Murashige & Skoog Basal Salts

Modification 9, with macronutrients, micronutrients, vitamins and glycine

Hazardous chemical | Signal word: Danger | Not a dangerous good | Store at 2 to 8°C

1 IDENTIFICATION

Product identifier	Murashige & Skoog Basal Salts, Modification 9, with macronutrients, micronutrients, vitamins and glycine
Other names	MS basal salt mixture; MS medium. Catalogue number MSP09
Recommended use	Plant tissue culture medium component, for research and laboratory use only
Restrictions on use	Not for use as a human or animal therapeutic, cosmetic, pesticide, food additive or household chemical
Australian supplier	Rootlab Technologies Pty Ltd, ABN 52 682 799 711
Address	Unit 14, 49 Carrington Road, Marrickville NSW 2204, Australia
Telephone and email	1300 386 487 · info@rootlab.com.au
Website	www.rootlab.com.au
Manufacturer	Plant Cell Technology, Inc., Washington DC, USA

EMERGENCY TELEPHONE NUMBERS

Rootlab, 24 hours	Rootlab office hours	Poisons Information	Fire, police, ambulance
+61 416 399 905	**1300 386 487**	**13 11 26**	**000**

2 HAZARD IDENTIFICATION

SIGNAL WORD

DANGER



CLASSIFICATION, GHS REVISION 7

- Oxidising solids, Category 2
- Skin irritation, Category 2
- Serious eye damage/eye irritation, Category 2A
- Specific target organ toxicity, single exposure (respiratory tract irritation), Category 3
- Reproductive toxicity, Category 1B
- Specific target organ toxicity, repeated exposure, Category 2

Murashige & Skoog Basal Salts

Hazard and precautionary statements

2 HAZARD IDENTIFICATION, CONTINUED

HAZARD STATEMENTS

H272	May intensify fire; oxidiser.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360	May damage fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS

Prevention

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials.

P260 Do not breathe dust.

P264 Wash hands thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection and face protection.

Storage

P405 Store locked up.

Other hazards: none known.

Response

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P314 Get medical advice/attention if you feel unwell.

P337+P313 If eye irritation persists: Get medical advice/attention.

P370+P378 In case of fire: Use flooding quantities of water to extinguish.

P391 Collect spillage.

Disposal

P501 Dispose of contents and container in accordance with local, state and federal regulations.

Murashige & Skoog Basal Salts

Composition and first aid

3 COMPOSITION (MIXTURE)

INGREDIENT	CAS NO.	% W/W	HAZARD STATEMENTS
Potassium nitrate	7757-79-1	**42.852**	H272, H402, H412
Ammonium nitrate	6484-52-2	**37.213**	H272, H319
Calcium chloride, anhydrous	10043-52-4	**7.492**	H319
EDTA, disodium salt, dihydrate	6381-92-6	**0.840**	H302, H315, H319, H335
Ferrous sulfate, heptahydrate	7782-63-0	**0.627**	H302, H315, H319
Manganese sulfate, monohydrate	10034-96-5	**0.381**	H373, H411
Zinc sulfate, heptahydrate	7446-20-0	**0.194**	H302, H318, H410
Boric acid	10043-35-3	**0.140**	H360
Potassium iodide	7681-11-0	**0.019**	H302, H315, H319
Nicotinic acid	59-67-6	**0.011**	H319, H402
Cobalt chloride, hexahydrate	7791-13-1	**0.0006**	H302, H317, H334, H341, H350, H360, H400, H410
Cupric sulfate, pentahydrate	7758-99-8	**0.0006**	H302, H315, H319, H400, H410
Non-hazardous ingredients	Not required	**to 100**	Not classified

4 FIRST AID MEASURES

For advice, call the **Poisons Information Centre on 13 11 26** (24 hours) or a doctor.

SWALLOWED
Rinse mouth with water. Do not induce vomiting. Give nothing by mouth to an unconscious person. Call 13 11 26 or a doctor.

EYES
Flush with water for at least 15 minutes, holding eyelids apart. Remove contact lenses if easy to do. Seek medical advice if irritation persists.

SKIN
Remove contaminated clothing. Wash skin thoroughly with soap and water. Seek medical advice if irritation persists.

INHALED
Move to fresh air and keep at rest. Ensure a clear airway. If not breathing, start CPR. Seek medical attention.

Symptoms: irritation of eyes, skin and airways; repeated exposure may harm organs and fertility. **Advice to doctor:** treat symptomatically. Show this SDS.

Murashige & Skoog Basal Salts

Fire, spills, handling and storage

5 FIREFIGHTING MEASURES

Extinguishing media	Water spray or flooding quantities of water. The product supplies its own oxygen, so carbon dioxide, dry chemical and foam may be ineffective.
Specific hazards	Oxidiser. May intensify fire in contact with combustible material.
Combustion products	Nitrogen oxides, hydrogen chloride, sulfur oxides, carbon oxides, phosphorus oxides and calcium, magnesium and potassium oxides.
Advice for firefighters	Wear full protective clothing and self-contained breathing apparatus. Cool containers with water spray. Keep run-off out of drains.
Hazchem code	None allocated

6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear the PPE in Section 8. Avoid raising and breathing dust. Ventilate the area, remove ignition sources and keep combustibles away.
Environmental precautions	Keep out of drains, sewers and waterways. If waterways are contaminated, notify the local council or state Environment Protection Authority.
Clean-up	Sweep or vacuum up without raising dust. Do not use sawdust or other combustible absorbents. Place in a clean, dry, labelled, covered container, then wash the area with water.

