1 Identification of the substances/mixture and of the company/undertaking

1.1 Product Identifiers
Product Number PT044
Product Name Murashige & Skoog Modified Medium w/ CaCl₂ & Nitsch vitamins; w/o Sucrose & Agar

REACH Registration Number Reach registration number is not available for this mixture. According to REACH regulation EC 1907/2006 this product is exempted from registration. The annual tonnage does not require a REACH registration or it is envisaged for a later registration deadline.

1.2 Relevant identified uses of the substance or mixture and uses advised against
1.2.1 Relevant identified uses Laboratory chemicals, Manufacture of substances
1.2.2 Uses advised against No data available

1.3 Details of the supplier of the safety data sheet
Produced by HiMedia Laboratories Private Limited
Address 23, Vadhani Industrial Estate, LBS Marg, Ghatkopar (W), Mumbai - 400 086 India
Tel. No. +91-22-2500 0970, +91-22-2500 1607 Fax No.
Mail Id ptc@himedialabs.com Website : www.himedialabs.com

1.4 Emergency Tel. No. Please contact the regional HiMedia representation in your country

2 Hazards Identification

2.1 Classification of the substance or mixture
CLP Classification-Regulation (EC) No. 1272/2008[EU-GHS/CLP]
Oxidising solids, (Category 3), H272
Skin corrosion or irritation, (Category 2), H315
Serious eye damage or eye irritation, (Category 2A), H319
Specific target organ toxicity, single exposure, Respiratory tract irritation, (Category 3), H335
Hazardous to the aquatic environment, long term hazard, (Category 3), H412
For the full text of the H-Statements mentioned in this Section, See Section 16

2.2 Label elements
Labeling according to Regulation (EC) No.1272/2008

Pictogram
Signal word Warning
Hazard Statement(s)
H272 May intensify fire; oxidizer
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)
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378 In case of fire: Use suitable extinguishing media for extinction.

