PRODUCT NAME(S): Citric acid

SECTION 1 – IDENTIFICATION

Manufacturer's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA 92131

Product name: **Citric acid**

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** WARNING

Pictogram(s):

GHS 07

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Serious eye damage / Eye irritation	2A	H319	Causes serious eye irritation

Precautionary Statements:

Prevention:	P280	Wear eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
Response:	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313	If eye irritation persists: Get medical advice/attention.
Storage:	None	
Disposal:	None	

Hazards not otherwise classified: Combustible dust.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EC #	Concentration, %
Citric acid	77-92-9	201-069-1	100

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Inhalation: Move to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory problems, seek medical attention.

Skin: Wash material off of the skin with plenty of soap and water. Remove contaminated clothing and shoes and wash them before reuse. Get medical advice/attention if irritation develops or persists.

Eye: Rinse with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent corneal injury. Get medical advice/attention if eye irritation develop or persists.

Ingestion: Move to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any. Rinse mouth thoroughly with water and then drink 60 to 240 mL (2 to 8 oz). Get medical advice/attention if symptoms occur.

Most important symptoms/effects, acute and delayed: See Section 11 for more details.

General advice for First Aid responders: Show this SDS to physician.

Note to physician: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24 hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media: None.

Specific hazards arising from the chemical: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard. Hazardous Combustion products: carbon oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training.

Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Ensure adequate ventilation/exhaust extraction. Avoid breathing dust during clean up. Use protective equipment as described in Section 8.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater, basements or confined areas. Inform the relevant authorities if the product has caused environmental pollution. See Section 12 for more details.

Methods and materials for containment and cleaning up: Move containers from spill area. Avoid dust generation. Do not dry sweep. Use approved industrial vacuum cleaner for removal. Do not use compressed air for cleaning purposes. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Properly dispose of the waste material in accordance with existing federal, state and local regulations.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Avoid generating and do not breathe dust. Use adequate ventilation and dust collection methods to keep airborne levels below the exposure limits. Maintain and test ventilation and dust collection equipment. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Take precautionary measures against static discharges. Use all available work practices to control dust exposures, such as water sprays. Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Wear appropriate respiratory, eye and skin protection. Avoid contact with skin and eyes. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in a dry, cool and well-ventilated area, protected from direct sunlight and away from incompatible materials (see Section 10 for details), food and drink. Protect from atmospheric moisture.

Storage stability: Stable under normal conditions.

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.
See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available.
Appropriate engineering controls: Good local and general ventilation and wet methods should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:
Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Impervious gloves should be worn when working with this product. Do not get product inside gloves. Body should be covered with appropriate clothing (apron, arm covers or full body suit). Wash contaminated clothing when becomes dusty.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. Use properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Clean water should always be readily available for emergency skin and eye washing.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Crystalline white solid
Odor:	Odorless
Odor threshold:	Not available
pH:	Not available
Melting point/ freezing point:	156°C (313°F)
Initial boiling point and boiling range:	310°C (590°F) decomposes from 175°C (347°F)
Flash point:	155°C (311°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	May form combustible dust concentrations in air
Upper/ lower flammability or explosive limits:	Lower explosion limit: 8% (V)
Vapor pressure:	Negligible
Vapor density:	Not available
Relative density:	1.665 g/cm^3 (anhydrous)
Solubility (water):	147.76 g/100 mL (20°C)
Partition coefficient n-octanol/water:	log Pow: -1.64 at 20 °C (68 °F)
Auto-ignition temperature:	345°C (653°F)
Decomposition temperature:	175 °C
Viscosity:	Not applicable

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: Product will not undergo hazardous polymerization.
Chemical stability: Stable under recommended storage conditions.

Conditions to avoid: Unintentional contact with moisture, high humidity, generation of dust.
Incompatible materials: Strong oxidizing agents; bases, metal nitrates and metals.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. In fire conditions, depending on temperature, air supply and presence of other materials, decomposition products can include, but are not limited to carbon oxides, lower molecular weight organic molecules.

SECTION 11 – TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Skin and Eye Contact, Inhalation and Ingestion.
Symptoms of exposure:
Acute toxicity:
Oral: Not classified. However, ingestion of large quantities may cause vomiting and diarrhea.
Dermal: Not anticipated.
Inhalation: Excessive exposure to dust can cause irritation of eyes, nose and throat (cough, shortness of breath, or sore throat).
Skin corrosion / irritation:
May cause mild skin irritation.
Serious eye damage / eye irritation:
Causes serious eye irritation.
Specific target organ toxicity, single exposure:
Not classified.
Aspiration hazard:
Not an aspiration hazard.

