



WEST BENGAL CHEMICAL INDUSTRIES LIMITED

145/1, Jessore Road, Lake Town,

Kolkata – 700 089, India.

Phone: +9133 4025 1700 Fax: +9133 2574 7410

Email: wbcil@wbcil.com Website: www.wbcil.com

Section 1 - Chemical Product and Company Identification

1.1 MSDS Name: Ferric Maltol

1.2 Product Code: FEM1180

1.3 Relevant identified uses of the substance or mixture and uses advised against Identified uses: Laboratory chemicals, Manufacture of substances

1.4 Company Identification:

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Section 2 - Hazards Identification

2.1 Classification of the substance or mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS).

2.2 Hazard classification of Chemical:

Oral Category 4

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2A

Specific target organ toxicity, single exposure; Respiratory tract irritation Category 3

2.3 Signal word: Warning

2.4 Hazard statement:

H302 Harmful if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

2.5 Precautionary statement (s):

Prevention

P251 Avoid breathing dust/fume/gas/mist/vapours/spray.

P254 Wash hands thoroughly after handling.



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P260 Do not eat, drink or smoke when using this product.

P261 Use only outdoors or in a well-ventilated area.

P270 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (refer to Section 4 for details).

P330 Rinse mouth.

P337 If eye irritation persists.

P362+P364 Take off contaminated clothing and wash it before reuse.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal

P501 Dispose of contents/container to in accordance with local regulation.

2.6 Classification according to EU Directives 67/548/EEC or 1999/45/EC:

Hazard Symbol:

Xn Harmful.

Xi Irritant.

Risk Phrase:

R22 Harmful if swallowed.

R36/37/38: Irritating to eyes, skin, and respiratory system.

2.7 Hazards not otherwise classified (HNOC):

Not applicable.

2.8 CARCINOGENIC EFFECTS:

No data available.

2.9 MUTAGENIC EFFECTS:

No data available.

2.10 TERATOGENIC EFFECTS:

No data available.



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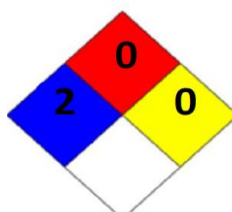
2.11 DEVELOPMENTAL TOXICITY:

No data available.

2.12 Pictogram:



2.13 NFPA SCALE:



NFPA Scale (0-4)

2.14 HMIS RATINGS:

| | |
|---------------------|---|
| Health | 2 |
| Flammability | 0 |
| Physical Hazard | 0 |
| Personal Protection | x |

HMIS RATEINGS (0-4)

Section 3- Composition/Information on Ingredients

3.1 Substance Name: Ferric Maltol

3.2 Synonyms:

- Iron (III) maltol
- Iron maltol
- Iron (3+) 2-methyl-4-oxopyran-3-olate
- 4H-Pyran-4-one, 3-hydroxy-2-methyl-, iron (3+) salt (3:1)



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3.3 Molecular Formula: C₁₈H₁₅FeO₉

3.4 Molecular Weight: 431.2 g/mol

3.5 CAS Number: 33725-54-1

3.6 Concentration Range: 90–100%

3.7 Impurities and Additives:

This substance does not contain any impurities or stabilizing additives contributing to its hazard classification.

Section 4 – First Aid Measures

4.1 Description of First Aid Measures:

4.1.1 INHALATION

Immediately relocate self or casualty to fresh air. If breathing is difficult, give cardiopulmonary resuscitation (CPR) Avoid mouth-to-mouth resuscitation. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.

4.1.2 INGESTION

Wash out mouth with water; Do NOT induce vomiting; If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. call a physician.

4.1.3 SKIN CONTACT

Rinse skin thoroughly with large amounts of water. Use a mild soap if available. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse. For minor skin contact, avoid spreading material on unaffected skin.

4.1.4 EYE CONTACT

Remove any contact lenses, locate eye-wash station, and flush eyes immediately with large amounts of water. Separate eyelids with fingers to ensure adequate flushing. Promptly call a physician.

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



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Acute Symptoms: Skin redness, eye irritation, coughing, or breathing difficulty.

Delayed Symptoms: Persistent respiratory discomfort, prolonged skin irritation, or rash. The most important known symptoms and effects are described in the labelling (see section 2.2).

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

Treat symptomatically. Administer oxygen in case of respiratory distress. No specific antidote known. Refer to the nearest poison control center for guidance.

Section 5 - Firefighting Measures

5.1 Flammability of the Product:

May be combustible at high temperature. No known flash point or auto-ignition temperature available.

5.2 Special hazards arising from the substance or mixture:

During combustion, may emit irritant fumes. Toxic fumes such as carbon monoxide (CO), carbon dioxide (CO₂), and iron oxides may be released.

5.3 Advice for firefighters:

Wear self-contained breathing apparatus and protective clothing.

5.4 Further information:

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. At elevated temperatures under fire conditions, it may produce toxic or irritating fumes. Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place.

