

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

Murashige & Skoog Medium

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

1.1 Product identifier

Product name: Murashige & Skoog Medium
Product number:
SDS number: 905054
CAS No.: No data available
EC No.: No data available
Index No.: No data available

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

Identified use(s): Laboratory chemicals. Manufacture of substances.
Uses advised against: Follow supplier's recommendations on correct use of the product.

1.3 Details of the supplier of the safety data sheet

Supplier: Philip Harris Manufacturing Limited.
Unit 72, Gazelle Road
Weston Industrial Estate
Weston-super-Mare
BS24 9BJ

Telephone: +44 (0)1934 413 606
Fax: +44 (0)1934 626 421
E-mail: sdsinfo@philipharrismanufacturing.co.uk

1.4 Emergency telephone number

In case of emergency, call: +44 (0)1934 413 606 (Mon – Fri, 08:30 – 17:00 UK time)

SECTION 2: Hazard Identification

2.1 Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No. 1272/2008 (CLP)

Oxidizing solids (Category 3), H272
Skin irritation (Category 2), H315
Eye irritation (Category 2), H319
Specific target organ toxicity – single exposure (Category 3), Respiratory system, H335
Chronic aquatic toxicity (Category 3), H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

2.1.2. Classification according to Directive 67/548/EEC & Directive 1999/45/EC

O – Oxidising R8

Xi – Irritant R36/37/38

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

2.2.1. Label according to Regulation (EC) No. 1272/2008 (CLP)

Hazard pictogram(s):



Signal Word:

Warning

Hazard Statement(s):

H272 – May intensify fire; oxidiser

H315 – Causes skin irritation

H319 – Causes serious eye irritation

H335 – May cause respiratory irritation

H412 – Harmful to aquatic life with long lasting effects

Precautionary Statement(s):

P220 – Keep/store away from clothing/combustible materials

P261 – Avoid breathing dust

P273 – Avoid release to the environment

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

Supplemental Hazard information (EU):

None.

2.3 Other hazards

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical name	% w/w	CAS No.	EC No.	Index No.	Classification (Regulation (EC) No. 1272/2008 (CLP))	Classification (Directive 67/548/EEC)
Ammonium Nitrate	25-50%	6484-52-2	229-347-8	No data available	Ox. Sol. 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H272, H315, H319, H335	No data available

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

Chemical name	% w/w	CAS No.	EC No.	Index No.	Classification (Regulation (EC) No. 1272/2008 (CLP))	Classification (Directive 67/548/EEC)
Calcium Chloride	< 10%	10043-52-4	233-140-8	017-013-00-2	Eye Irrit. 2; H319	No data available
Manganese Sulfate Monohydrate	< 2.5%	10034-96-5	232-089-9	025-003-00-4	STOT RE 2; Aquatic Chronic 2; H373, H411	No data available
Zinc Sulfate Heptahydrate	< 0.25%	7446-20-0	231-793-3	030-006-00-9	Acute Tox. 4; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H302, H318, H410	No data available

See Section 16 for full description of R phrases and H statements.

SECTION 4: First Aid Measures

4.1 Description of first aid measures

INHALATION: Remove person to fresh air and keep comfortable for breathing. Keep warm and at rest. If irritation persists or if you feel unwell, obtain immediate medical attention.

SKIN CONTACT: Take off immediately all contaminated clothing. Rinse skin with water/shower for at least 15 minutes. Obtain immediate medical attention. Contaminated clothing should be washed before reuse.

EYE CONTACT: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing, making sure to rinse under eyelids. Obtain immediate medical attention.

INGESTION: Do not induce vomiting. Provided the patient is conscious, rinse mouth out with water and give 200-300 mL of water to drink. Never give anything by mouth to an unconscious person. Obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed:

The most important known symptoms and effects are described in the labelling (see section 2.2) and / or in section 11

4.3 Indication of any immediate medical attention and special treatments needed:

In case of accident or if you feel unwell, seek medical advice immediately. If breathing is laboured, oxygen should be administered by qualified personnel.

SECTION 5: Fire-fighting Measures

5.1 Extinguishing Media

Suitable extinguishing media: Water spray, CO₂, sand, dry powder, alcohol-resistant foam

Unsuitable extinguishing media: Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, nitrogen oxides (NO_x)

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

5.3 Advice for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Eliminate sources of ignition. Ensure adequate ventilation. Avoid contact with skin and eyes. Do not breathe vapours/spray. Wear suitable personal protective equipment. Wear appropriate respirator when ventilation is inadequate (See Section 8).

