

MATERIAL SAFETY DATA SHEET
MALTOL**1. PRODUCT IDENTIFICATION**

Trade Name: Maltol
Emergency Phone: 800-424-9300
Date Revised: December 22, 2010

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: 2-Methyl-3-hydroxy-4-pyrone
Synonyms: Maltol
Cas No.: 118-71-8 / FEMA #2656
EC Number: 204-271-8, Listed in EINECS
EU Classification: Not listed in 93/72/EEC, 93/101/EC and 94/69/EC

3. HAZARDS IDENTIFICATION

May cause mild eye irritation on prolonged contact. May cause skin irritation (based on animal data).

4. FIRST-AID MEASURES

Eye Contact: May cause mild eye irritation on prolonged contact. Immediately flush eyes with copious amounts of water for at least 15 minutes. Seek medical attention if irritation persists.

Skin Contact: May cause skin irritation (based on animal data) Wash skin with soap and copious amounts of water. Launder clothing before reuse.

Inhalation: If inhaled, remove to fresh air. Call physician if necessary

Ingestion: Have victim rinse mouth with water. If large amount is swallowed, have victim drink 240 to 300 ml of water and induce vomiting.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water, foam, Carbon Dioxide, Dry Powder

Extinguishing Media which must not be used for safety reasons: Not known

Special Exposure Hazard arising from the Substance or its Combustion Products:

Combustion of this material may generate carbon dioxide and carbon monoxide.

Special Fire Fighting Procedures: None known

Special Protective Equipment for Fire-Fighting: Respiratory protection and appropriate personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate personal protective equipment (refer to Section 8) during clean up. Avoid contact with eyes and skin. Avoid inhalation of dust.

Environmental Precautions: Not known

Methods for Cleaning Up: Avoid raising dust. Sweep up, place in a bag for later disposal. Ventilate area and wash spill site after material pick up is complete.

7. HANDLING AND STORAGE

Handling: Handle with appropriate personal protective equipment (refer to Section 8) Under ventilation. Avoid contact with eyes and skin. Avoid inhalation of dust. This material presents a dust explosion. Avoid raising dust. Prevent building up of electrostatic charge (e.g. by grounding). Explosion-proof electrical equipment is recommended for work place where dust creation cannot be avoided.

Storage: Store in well-ventilated dark place in the usual warehouse.

8. EXPOSURE CONTROLS/PERSONAL PRECAUTION

Occupational Exposure Standards: There is no MEL or OES specified by HSE, no MAK or TRK specified by DFG, no indicative limit value specified by the Commission of the European Communities and no TLV specified by AHIH.①

Engineering Control Measure: Mechanical exhaust and/or local exhaust are necessary.

Respiratory Protection: Appropriate respiratory which is approved or made according to a standard approved by the relevant national body for health and safety.

Hand Protection: Rubber gloves.

Eye Protection: Safety goggles.

Skin Protection: Clean body-covering clothing.

Hygiene Measures: Wash thoroughly after handling. Launder clothing before reuse. Follow good industrial hygiene practices for ventilation and clean up.

9. PHYSICAL AND CHEMICAL PROPERTIES

<u>Appearance:</u>	White crystalline powder
<u>Odor:</u>	Characteristic caramel-butterscotch odor
<u>pH:</u>	5.3 (0.5% aqueous solution)②
<u>Boiling Point:</u>	Begins to sublime @ 93②
<u>Melting Point:</u>	160-163 Deg C
<u>Flash Point:</u>	121.5 Deg C (Setaflash closed tester)
<u>Flammability:</u>	Not determined
<u>Autoflammability:</u>	Not determined (This product seems not to be pyrophoric Solid)
<u>Explosive Properties:</u>	Not determined
<u>Oxidizing Properties:</u>	Not determined
<u>Vapor Pressure:</u>	110 mmHg (161 Deg C)
<u>Relative Density:</u>	Not determined
<u>Solubility in Water:</u>	1g dissolves in about 85ml of water.③
<u>Partition Coefficient</u> <u>(n-octanol/water):</u>	Not determined
<u>Other Data</u>	
<u>Flammable limit:</u>	2.5g/ft③ (LEL)②
<u>Autoignition Temperature:</u>	1364 deg C⑤

10. STABILITY AND REACTIVITY

Conditions to Avoid: Dust creation and build-up of electrostatic charge.

Materials to Avoid: Strong oxidizing agents.

Hazardous Decomposition Products: Combustion of this material may generate carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Acute oral LD is 2330 mg/kg in rats, 550mg/kg in mice, 1620 mg/kg in rabbits and 1410 mg/kg in guinea-pig.⑤

Local Effects: Maltol applied full strength to the intact or abraded skin of one rabbit was moderately irritating.⑥

Chronic Effects: FAO/WHO evaluated that level causing no toxicological effect is 100mg/kg bw in rat

Sensitization: Maltol at concentration of 10% in petrolatum produced no sensitization reactions in a maximization test.

Reproductive Toxicity: There were no compound-related effects in a three-generation reproduction study in the rat.

Further information: For further information, please refer to "Food and Cosmetics Toxicology, 13, 841 (1975)" or WHO Food Additives Series No. 16 (1981)

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12. ECOLOGICAL INFORMATION

Mobility: No information is available.

Degratability: COD:0907 g/g (0.1w/v% aqueous solution)

Accumulation: No information is available

Ecotoxicity: No information is available

Other Adverse Effects: No information is available

13. DISPOSAL CONSIDERATIONS

Comply with applicable national, regional or local laws, ordinances, regulations or directives.

14. TRANSPORT INFORMATION

The cautions that should be taken during transportation are same as the cautions mentioned in section 7. In case of accidental release or fire during transportation. See the instructions given in the sections 5, 6, 7 and 8 above.

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

15. REGULATORY INFORMATION

Label information according to EEC Directives not established.

16. OTHER INFORMATION

FAO/WHO estimated in 1974 that acceptable daily intake (ADI) for man is 1mg/kg bw.⑦

The Council of Europe (1974) listed Maltol, giving an ADI of 1 mg/kg.⑥

References

- ① EH40/96 Occupational exposure limits 1996 (HSE)
Listed of MAK and BAT values 1995 (DFG)
Official Journal of the European Communities, 34 (L 177), 24 (1991)
1995-1996 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices (ACGIH)
 - ② FOOD CHEMICALS CODEX Edt.3. 114 (1981)
 - ③ The Merck Index Eleventh Edition. 5587 (1989)
 - ④ MSDS Canadian Centre for Occupational Health and Safety. On-Line Information (1994)
 - ⑤ The Sigma-Aldrich Library of Regulatory and Safety Data, 1.501 (1993)
 - ⑥ Food and Cosmetics Toxicology. 13.841 (1975)
 - ⑦ WHO Food Additives Series, No. 16 (1981); International Program on Chemical Safety IPCS Toxicological Evaluation on certain food additives.
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