2.3 Other Hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3 Composition/Information On Ingredients
3.2 Mixture

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium nitrate</td>
<td>As Per EC Regulation 1272/2008 Ox. Sol. 3 H272</td>
<td>&gt;=40 - &lt;=50%</td>
</tr>
<tr>
<td>CAS No.: 7757-79-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC No.: 231-818-8</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium nitrate</td>
<td>As Per EC Regulation 1272/2008 Ox. Sol. 2; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3 H272; H315; H319; H335 As Per EC Directive 67/548/EEC or 1999/45/EC O (gas); Xi R8; R36/37/38</td>
<td>&gt;=30 - &lt;=40%</td>
</tr>
<tr>
<td>CAS No.: 6484-52-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC No.: 229-347-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium chloride, anhydrous</td>
<td>As Per EC Regulation 1272/2008 Eye Irrit. 2A H319</td>
<td>&gt;=7 - &lt;=9%</td>
</tr>
<tr>
<td>CAS No.: 10043-52-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC No.: 233-140-8</td>
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<td></td>
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<tr>
<td>Component</td>
<td>Classification</td>
<td>Concentration</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Manganese sulphate</td>
<td></td>
<td>As Per EC Regulation 1272/2008</td>
</tr>
<tr>
<td>CAS No.: 10034-96-5</td>
<td></td>
<td>STOT RE 2; Aquatic Chronic 2 H373; H411</td>
</tr>
<tr>
<td>EC No.: 232-089-9</td>
<td></td>
<td>&gt;=0.3 - &lt;=0.5%</td>
</tr>
<tr>
<td>Index-No: 025-003-00-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boric acid</td>
<td></td>
<td>As Per EC Regulation 1272/2008</td>
</tr>
<tr>
<td>CAS No.: 10043-35-3</td>
<td></td>
<td>Repr. Tox. 1A, 1B H360</td>
</tr>
<tr>
<td>EC No.: 233-139-2</td>
<td></td>
<td>&gt;=0.1 - &lt;=0.2%</td>
</tr>
<tr>
<td>Index-No: 005-007-00-2</td>
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<td></td>
</tr>
<tr>
<td>Potassium iodide</td>
<td></td>
<td>As Per EC Regulation 1272/2008</td>
</tr>
<tr>
<td>CAS No.: 7681-11-0</td>
<td></td>
<td>Acute Tox.oral 4; Skin Irrit. 2; Eye Irrit. 2A H302; H315; H319</td>
</tr>
<tr>
<td>EC No.: 231-659-4</td>
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<td>&gt;=0.01 - &lt;=0.02%</td>
</tr>
<tr>
<td>Index-No:</td>
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<td></td>
</tr>
<tr>
<td>Zinc sulphate, heptahydrate</td>
<td></td>
<td>As Per EC Regulation 1272/2008</td>
</tr>
<tr>
<td>CAS No.: 7446-20-0</td>
<td></td>
<td>Acute Tox.oral 4; Eye Dam. 1; Aquatic Chronic 1 H302; H318; H410</td>
</tr>
<tr>
<td>EC No.: 231-793-3</td>
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<td>&gt;=0.1 - &lt;=0.3%</td>
</tr>
<tr>
<td>Index-No: 030-006-00-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper sulphate pentahydrate</td>
<td></td>
<td>As Per EC Regulation 1272/2008</td>
</tr>
<tr>
<td>CAS No.: 7758-99-8</td>
<td></td>
<td>H302; H315; H319; H410</td>
</tr>
<tr>
<td>EC No.: 231-589-4</td>
<td></td>
<td>&gt;=0.0005 - &lt;=0.0006%</td>
</tr>
<tr>
<td>Index-No: 027-004-00-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobalt chloride, 6H2O</td>
<td></td>
<td>As Per EC Regulation 1272/2008</td>
</tr>
<tr>
<td>CAS No.: 7791-13-1</td>
<td></td>
<td>Acute Tox.oral 4; Skin Sens. 1; Resp. Sens. 1; Muta. 2; Carc. 1B; Repr. 1B; Aquatic Chronic 1 H302; H317; H334; H341; H350i; H360F; H410</td>
</tr>
<tr>
<td>EC No.: 231-589-4</td>
<td></td>
<td>&gt;=0.0005 - &lt;=0.0006%</td>
</tr>
<tr>
<td>Index-No: 027-004-00-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>Classification</td>
<td>Concentration</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Nicotinic acid</td>
<td>As Per EC Regulation 1272/2008</td>
<td>&gt;=0.1 - &lt;=0.2%</td>
</tr>
<tr>
<td>CAS No.:</td>
<td>59-67-6</td>
<td></td>
</tr>
<tr>
<td>EC No.:</td>
<td>200-441-0</td>
<td></td>
</tr>
</tbody>
</table>

4 First Aid Measures
4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse immediately with plenty of water for at least 15 minutes. Consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of immediate medical attention and special treatment needed
No data available

5 Fire Fighting Measures
5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media
No data available.

5.2 Special hazards arising from the substance or mixture
Magnesium oxides, Sulphur oxides, Sodium oxides, Iron oxides, Calcium Oxide, Cobalt oxides, Copper oxides, Manganese oxides, Molybdenum oxides, Oxides of Phosphorus, Potassium oxides, Zinc oxides

5.3 Precautions for fire-fighters
Cool closed containers exposed to fire with water spray.

5.4 Further information
Wear self-contained breathing apparatus for firefighting if necessary.

6 Accidental Release Measures
6.1 Personal precautions, protective equipment and emergency procedures
Use personnel protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see Section 13.

7 Handling and Storage
7.1 Precautions for safe handling
Avoid formation of dust and aerosols. Wear protective gloves and eye/face protection. Use only in well ventilated areas. Keep away from heat, sparks and open flame.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool/well-ventilated place. Storage class (TRGS 510): Oxidizing Solids
Recommended Storage Temperature: 2 - 8°C

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

8 Exposure Controls/Personal Protection
8.1 Control parameters
8.2 Exposure controls
Appropriate engineering controls
Handle in accordance to general industrial hygiene and safety practice. Wash hands before breaks, immediately after handling the products and at the end of workday.