5.5 EXPLOSION HAZARDS IN PRESENCE OF VARIOUS SUBSTANCES:



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Slightly explosive in presence of open flames and sparks. Nonexplosive in presence of shocks. If in powdered form, take precautions against dust explosion risks (e.g., avoid creating dust clouds and ensure proper ventilation).

Section 6 – Accidental release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 Use full personal protective equipment (PPE), including gloves, goggles, and respiratory protection, as specified in Section 8.

6.1.2 Ensure adequate ventilation. Approach from an upwind direction to avoid exposure to vapors, mist, or dust.

6.1.3 Evacuate unprotected personnel to a safe area. Only trained personnel equipped with PPE should handle the spill.

6.1.4 Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Refer to protective measures listed in sections 8.

6.2 Environmental precautions:

Prevent spillage from entering drains, watercourses, or soil. Ferric Maltol may pose risks to aquatic life or contaminate soil; immediately contain any leaks and notify environmental authorities if the material enters natural water systems.

6.3 Methods and materials for containment and cleaning up:

6.3.1 Small Spill

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements according to Section 13.

6.3.2 Large Spill

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.

6.4 Reference to other sections:



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For protective measures, see Section 8.

For disposal considerations, see Section 13.

Section 7 – Handling and Storage

7.1 Precautions for Safe Handling:

If respiratory symptoms develop from exposure to fumes emitted by the molten material, move victim away from source. Avoid contact with skin and eyes. Use only with adequate ventilation. Apply according to good manufacturing and industrial hygiene practices. Ensure proper ventilation. Wash thoroughly after handling. Prevent dispersion of dust. Do not drink, eat, or smoke while handling. Avoid contact with skin, eyes, and clothing. Minimize dust generation. Avoid breathing dust/fumes/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use individual protective equipment (waterproof boots, suitable protective clothing, safety glasses, etc.). Prevent any contact with hot surfaces.

7.2 Conditions for Safe Storage:

Keep container tightly sealed in cool, well-ventilated area. Keep away from direct sunlight and sources of ignition.

7.2.1 Recommended storage temperature:

Powder -20°C (stable for 3 years) or 4°C (stable for 2 years)

In solvent -80°C (stable for 6 months) or -20°C (stable for 1 month).

Shipping at room temperature if less than 2 weeks.

7.3 Specific end use(s):

No data available.



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Section 8 – Exposure Controls/ Personal protection

8.1 Control Parameters:

Components with workplace control parameters This product contains no substances with occupational exposure limit values.

8.2 Exposure controls:

8.2.1 ENGINEERING CONTROLS

None required when working with the solid material. If airborne concentrations of wax fumes, generated from molten wax, are expected, a NIOSH/MSHA approved air purifying respirator with a dust/mist/fume filter may be used. No definitive information available on carcinogenicity.

8.3 Personal Protection:

8.3.1 Eye/Face Protection: Use safety goggles or glasses with side shields tested and approved under NIOSH (US) or EN 166 (EU).

8.3.2 Skin Protection: Wear chemically resistant gloves. Inspect gloves prior to use and follow proper removal techniques to avoid skin exposure. Wash and dry hands after use.

8.3.3 Body Protection: Use chemical-resistant clothing as appropriate for workplace conditions.

8.3.4 Respiratory Protection: If dust or airborne particles are generated, use a respirator with an N100 (US) or P3 (EU) filter. If respirators are required as the primary means of protection, use a full-face supplied air respirator tested and approved under NIOSH (US) or CEN (EU).

8.4 Additional Recommendations:

Ensure an eyewash station and emergency shower are available in the work area. Handle in accordance with good industrial hygiene and safety practices.

8.5 EXPOSURE LIMITS:

Consult local authorities for acceptable exposure limits.



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Section 9- Physical and Chemical Properties

| | |
|--|--|
| APPEARANCE FORM: | Deep brown, free flowing powder. |
| ODOUR: | Fragrant, caramel-like odour. |
| Odour threshold: | No data available. |
| pH (5% w/v Solution): | 6.0 – 9.5 |
| Melting point/Freezing point: | About 300C (from literature). Boiling point or initial boiling point and boiling range 170°C (from literature). Flash point 61°C (closed cup, literature). |
| Evaporation rate: | No data available. |
| Flammability: | No data available. |
| Upper/lower flammability or explosive limits: | No data available. |
| VAPOR PRESSURE AT 35°C: | 0.000228mmHg at 25°C. |
| Vapour density: | No data available. |
| RELATIVE DENSITY: | 1.3 |
| Solubility: | Water- 1 to 10 mg/mL at 72° F (NTP, 1992) Soluble in Chloroform Soluble in Alcohol Soluble in Propylene glycol. |
| Partition coefficient log K: | 0.09 |
| Auto ignition temperature: | No data available. |
| Decomposition temperature: | Approximately 315–318°C. |
| Viscosity: | No data available. |

Section 10 – Stability and Reactivity

10.1 Reactivity:

May be sensitive to prolonged exposure to light and air. Somewhat soluble in water at room temperature. Freely soluble in hot water. Slightly soluble in cold water.