7 HANDLING AND STORAGE

Safe handling	Avoid contact with skin and eyes and avoid generating dust. Use local exhaust ventilation where dust forms. Do not eat, drink or smoke in work areas. Tell workers who are pregnant or planning a pregnancy about the reproductive hazard.
Storage	Store at 2 to 8°C in a tightly closed container in a dry, well-ventilated area. Moisture sensitive. Store locked up, away from combustibles, heat and ignition sources.
Incompatible materials	Reducing agents, powdered metals, strong acids, strong oxidising agents, boron oxides, zinc, calcium oxide, methyl vinyl ether and bromine trifluoride.

Murashige & Skoog Basal Salts

Exposure controls and properties

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure standards	No workplace exposure standard (WES) is assigned to this product. From 1 December 2026 the WES list is replaced by the Workplace Exposure Limits (WEL) list; no WEL is assigned either. Trace cobalt, copper and manganese compounds have their own limits but are present at very low levels. Keep dust as low as reasonably practicable.
Biological monitoring	None established
Engineering controls	Use in a well-ventilated area. Use local exhaust ventilation or a fume cupboard when weighing or handling powder.

PPE	REQUIREMENT
Eyes and face	Safety glasses with side shields or a face shield (AS/NZS 1336, AS/NZS 1337.1)
Hands	Chemical-resistant gloves such as nitrile (AS/NZS 2161). Inspect before use; discard after contamination.
Body	Laboratory coat, gown or coveralls
Respiratory	Not normally required. Where dust is generated, use a P1 or P2 particulate respirator (AS/NZS 1715, AS/NZS 1716).

Hygiene: wash hands thoroughly after handling and before eating, drinking or smoking.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White to yellow powder
Odour	No data available
pH	3.5 to 4.5 (0.44% solution in water)
Solubility in water	Soluble
Flammability	Not flammable; oxidiser that may intensify fire
Melting, boiling and flash point	No data available
Auto-ignition and decomposition temp.	No data available
Density, vapour pressure, viscosity	No data available
Partition coefficient (n-octanol/water)	No data available

Murashige & Skoog Basal Salts

Reactivity, toxicology and ecology

10 STABILITY AND REACTIVITY

Reactivity and stability	Oxidiser. Stable under recommended storage conditions.
Hazardous reactions	Contact with combustibles, reducing agents or powdered metals may cause fire.
Conditions to avoid	Moisture, heat and ignition sources
Incompatible materials	See Section 7
Decomposition products	Toxic fumes under fire conditions; see Section 5

11 TOXICOLOGICAL INFORMATION

No toxicological data are available for the mixture. Information is based on its ingredients.

Acute toxicity	No data available
Skin corrosion/irritation	Causes skin irritation
Serious eye damage/irritation	Causes serious eye irritation
Sensitisation	Cobalt chloride (trace) is a known sensitiser
Germ cell mutagenicity	No data available
Carcinogenicity	No ingredient at 0.1% or more is classified by IARC
Reproductive toxicity	May damage fertility or the unborn child (boric acid, cobalt chloride)
STOT, single exposure	May cause respiratory irritation
STOT, repeated exposure	May damage organs with prolonged exposure (manganese sulfate)
Aspiration hazard	Not applicable (solid)
Likely routes of exposure	Inhaling dust, skin and eye contact

12 ECOLOGICAL INFORMATION

Ecotoxicity	No data for the mixture. Trace zinc, copper, cobalt and manganese salts are toxic to aquatic life, and nitrates add nutrients to waterways. Avoid release.
Persistence, mobility, PBT	No data available; PBT assessment not conducted

Murashige & Skoog Basal Salts

Disposal, transport, regulations and document control

13 DISPOSAL CONSIDERATIONS

Product	Dispose of through a licensed waste contractor under local, state and federal regulations. Keep out of drains and combustible waste.
Packaging	Dispose of as unused product unless thoroughly cleaned

14 TRANSPORT INFORMATION

Not a dangerous good for transport by road and rail (ADG Code), sea (IMDG Code) or air (IATA DGR).

UN NUMBER	SHIPPING NAME	CLASS, PACKING GROUP	HAZCHEM CODE
None allocated	**Not regulated**	**None**	**None allocated**

15 REGULATORY INFORMATION

WHS Regulations	Hazardous chemical (GHS Revision 7)
Poisons Standard (SUSMP)	No schedule assigned to the product
Industrial chemicals inventory (AIIC)	All ingredients are listed
Security sensitive ammonium nitrate	Not SSAN. Ammonium nitrate (37.2%) is below the 45% threshold.
Restricted carcinogens (WHS Schedule 10)	Not listed

16 OTHER INFORMATION

PREPARED	VERSION	REVIEW BY	BASED ON
27 Oct 2026	**1.0, first Australian issue**	**27 Oct 2031**	**Manufacturer SDS MSP09-SDS, Rev 00, 28 May 2025**

Abbreviations: ADG, Australian Dangerous Goods Code; AIIC, Australian Inventory of Industrial Chemicals; GHS, Globally Harmonized System; IARC, International Agency for Research on Cancer; STOT, specific target organ toxicity; SUSMP, Poisons Standard; WES/WEL, workplace exposure standard/limit.

This SDS summarises our best knowledge of the hazards of this product and how to use it safely, based on information from the manufacturer. Users should assess it against their own conditions of use. Contact Rootlab for further information.