

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING  
OF PRODUCT

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**MSDS CODE AND NAME** : **FACRESI FUMARIC ACID RESIN GRADE**  
**DATE ISSUED** : **7/1/2004**  
**DATE PRINTED** : **7/1/2004**

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**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

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**MATERIAL IDENTITY****MSDS CODE AND NAME****FACRESI FUMARIC ACID RESIN GRADE****Chemical Name and/or Family or Description:**

Organic acid

**COMPANY INFORMATION**

Huntsman Petrochemical Corporation  
P.O. Box 4980  
The Woodlands, TX 77387-4980

**TELEPHONE NUMBERS**

Transportation Emergency

Company: (800) 328-8501

CHEMTREC: (800) 424-9300

Medical Emergency: (409) 722-9673 (24 Hour)

General MSDS Assistance: (281) 719-6432

Technical Information: (512) 459-6543

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**2. COMPOSITION AND INFORMATION ON INGREDIENTS**

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THE CRITERIA FOR LISTING COMPONENTS IN THE COMPOSITION SECTION ARE AS FOLLOWS: CARCINOGENS ARE LISTED WHEN PRESENT AT 0.1 % OR GREATER; COMPONENTS WHICH ARE OTHERWISE HAZARDOUS ACCORDING TO OSHA ARE LISTED WHEN PRESENT AT 1.0 % OR GREATER; NON-HAZARDOUS COMPONENTS ARE LISTED AT 3.0 % OR GREATER. THIS IS NOT INTENDED TO BE COMPLETE COMPOSITIONAL DISCLOSURE. REFER TO SECTION 14 FOR APPLICABLE STATES' RIGHT TO KNOW AND OTHER REGULATORY INFORMATION.

Product and/or Component(s) Carcinogenic According to:

OSHA IARC NTP OTHER NONE X

**Composition:**

<b>Chemical Name</b>	<b>CAS Number</b>	<b>Exposure Limits</b>	<b>Range in %</b>
2-butenedioic acid	110-17-8		100.00

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### 3. HAZARD IDENTIFICATION

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#### EMERGENCY OVERVIEW

**Appearance:**

White crystals

**Odor:**

Odorless

#### WARNING STATEMENT

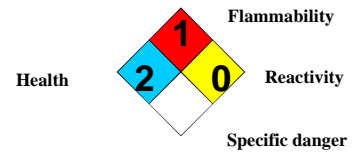
WARNING!

GRINDING MAY PRODUCE FLAMMABLE DUST/AIR MIXTURES  
CAUSES EYE IRRITATION

**Hazardous Material  
Information System  
(United States)**

Health	3
Fire	1
Reactivity	0
Personal protection	

**National Fire Protection  
Association NFPA  
(United States)**



#### POTENTIAL HEALTH EFFECTS

##### Primary Route of Exposure

Eye X Skin Inhalation X Ingestion

##### Effects of Overexposure

###### Acute:

**Eyes:**

Causes irritation, experienced as pain, with excess blinking and tear production, and seen as marked excess redness and swelling of the eye with injury to the cornea.

**Skin:**

Brief contact may cause slight irritation.

Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact; see other effects, below, and Section 11 for information regarding potential long term effects.

**Inhalation:**

Dust may cause irritation of the nose and throat. Overexposure to high concentrations of dust may cause respiratory irritation, experienced as coughing and difficulty breathing.

**Ingestion:**

If more than several mouthfuls are swallowed, abdominal discomfort, nausea, and diarrhea may occur.

**Sensitization Properties:** Unknown

###### Chronic:

No adverse effects have been documented in humans as a result of chronic exposure. Section 11 may contain applicable animal data.

##### Medical Conditions Aggravated by Exposure:

There is no evidence that this product aggravates an existing medical condition.

##### Other Remarks:

None

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#### **4. FIRST AID MEASURES**

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**Eyes:**

Immediately flush eyes with large amounts of running water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention immediately. Continue flushing for an additional 15 minutes if medical attention is not immediately available.

**Skin:**

Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists.