Personal protective equipment
Eye/face protection
Safety glasses with side-shields conforming to EN 166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Have eye-washing facilities readily available where eye contact can occur.
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Environment exposure controls**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## 9 Physical and chemical properties
### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White to off-white, homogenous powder</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>3.5 - 4.5</td>
</tr>
<tr>
<td>Melting/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (Solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Thermal decomposition</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2 Other safety information

No data available

## 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

No data available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions - Nitrogen oxides (NOx), Sulphur oxides, Oxides of phosphorus, Potassium oxides, Magnesium oxide, Cobalt/cobalt oxides, Calcium oxide, Copper oxides

11 Toxicological Information
11.1 Information on toxicological effects
   Acute toxicity
   No data available
   Remarks: No data available
   No data available
   Skin corrosion/irritation
   No data available
   Serious eye damage/eye irritation
   No data available
   Respiratory or skin sensitisation
   No data available
   Germ cell mutagenicity
   No data available
   Carcinogenicity
   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 - repeated exposure
   No data available
   Aspiration hazard
   No data available
   Additional Information
   RTECS: Not Applicable

12 Ecological Information
12.1 Toxicity
   No data available

12.2 Persistence and degradability
   No data available

12.3 Bioaccumulative potential
   No data available

12.4 Mobility in soil
   No data available

12.5 PBT and vPvB assessment
   This preparation contains no substance considered to be persistent, bioaccumulating or toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
13 Disposal Considerations

13.1 Waste treatments methods
Product
Dispose of as unused product.

13.2 Contaminated packaging
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in
igniting as this material is highly flammable. Contact a licenced professional waste disposal service to
dispose off this material.

14 Transport Information

14.1 UN-No

14.2 UN proper shipping name
ADNR : Nitrates, inorganic, n.o.s.
ADR : Nitrates, inorganic, n.o.s.
IATA_C : Nitrates, inorganic, n.o.s.
IATA_P : Nitrates, inorganic, n.o.s.
IMDG : Nitrates, inorganic, n.o.s.
RID : Nitrates, inorganic, n.o.s.

14.3 Transport hazard class(es)
ADNR : 5.1 ADR : 5.1 IATA_C : 5.1 IATA_P : 5.1 IMDG : 5.1 RID : 5.1

14.4 Packaging group
ADNR : II ADR : II IATA_C : II IATA_P : II IMDG : II RID : II

14.5 Environmental hazards
ADR : No IMDG : Marine Pollutant : No IATA_C : No

14.6 Special precautions for use
No data available

15 Regulatory Information
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out.

16 Other information

H272 May intensify fire; oxidizer
H302 Harmful if swallowed
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H319  Causes serious eye irritation
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
H360  May damage fertility or the unborn child
H360F May damage fertility
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
Acute Tox.oral 4 Acute toxicity, oral, Category 4
Aquatic Chronic 1 Hazardous to the aquatic environment, long term hazard, Category 1
Aquatic Chronic 2 Hazardous to the aquatic environment, long term hazard, Category 2
Carc. 1B Carcinogenicity, Category 1B
Eye Dam. 1 Serious eye damage or eye irritation, Category 1
Eye Irrit. 2A Serious eye damage or eye irritation, Category 2A
Muta. 2 Germ cell mutagenicity, Category 2
Ox. Sol. 3 Oxidising solids, Category 3
Repr. 1B Reproductive toxicity, Category 1B
Repr. Tox. 1A, 1B Reproductive toxicity, Category 1A, 1B
Resp. Sens. 1 Skin Sensitisation, respiratory, Category 1
Irrit. 2 Skin corrosion or irritation, Category 2
Skin Sens. 1 STOT Sensitisation, Skin, Category 1
STOT SE 3 Specific target organ toxicity, repeated exposure, Category 2 Specific
target organ toxicity, single exposure, Respiratory tract irritation,
Category 3
R36/37/38 Irritating to eyes, respiratory system and skin.
R8 Contact with combustible material may cause fire.
O (gas) Oxidising (gas)
Xi Irritant

Further Information

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