

MSDS Number: **H0455** \* \* \* \* \* *Effective Date: 11/10/05* \* \* \* \* \* *Supersedes: 01/30/03*

**MSDS** **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 703-527-3887

**NOTE:** CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

# HEPES

## 1. Product Identification

**Synonyms:** 4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid; "Good" buffer; HEPES, Free Acid

**CAS No.:** 7365-45-9

**Molecular Weight:** 238.31

**Chemical Formula:** C<sub>8</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub>S

**Product Codes:**

J.T. Baker: 4018, 4808

Mallinckrodt: 7745, V682

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
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Hepes	7365-45-9	90 - 100%
Yes		

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### 3. Hazards Identification

#### Emergency Overview

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**WARNING! MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. Toxicological Properties have not been thoroughly investigated.**

**SAF-T-DATA**<sup>(tm)</sup> Ratings (Provided here for your convenience)

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Health Rating: 2 - Moderate

Flammability Rating: 1 - Slight

Reactivity Rating: 0 - None

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)

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#### Potential Health Effects

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##### **Inhalation:**

Mild acidic irritant. Can cause coughing, sneezing, possible breathing difficulty.

##### **Ingestion:**

Toxicity information is limited but piperazine and its derivatives are usually only slightly to moderately hazardous. Normal precautions for handling organic compounds with undefined properties should nevertheless be observed and the appearance of any of the usual symptoms of poisoning (abdominal pain, nausea, vomiting, diarrhea) acted upon promptly.

##### **Skin Contact:**

Possibly a mild irritant causing local inflammation and soreness, especially on prolonged contact with sensitive areas.

##### **Eye Contact:**

Acidic irritant, pain, reddening of the eye tissues.

##### **Chronic Exposure:**

No information found.

##### **Aggravation of Pre-existing Conditions:**

No information found.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

**Skin Contact:**

Wash exposed area with soap and water. Get medical advice if irritation develops.

**Eye Contact:**

Wash thoroughly with running water. Get medical advice.

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## 5. Fire Fighting Measures

**Fire:**

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Alternatively, spills can be neutralized with dilute alkali and disposed of as non-hazardous waste.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### **Appearance:**

White powder.

### **Odor:**

Odorless.

### **Solubility:**

40 grams in 100g of water.

### **Density:**

No information found.

### **pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

No information found.

**Melting Point:**

234 - 238C (453 - 460F)

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

May form carbon oxides, nitrogen oxides, and sulfur oxides when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Strong oxidizers.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

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## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----			
Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
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Hepes (7365-45-9)	No	No	
None			

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## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

Not regulated.

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----			
Ingredient	TSCA	EC	Japan
Australia			
Hepes (7365-45-9)	Yes	Yes	No
Yes			

  

-----\Chemical Inventory Status - Part 2\-----			
Ingredient	Korea	DSL	--Canada-- NDSL
Phil.			
Hepes (7365-45-9)	No	Yes	No
Yes			

  

-----\Federal, State & International Regulations - Part 1\-----			
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313-----	-SARA 302-	-----SARA	
Ingredient	RQ	TPQ	List
Chemical Catg.			
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Hepes (7365-45-9)	No	No	No
No			
-----\Federal, State & International Regulations - Part 2\-----			
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TSCA-		-RCRA-	-
Ingredient	CERCLA	261.33	8 (d)
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Hepes (7365-45-9)	No	No	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: No      Fire: No      Pressure: No  
Reactivity: No      (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: **1** Flammability: **1** Reactivity: **0**

**Label Hazard Warning:**

WARNING! MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. Toxicological Properties have not been thoroughly investigated.

**Label Precautions:**

- Avoid breathing dust.
- Avoid contact with eyes, skin and clothing.
- Keep container closed.
- Use with adequate ventilation.
- Wash thoroughly after handling.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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