**Ingestion:**

If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

**Inhalation:**

If irritation, headache, or drowsiness occurs, remove to fresh air.

**Other Instructions:**

None

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#### **5. FIRE-FIGHTING MEASURES**

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**Ignition Temperature - AIT (degrees C):**

740 (1364 F)

**Flash Point (degrees C):**

148.9 (300 F)

**Flammable Limits % (Lower-Upper):**

**Lower:** Not determined

**Upper:** Not determined

**Recommended Fire Extinguishing Agents And Special Procedures:**

Use water spray, dry chemical, foam, or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers. Water or foam may cause frothing.

**Unusual or Explosive Hazards:**

This material may form flammable dust-air mixtures when finely divided. Prevent dust buildup by providing adequate ventilation during grinding or milling operations.

**Special Protective Equipment for Firefighters:**

Wear full protective clothing and positive pressure breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

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#### **6. ACCIDENTAL RELEASE MEASURES (Transportation Spills: CHEMTREC (800)424-9300)**

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**Procedures in Case of Accidental Release, Breakage or Leakage:**

Avoid breathing dust. Pressure demand air supplied respirators should always be worn when the airborne concentration of the contaminant or oxygen is unknown. Otherwise, wear respiratory protection and other personal protective equipment as appropriate for the potential exposure hazard. Wear gloves, goggles, and protective clothing to avoid contact with eyes, skin, or clothing. Use vacuuming or sweeping compound for clean-up. Do not dry sweep or use methods which increase dusting. Prevent entry into sewers and waterways.

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## **7. HANDLING AND STORAGE**

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### **Precautions to be Taken in**

#### **Handling:**

Eye wash should be available nearby when this chemical is handled or used. Minimum feasible handling temperatures should be maintained. Care should be taken to avoid generating dust.

#### **Storage:**

Store away from heat, sparks, flame, or other sources of ignition. Periods of exposure to high temperatures should be minimized. Minimize creation of dust by keeping material moist and/or covered.

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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### **Protective Equipment (Type)**

#### **Eye/Face Protection:**

Avoid eye contact. Chemical type goggles with face shield must be worn. Do not wear contact lenses.

#### **Skin Protection:**

Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned.

#### **Respiratory Protection:**

Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

#### **Ventilation:**

Local exhaust ventilation recommended if generating vapor, dust, or mist. If exhaust ventilation is not available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

#### **Exposure Limit for the Total Product:**

None established for product.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

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### **Appearance:**

White crystals

### **Odor:**

Odorless

### **Boiling Point (degrees C):**

Not applicable

### **Melting/Freezing Point (degrees C):**

287.2 ( 549 F )

### **Specific Gravity (water=1):**

1.64

### **pH:**

< 2

### **Vapor Pressure:**

10.1 mmHg at 32.0

### **Viscosity:**

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Not applicable

**VOC Content:**

Not determined

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

4

**Solubility in Water (%):**

.6

**Other:**

None

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## 10. STABILITY AND REACTIVITY

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**This Material Reacts Violently With:**

**Air** **Water** **Heat** **Strong Oxidizers** **Others X** **None of these**

**Comments:**

This material reacts violently with bases.

**Products Evolved When Subjected to Heat or Combustion:**

Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes and ketones may be formed on burning. Heating in air may produce irritating aldehydes, acids, and ketones.

**Hazardous Polymerizations:**

DO NOT OCCUR

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## 11. TOXICOLOGICAL INFORMATION

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**TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)**

**Oral:**

LD50 Believed to be > 5.00 g/kg (rat) practically non-toxic

**Inhalation:**

Not determined.

**Dermal:**

LD50 Believed to be > 2.00 g/kg (rabbit) practically non-toxic

**IRRITATION INDEX, ESTIMATION OF IRRITATION (SPECIES)**

**Skin:**

(Draize) Believed to be > .50 - 3.00 /8.0 (rabbit) slightly irritating

**Eyes:**

(Draize) Believed to be > 50.00 - 80.00 /110 (rabbit) severely irritating

**Sensitization:**

Not determined.

