

MATERIAL SAFETY DATA SHEET

Product Trade Name: **CITRIC ACID 56**

Revision Date: 02-Jan-2013

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: CITRIC ACID 56
Synonyms: None
Chemical Family: Organic acid
Application: Component

Manufacturer/Supplier: Halliburton Energy Services
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Substances | CAS Number | PERCENT | ACGIH TLV-TWA | OSHA PEL-TWA |
|-------------|------------|-----------|----------------|----------------|
| Citric acid | 77-92-9 | 60 - 100% | Not applicable | Not applicable |

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

| | |
|---|----------------|
| Flash Point/Range (F): | Not Determined |
| Flash Point/Range (C): | Not Determined |
| Flash Point Method: | Not Determined |
| Autoignition Temperature (F): | 1832 |
| Autoignition Temperature (C): | 1000 |
| Flammability Limits in Air - Lower (%): | 8 |
| Flammability Limits in Air - Upper (%): | 65 |

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 1, Flammability 0, Reactivity 0
HMS Ratings: Health 1, Flammability 0, Reactivity 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

Storage Information Store in a cool, dry location.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. (N95, P2/P3)

Hand Protection Impervious rubber gloves.

Skin Protection Normal work coveralls.

Eye Protection Dust proof goggles.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------------------------|----------|
| Physical State: | Solid |
| Color: | White |
| Odor: | Odorless |
| pH: | 2.2 |
| Specific Gravity @ 20 C (Water=1): | 1.66 |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|----------------|
| Density @ 20 C (lbs./gallon): | Not Determined |
| Bulk Density @ 20 C (lbs/ft3): | 96.26 |
| Boiling Point/Range (F): | Not Determined |
| Boiling Point/Range (C): | Not Determined |
| Freezing Point/Range (F): | Not Determined |
| Freezing Point/Range (C): | Not Determined |
| Vapor Pressure @ 20 C (mmHg): | Not Determined |
| Vapor Density (Air=1): | Not Determined |
| Percent Volatiles: | Not Determined |
| Evaporation Rate (Butyl Acetate=1): | Not Determined |
| Solubility in Water (g/100ml): | 162 |
| Solubility in Solvents (g/100ml): | Not Determined |
| VOCs (lbs./gallon): | Not Determined |
| Viscosity, Dynamic @ 20 C (centipoise): | Not Determined |
| Viscosity, Kinematic @ 20 C (centistokes): | Not Determined |
| Partition Coefficient/n-Octanol/Water: | Not Determined |
| Molecular Weight (g/mole): | 192.12 |

10. STABILITY AND REACTIVITY

| | |
|--------------------------------------|-------------------------------------|
| Stability Data: | Stable |
| Hazardous Polymerization: | Will Not Occur |
| Conditions to Avoid | None anticipated |
| Incompatibility (Materials to Avoid) | Strong oxidizers. Strong alkalis. |
| Hazardous Decomposition Products | Carbon monoxide and carbon dioxide. |
| Additional Guidelines | Not Applicable |

11. TOXICOLOGICAL INFORMATION

| | |
|---------------------------------|--|
| Principle Route of Exposure | Eye or skin contact, inhalation. |
| Inhalation | May cause respiratory irritation. |
| Skin Contact | May cause skin irritation. |
| Eye Contact | May cause severe eye irritation. |
| Ingestion | Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. |
| Aggravated Medical Conditions | None known. |
| Chronic Effects/Carcinogenicity | No data available to indicate product or components present at greater than 1% are chronic health hazards. |
| Other Information | None known. |
| Toxicity Tests | |
| Oral Toxicity: | LD50: 11700 mg/kg (Rat) |
| Dermal Toxicity: | Not determined |
| Inhalation Toxicity: | Not determined |

Primary Irritation Effect: Not determined
Carcinogenicity Not determined
Genotoxicity: Not determined
Reproductive / Developmental Toxicity: Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined
Persistence/Degradability Biodegradable
Bio-accumulation Not determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined
Acute Crustaceans Toxicity: TLM96: 100-330 ppm (Crangon crangon)

Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined

Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

| | |
|--|---|
| US TSCA Inventory | All components listed on inventory or are exempt. |
| EPA SARA Title III Extremely Hazardous Substances | Not applicable |
| EPA SARA (311,312) Hazard Class | Acute Health Hazard |
| EPA SARA (313) Chemicals | This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Lead//7439-92-1 |
| EPA CERCLA/Superfund Reportable Spill Quantity | EPA Reportable Spill Quantity is 400 Pounds based on Lead (CAS: 7439-92-1). |
| EPA RCRA Hazardous Waste Classification | If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA. |
| California Proposition 65 | All components listed do not apply to the California Proposition 65 Regulation. |
| MA Right-to-Know Law | Does not apply. |
| NJ Right-to-Know Law | Does not apply. |
| PA Right-to-Know Law | Does not apply. |
| Canadian Regulations | |
| Canadian DSL Inventory | All components listed on inventory or are exempt. |
| WHMIS Hazard Class | D2B Toxic Materials |

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

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*****END OF MSDS*****