10.2 Chemical Stability:



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Stable under normal conditions, including temperatures of 15–25°C, a dry atmosphere, and absence of prolonged light exposure.

10.3 Possibility of Hazardous Reactions:

It emits Carbon oxides, iron oxides and toxic fumes when heated to decomposition.

MALTOL is weakly acidic. Reacts with bases. May react with reducing agents.

Volatile with steam. (NTP, 1992).

10.3.1 Hazardous Polymerization:

Does not occur.

10.4 Conditions to avoid:

No data available.

10.5 Incompatible materials:

Strong acids/alkalis, strong oxidizing/reducing agents.

10.6 Hazardous decomposition products:

Under fire conditions, may decompose and emit toxic fumes.

10.7 Other decomposition products:

No data available.

Section 11 - Toxicological Information

11.1 Routes of Entry:

Inhalation, Ingestion, Skin contact, Eye contact.

11.2 Toxicity to Animals:

LD50: No data available.

LC50: No data available.

No animal testing data is currently available for this substance.

11.3 Chronic Effects on Humans:



No data available.

11.4 Acute Effects on Humans:

May cause skin and eye irritation. Inhalation may cause respiratory discomfort.

11.5 Carcinogenicity:

IARC: No component of this product present at a level $\geq 0.1\%$ is identified as a probable, possible, or confirmed human carcinogen.

ACGIH: No component of this product present at a level $\geq 0.1\%$ is identified as a potential or confirmed carcinogen.

NTP: No component of this product present at a level $\geq 0.1\%$ is identified as an anticipated or confirmed carcinogen.

OSHA: No component of this product present at a level $\geq 0.1\%$ is identified as a potential or confirmed carcinogen.

11.6 Other Toxicological Effects:

Skin Irritation: May cause irritation.

Eye Irritation: May cause irritation.

Respiratory Sensitization: No data available.

Skin Sensitization: No data available.

Mutagenicity: No data available.

Reproductive Toxicity: No data available.



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Aspiration Hazard: Not expected to pose an aspiration hazard.

11.7 Additional Information:

Toxicological data are based on currently available information. Further testing is required to fully evaluate chronic and reproductive effects.

Section 12 – Ecological Information

12.1 Ecotoxicity:

No experimental ecotoxicity data are available. Based on its solubility and chemical structure, it is not expected to be acutely toxic to aquatic organisms.

12.2 Persistence and Degradability:

No experimental data available. Based on its chemical structure, Ferric Maltol is expected to undergo slow biodegradation under environmental conditions.

12.3 Bioaccumulative Potential:

Based on an estimated Log Kow of 0.09, Ferric Maltol is not expected to bioaccumulate in organisms.

12.4 Mobility in Soil:

No data available. Based on its solubility, Ferric Maltol may have moderate mobility in soil.

12.5 Results of PBT and vPvB Assessment:



No PBT/vPvB assessment has been conducted. Based on available data, Ferric Maltol is not expected to meet PBT or vPvB criteria.

12.6 Other Adverse Effects:

Ferric Maltol is not expected to contribute to ozone depletion or photochemical smog formation.

12.7 Products of Biodegradation:

No hazardous short-term degradation products are expected. Long-term degradation products are not expected to pose significant environmental risks.

Section 13 – Disposal Considerations

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14 - Transport Information

14.1 UN-Number:

ADR/RID: IMDG: IATA:

14.2 UN proper shipping name:

ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods.

14.3 Transport hazard class(es) ADR/RID: IMDG: IATA:

Packaging Group ADR/RID: IMDG: IATA:

14.4 Environmental hazards ADR/RID:



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No IMDG Marine pollutant: No IATA: No

14.5 Special precautions for user's Further information:

Not applicable as per IATA regulation safe for carriage, non-hazardous and non-restricted.

14.6 NO SPECIAL LABELLING OR TRANSPORT MEASURE HAVE BEEN IDENTIFIED.



THIS IS NOT REGULATED AS PER IATA REGULATION.

Section 15 – Regulatory Information

International Inventories



TSCA Complies

DSL/NDSL Complies

EINECS/ELINCS Complies

ENCS This product complies with ENCS:

IECSC This product complies with China:

KECL Complies

PICCS Complies

AICS All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances



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KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable



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Section 16 – Other information

Abbreviations and acronyms:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances.

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

No SARA Hazards.

Massachusetts Right To Know Components:

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components:

No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right To Know Components:

No components are subject to the New Jersey Right to Know Act.

California Prop. 65 Components:

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or another reproductive harm.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

DSCL (EEC) : This product is not controlled under the EU Regulations.



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PROTECTIVE EQUIPMENT : Gloves. Lab coat. Dust respirator. Be sure to use an approved /certified respirator or equivalent. Splash goggles.

Disclaimer: This material safety data sheet is provided as an information resource only. WEST BENGAL CHEMICAL INDUSTRIES LIMITED believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.

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