**Other:**

None

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## **12. DISPOSAL CONSIDERATIONS:**

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### **Waste Disposal Methods:**

This product (as presently constituted) has the RCRA characteristics of corrosivity, and, if discarded in its present form would have the hazardous waste number of D002. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may change the classification to non-hazardous, or hazardous for reasons other than, or in addition to corrosivity.

### **Remarks:**

Do not allow to enter drains or sewers. Do not allow to drain into surface waters.

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## **13. TRANSPORT INFORMATION**

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### **Transportation**

#### **DOT:**

##### **Proper Shipping Name:**

Not regulated for drums.

##### **Hazard Class:**

Not regulated for drums.

##### **Identification Number:**

Not regulated for drums.

##### **Packing Group:**

Not regulated for drums.

##### **Label Required:**

Not regulated for drums.

Depending on container size, spills of this product may require reporting under SARA 304 and/or CERCLA 102(A) regulations. Please refer to Sections 2 and 14 of MSDS for composition and component RQ information.

### **IMDG**

#### **Proper Shipping Name:**

Not regulated for drums. For larger containers, consult MSDS (Section 14) and shipping papers for proper shipping description.

#### **Hazard Class**

Not regulated for drums.

#### **Identification Number**

Not regulated for drums.

#### **Packing Group**

Not regulated for drums.

#### **Label Required**

Not regulated for drums

### **ICAO**

#### **Proper Shipping Name:**

Not regulated for drums. For larger containers, consult MSDS (Section 14) and shipping papers for proper shipping description.

#### **Hazard Class**

Not regulated for drums.

#### **Identification Number**

Not regulated for drums.

#### **Packing Group**

Not regulated for drums.

#### **Label Required**

Not regulated for drums

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**TDG**

**Proper Shipping Name:**

Not regulated for drums.

**Hazard Class:**

Not regulated for drums.

**Identification Number:**

Not regulated for drums.

**Label Required:**

Not regulated for drums.

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**14. REGULATORY INFORMATION**

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**Federal Regulations:**

**SARA Title III:**

**Section 302/304 Extremely Hazardous Substances**

Chemical Name	CAS Number	Range in %	TPQ	RQ
None.				

**Section 311 Hazardous Categorization:**

Acute X Chronic Fire Pressure Reactive N/A

**Section 313 Toxic Chemical**

Chemical Name	CAS Number	Concentration
None.		

**CERCLA 102(a)/DOT Hazardous Substances:**

Chemical Name	CAS Number	Range in %	RQ
2-butenedioic acid (E) -	110-17-8	100.00	5000

**States Right-to-Know Regulations:**

Chemical Name	State Right-to-know
2-butenedioic acid (E) -	CT,IL,MA,NJ,PA

**California Prop. 65:**

The following detectable components of this product are substances, or belong to classes of substances, known to the State of California to cause cancer and/or reproductive toxicity.

Chemical Name	CAS Number
None.	

**INTERNATIONAL REGULATIONS:**

**TSCA Inventory Status:**

This product, or its components, are listed on, or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

**WHMIS Classification:**

Class D, Div 2, Subdiv B: Irritant

**Canadian Inventory Status:**

This product, or its components, are listed on or are exempt from the Canadian Domestic Substance List (DSL).

**EINECS Inventory Status:**

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This product, or its components, are listed on or are exempt from the European Inventory of Existing Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS).

**Australian Inventory Status:**

Not determined.

**Japan Inventory Status:**

Not determined.

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## **15. ENVIRONMENTAL INFORMATION**

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**Aquatic Toxicity:**

Not determined.

**Mobility:**

Not determined.

**Persistence and Biodegradability:**

Not determined.

**Potential to Bioaccumulate:**

Not determined.

**Remarks:**

None

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## **16. OTHER INFORMATION 7/1/2004**

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None

**Supersedes: 3/31/2003**

The following section has been revised: 1

**Date Issued: 7/1/2004.**

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**HUNTSMAN  
MANAGER, PRODUCT SAFETY  
P.O. BOX 4980  
THE WOODLANDS, TX 77387-4980**

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