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.
Methods and material for containment and cleaning up:	Dispose of contaminating 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 protective equipment. See Section 13 for disposal information.

Section 7: Handling and Storage

General Information	
Precautions for safe handling:	Ensure good ventilation/exhaustion at the workplace. Wash hands after use. Do not eat, drink or smoke when using this product. Wash contaminated clothing and protective equipment prior to entering eating area. Repeated or prolonged contact with this material should be avoided in order to lessen the possibility of skin disorders.
Information about fire – and explosion protection:	No special measures required.
Conditions for safe storage, including any incompatibilities.	
Storage:	Store in cool dry area out of direct sunlight and incompatible materials. Keep containers closed when not in use. Store in suitably labelled containers.
Requirements to be met by storerooms and receptacles:	No special requirements.
Information about storage in one common storage facility:	Corrosive in the presence of steel. Solutions of copper sulphate are strongly corrosive to iron, galvanised iron and finely powdered metals.
Further information about storage conditions:	Keep container tightly sealed. Keep out of direct sunlight.

Section 8: Exposure controls/personal protection.

General information			
Additional information about design of technical facilities:		No further data: see section 7	
Control parameters:			
Ingredients with limit values that require monitoring at the workplace:			
Name	STEL	TWA	
	mg/m ³ ppm	mg/m ³	Footnote
Copper (II) sulphate	na	1	
Additional information	<p>These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.</p> <p>The STEL is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL.</p> <p>The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5-day working week.</p>		

Exposure Controls:	
General protective and hygienic measures:	Use only in systems, processes and procedures in which effective ventilation has been provided. 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 eyes.
Respiratory protection:	In case of significant exposure use respiratory filter device. Not normally required.
Clothing / Foot-wear and equipment	No special requirements.
Protection of hands:	PVC or rubber gloves
Eye protection:	Tightly sealed goggles
Skin protection:	Laboratory Coat

Section 9: Physical and chemical properties

Appearance:	
Form:	Liquid
Colour:	Clear blue
Odour:	Odourless
Odour Threshold:	No data
pH value:	~10
Change in Condition:	
Melting point/Melting range:	~0°C
Boiling point/Boiling range:	110-120°C
Flash point:	Not determined
Flammability (solid / gaseous)	Non combustible material
Ignition Temperature	
Decomposition temperature:	Not determined
Self-igniting:	Not determined
Danger of explosion:	Not determined
Explosion limits	
Lower:	Not determined
Upper:	Not determined
Vapour pressure:	14 mmHg
Density:	Not determined
General Info	
Relative density:	Not determined
Vapour density:	0.7
Evaporation rate:	>1

Solubility in/ Miscibility with water:	Miscible
Partition coefficient (n-octanol/water):	Not determined
Viscosity:	Not determined
Other information:	Exposure to fire may cause containers to rupture/explode

Section 10: Stability and reactivity

Reactivity	
General	No further relevant information available.
Chemical Stability	
Thermal decomposition / conditions to be avoided:	No decomposition if used according to specifications.
Possibility of hazardous reactions:	Highly reactive with acids, reactive with reducing agents, slightly reactive to reactive with oxidising agents and alkalis
Conditions to avoid:	Excess heat and incompatible materials
Incompatible materials:	Hydroxylamine, alkalis, phosphates, hydrazine, strong acids, sulphuric acid, finely powdered metals, active metals (potassium, sodium, magnesium and zinc), reducing agents, strong oxidising agents.
Hazardous decomposition products:	Highly toxic fumes of sulphur oxides, as well as oxides of copper, carbon monoxide, carbon dioxide, nitrous oxides. May emit fumes of cyanide.

Section 11: Toxicological information

Information on toxicological effects	
Ingestion:	May cause irritation and discomfort of the gastrointestinal system. Large doses may cause systemic copper poisoning which may include headache, pain, nausea, diarrhoea, vomiting, bloody stools and vomit; systemic toxic effects to the kidney and liver and central nervous excitation followed by depression; low blood pressure, jaundice and coma. Ingestion of sodium citrate may produce alkalosis and may cause tetany or depress the heart by decreasing the calcium level of the blood. Ingestion may produce corrosion of the gastrointestinal tract, vomiting, diarrhoea, circulatory collapse, and death.
Skin corrosion/irritation	May cause slight to severe irritation, necrosis, burns, redness, pain and possible itching. May cause skin sensitisation, an allergic reaction, which become evident upon re-exposure to this material. May produce eczematoid contact dermatitis.
Serious eye damage/irritation:	May cause severe irritation, possible tissue damage particularly on mucous membranes of eyes and possible eye burns, resulting in redness, lacrimation, pain, stinging, conjunctivitis, oedema of the eyelids, and ulceration and turbidity of cornea. May result in corneal injury.
Inhalation:	May cause mild to severe irritation and possible tissue damage or local necrosis of the mucous membrane, nose, throat and respiratory tract, especially if vapour or mist is generated, characterised by coughing, choking or shortness of breath. Inhalation of fumes may cause metal fume fever, which is characterised by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. Inhalation of high concentration may lead to headache, dizziness, nausea and vomiting.
Germ cell mutagenicity:	Mutation data has been reported for copper sulphate. DNA inhibition system – human: lymphocyte 76 mmol/L (copper (II) sulphate pentahydrate)
Carcinogenicity:	No evidence of carcinogenic properties
Reproductive toxicity:	Experimental reproductive effects have been reported for copper sulphate.
Specific target organ toxicity (STOT) – single exposure:	No data

Specific target organ toxicity (STOT) – repeated exposure:	No data
Chronic effects:	Repeated or prolonged exposure to the substance can produce damage to kidneys, lungs, the nervous system, mucous membranes. Individuals with Wilson's disease are unable to metabolize copper. Thus, copper accumulates in various tissues and may result in liver, kidney, and brain damage. Chronic copper poisoning in humans is recognised in the form of Wilson's disease. May cause jaundice and liver enlargement (Copper sulphate pentahydrate). Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Prolonged or repeated contact with this material may cause allergic reactions or hypersensitivity in susceptible individuals resulting in skin irritation or sensitisation dermatitis.

Section 12. Ecological information

Ecotoxicity	
Acute toxicity - fish	Copper ions toxic for fish at concentrations below 1 mg/L C.auratus toxic from 0.01 mg/L
Acute toxicity – algae	Copper ions toxic for algae at concentrations below 1 mg/L
Acute toxicity - bacteria	Copper ions toxic for bacteria at concentrations below 1 mg/L
Acute toxicity – other organisms	Copper ions toxic for protozoa at concentrations below 1 mg/L Mussels: 0.55 mg/L lethal in 12h Oysters: 0.1 mg/L toxic
Persistence and degradability:	No further relevant information available.
Behaviour in environmental systems	
Bio-accumulative potential:	No further relevant information available.
Mobility in soil:	No further relevant information available.
Additional ecological information	
Results of PBT and vPvB assessment	PBT: Not applicable vPvB: Not applicable
Other adverse effects:	Severe marine pollutant. Contain spillage.

Section 13. Disposal Considerations

Waste treatment methods	
Recommendation	Prevent this material from entering waterways, drains and sewers. Comply with official regulations.
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

General	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
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Section 15. Regulatory Information

Safety health and environmental regulations/legislation specific for the substance or mixture	
Australian Inventory of Chemical Substances:	Substances are listed.
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.

- End of SDS -