Chronic toxicity:
Respiratory and Skin Sensitizer: Not classified.
Germ cell mutagenicity: Not classified.
Carcinogenicity:
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, OSHA or AGCIH.
Reproductive toxicity: Not classified.
Specific target organ toxicity, repeated exposure:
Not classified. However, repeated and prolonged ingestion may lead to damage to tooth enamel; repeated and prolonged skin contact may cause dermatitis.

Medical conditions aggravated by overexposure: Teeth and skin disorders.

Toxicity test results:

Citric acid, CAS #: 77-92-9	Acute Toxicity: Oral LD50 (Rat): 5,400 mg/kg (OECD Test Guideline 401). Adverse effects: vomiting, diarrhea. Dermal LD50 (Rat): > 2,000 mg/kg (OECD Test Guideline 402) Inhalation LC50: No data available. Skin corrosion/irritation (Rabbit): Mild skin irritation (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): Causes serious eye irritation. (OECD Test Guideline 405) STOT, SE: No. Aspiration hazard: No. Chronic toxicity: Sensitization, skin and respiratory: Not a sensitizer. Germ cell mutagenicity: Not classified. Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, ACGIH and OSHA. Reproductive toxicity: Not classified. STOT, RE: Prolonged and repeated exposure may lead to damage to tooth enamel and dermatitis.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability: Readily biodegradable.
Bioaccumulative potential: Not known.

Mobility in soil: Not known.
Other adverse effects: Not known.

Ecotoxicity test results:

Citric acid, CAS #: 77-92-9	Acute Toxicity: Fish (orfe), 48hrs: LC50: 440 mg/L (OECD Test Guideline 203). Aquatic Invertebrates (Daphnia magna), 24hrs: EC50: 1,535 mg/L Ecological data: Persistence and degradability: Readily biodegradable. Bioaccumulative potential: No data available. Mobility in soil: No data available.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor. Do not dispose with household garbage.

Container disposal: Containers should be completely emptied and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulations.

SECTION 14 – TRANSPORT INFORMATION

Land transport, U.S. DOT: Non-regulated
Sea transport, IMDG: Non-regulated
Air transport, IATA/ICAO: Non-regulated

SECTION 15 – REGULATORY INFORMATION

U.S. Regulations:
OSHA HCS: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29CFR 1910.1200.
TSCA Regulations:
All components of this product are listed or are exempt from TSCA Inventory requirements under 40 CFR 720.30.
EPCRA Section 302 (40 CFR Part 355) (Emergency Response Planning, Extremely Hazardous Substance):
No components are subject to the reporting.
EPCRA Section 304 (40 CFR Part 355) (Emergency Release Notification Requirements):
No components are subject to the reporting.
EPCRA Sections 311 & 312 (Hazardous Chemical Inventory Reporting, Hazard Categories):
Acute Health Hazard
EPCRA Section 313 (40 CFR Part 372) (Toxic Chemical Release Inventory Reporting):
No components are subject to the reporting.
CERCLA Sections 102-103 (40 CFR Part 302) (Hazardous Substances Release Notification):
No components are subject to the reporting.
Clean Air Act:

- Ozone Depleting Substances (ODS): This product does not contain and is not manufactured with ozone depleting substances.
- Hazardous Air Pollutants, OSHA, Section 112(b), Table Z-1: No components listed.

Clean Water Act:

- Section 307(a) (Toxic pollutants): No components are listed.
- Section 311(b)(2): Table 116.4A (Hazardous chemicals) / Table 117.3 (RQ): No components are listed.

NFPA rating: Health: 1 Fire: 0 Reactivity: 0 Special: 0
HMIS rating: Health: 1 Flammability: 0 Physical hazard: 0

State Regulations:
California Prop. 65 Components:

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

Instruction: for regulatory information on components of this mixture, check the appropriate state websites.

SECTION 16 – OTHER INFORMATION

LEGEND

GHS	Globally Harmonized System
CAS	Chemical Abstracts Services
EC	European Community
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
TSCA	Toxic Substances Control Act
EPCRA	Emergency Planning and Community Right-to-Know Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
RQ	Reportable Quantity
WHMIS	Workplace Hazardous Materials Information System

Latest revision date: June 30, 2016 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision: August 5, 2014

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.