6.1.2 For emergency responders

Keep unnecessary personnel away. Wear suitable protective clothing (See Section 8). Contaminated work clothing should not be allowed out of the workplace. Take off contaminated clothing and wash it before reuse.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

6.3 Methods and materials for containment and clearing up

6.3.1 For containment

Stop the leak if it is safe to do so. Contain the spillage with sand, earth or any suitable adsorbent material.

6.3.2 For cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.3.3 Other advice

Do not let product enter the drains.

6.4 Reference to other sections

See Section 8 for personal protective equipment. See Section 13 for waste disposal.

SECTION 7: Handling and Storage

7.1 Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place.

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control parameters

Workplace exposure limits

Substance	CAS No.	LTEL (8 hr TWA)		STEL (15 min)		Comments
		ppm	mg/m ³	ppm	mg/m ³	
Manganese Sulfate Monohydrate	10034-96-5					

8.2 Exposure controls

8.2.1 Appropriate engineering controls

General educational / industrial hygiene practice.

8.2.2 Personal protection

Eye protection:

Goggles or safety glasses with side shields giving complete protection to eyes (EN 166).

Skin protection:

Protective Clothing

Hand protection:

Chemical-resistant gloves conforming (EN 374). Nitrile rubber gloves are recommended for normal use. Butyl rubber gloves are recommended if the contents of the generator are released. Contact glove supplier to confirm suitable glove material, thickness and breakthrough times.

Other:

Long sleeve protective clothing.

Respiratory protection:

Not normally required. Dust mask if conditions are dusty.

Thermal hazards:

Not applicable.

8.2.3 Environmental exposure controls

Inform environmental manager of all incidents involving this product.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:

Form: Powder

Odour:

No data available

Odour threshold:

No data available

pH:

3.5 – 4.5

Melting/freezing point:

No data available

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

Initial boiling point and boiling range:	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid; gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapour pressure:	No data available
Vapour density:	No data available
Relative density:	No data available
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Explosive properties:	No data available
Oxidising properties:	No data available

9.2 Other information
None known.

SECTION 10: Stability and Reactivity

10.1	Reactivity	No data available
10.2	Chemical stability	Stable under recommended storage conditions.
10.3	Possibility of hazardous reactions	No data available
10.4	Conditions to avoid	Hygroscopic
10.5	Incompatible materials	Strong Oxidizing agents.
10.6	Hazardous decomposition products	Other decomposition products – no data available. In the event of fire: see section 5

SECTION 11: Toxicological Information

11.1	Information on toxicological effects	
	Acute toxicity	LD50 Oral – rat - > 5,000 mg/kg LD50 dermal – rat - > 5,000 mg/kg. (OECD Test Guidance 402)
	Skin corrosion/irritation	Skin – rabbit, no skin irritation (OECD Test Guidance 404)
	Serious eye damage/irritation	Eyes – rabbit, no eye irritation (OECD Test Guidance 405)
	Skin sensitisation	Buehler test – guinea pig, does not cause skin sensitisation (OECD Test Guidance 406)
	Respiratory sensitisation	Buehler test – guinea pig, does not cause respiratory sensitisation (OECD Test Guidance 406)
	Germ cell mutagenicity	Not mutagenic in Ames test. In vitro assay result negative. In vitro tests did not show mutagenic effects.

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

Carcinogenicity	In vivo tests did not show any chromosomal changes. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity	No data available
Specific Target Organ Toxicity – single exposure	No data available
Specific Target Organ Toxicity – repeated exposure	No data available
Aspiration hazard	No data available
Information on likely routes of exposure	
Inhalation	May be harmful if inhaled. Causes respiratory tract irritation
Skin contact	May be harmful if absorbed through skin. Causes skin irritation
Eye contact	May be harmful. Causes eye irritation
Ingestion	Harmful if swallowed
Symptoms related to the physical, chemical and toxicological characteristics	No data available
Mixture versus substance Information	No data available
Other information	To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological Information

12.1 Toxicity	Toxicity to daphnia and other aquatic invertebrates EC50 – Daphnia - > 980 mg/l – 48h Toxicity to algae: EC50 – Algae – 397 mg/l – 72h NOEC – Algae – 100 mg/l – 72h
12.2 Persistence and degradability	Readily biodegradable.(OECD Test Guideline 201F)
12.3 Bioaccumulative potential	No bioaccumulation is to be expected (log Pow <=4).
12.4 Mobility in soil	No data available
12.5 Results of PBT and vPvB assessment	The substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
12.6 Other adverse effects	No data available

SECTION 13: Disposal Considerations

13.1 Waste treatment methods	Offer surplus and non-recyclable solutions to a licensed disposal company.
-------------------------------------	--

SECTION 14: Transport Information

ADR	
14.1 UN Number	1477

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

14.2	UN Proper shipping name	Nitrates, Inorganic, N.O.S
14.3	Transport hazard class(es)	5.1
14.4	Packing group	II
14.5	Environmental hazards	No
14.6	Special precautions for the user	No data available

ADN

14.1	UN Number	1477
14.2	UN Proper shipping name	Nitrates, Inorganic, N.O.S
14.3	Transport hazard class(es)	5.1
14.4	Packing group	II
14.5	Environmental hazards	No
14.6	Special precautions for the user	No data available

RID

14.1	UN Number	1477
14.2	UN Proper shipping name	Nitrates, Inorganic, N.O.S
14.3	Transport hazard class(es)	5.1
14.4	Packing group	II
14.5	Environmental hazards	No
14.6	Special precautions for the user	No data available

IATA/ICAO

14.1	UN Number	1477
14.2	UN Proper shipping name	Nitrates, Inorganic, N.O.S
14.3	Transport hazard class(es)	5.1
14.4	Packing group	II
14.5	Environmental hazards	No
14.6	Special precautions for the user	No data available

IMDG

14.1	UN Number	1477
14.2	UN Proper shipping name	Nitrates, Inorganic, N.O.S
14.3	Transport hazard class(es)	5.1
14.4	Packing group	II
14.5	Environmental hazards	No
14.6	Special precautions for the user	No data available
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code	No data available

SECTION 15: Regulatory Information

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

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

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) No. 1907/2006 as amended. The product has been classified in accordance with Regulation (EC) No. 1272/2008 (CLP), Directive 67/548/EEC & Directive 1999/45/EC.

15.2 Chemical Safety Assessment

A chemical safety assessment is not required and has not been carried out.

SECTION 16: Other Information

Full text of relevant R-phrases and/or H-statements:

Hazard Statement(s):	Acute Tox – Acute toxicity Aquatic Acute – Acute aquatic toxicity Aquatic Chronic – Chronic aquatic toxicity Eye Dam – Serious eye damage Eye Irrit – Eye irritation H272 – May intensify fire; oxidiser H302 – Harmful if swallowed H315 – Causes skin irritation H318 – Causes serious eye damage H319 – Causes serious eye irritation H335 – May cause respiratory irritation H360FD – May damage fertility. May damage the unborn child H373 – May cause damage to organs through prolonged or repeated exposure H410 – Very toxic to aquatic life with long lasting effects H411 – Toxic to aquatic life with long lasting effects H412 – Harmful to aquatic life with long lasting effects Ox Sol – Oxidizing solids Repr – Reproductive toxicity Skin Irrit – Skin irritation STOT RE – Specific target organ toxicity – repeated exposure STOT SE – Specific target organ toxicity – single exposure
Supplemental Hazard information (EU):	None.
Risk phrase(s):	N – Dangerous for the environment

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

R8 – Contact with combustible material may cause fire
R22 – Harmful if swallowed
R36 – Irritating to eyes
O – Oxidising
T – Toxic
R36/37/38 – Irritating to eyes, respiratory system and skin
R41 – Risk of serious damage to eyes
R48/20/22 – Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51/53 – Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Xi – Irritant
R60 – May impair fertility
R61 – May cause harm to the unborn child
Repr.Cat.2 – Toxic to reproduction Category 2
Xn - Harmful

Abbreviations:

CAS: Chemical Abstracts Service;
EINECS: European Inventory of Existing Commercial Chemical Substances
EC₅₀: Effective Concentration 50%
EL₅₀: Effective Loading rate 50%
IC₅₀: Inhibitory Concentration 50%
LC₅₀: Lethal Concentration 50%
LD₅₀: Lethal Dose 50%
LL₅₀: Lethal Loading rate 50%
LCLo: Lowest lethal concentration
LOEL: Lowest Observed Effect Level
NOEL: No Observed Effect Level
PBT: Persistent, Bioaccumulative and Toxic.
vPvB: Very Persistent and Very Bioaccumulative.

References:

Supplier's Safety Data Sheets for ingredients
ECHA disseminated REACH dossiers
ECHA Classification & Labelling Inventory
Approved Classification and Labelling Guide (Sixth edition)
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP)
Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP)

Safety Data Sheet

According to Regulation (EC)
No. 1907/2006 (REACH)

Disclaimer:

THE INFORMATION PRESENTED HEREIN IS BELIEVED TO BE ACCURATE, BUT IS NOT WARRANTED TO BE, WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM, IN ADVANCE OF NEED, THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

Version history:

Version:	2.0
Issue date:	09/06/2014
Previous Version:	1.0
Issue date of previous version:	01/07/2005
Sections changed from previous version:	All

