1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME (AS LABELED): CITRIC ACID SOLUTION (1 - 55%)

CHEMICAL NAME/CLASS: Citric acid solution

PRODUCT USE:

SUPPLIER/MANUFACTURER’S NAME: Northstar Chemical, Inc.
Corporate Office
14200 S.W. Tualatin-Sherwood Rd.
Sherwood, OR 97140

BUSINESS PHONE: 888-793-9476

EMERGENCY PHONE: CHEMTREC: 800-424-9300

DATE OF PREPARATION: January 13, 2015

Si usted no entiende las Hojas de Informacion de Seguridad sobre Materials, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the Safety Data Sheet, find someone to explain it to you in detail.)

2. HAZARD IDENTIFICATION

Health hazards

Serious eye damage/irritation Category 2A

LABEL ELEMENTS:

Signal Word: WARNING

Hazard Statement: Causes serious eye irritation
Precautionary Statement:

Prevention: Wash hands thoroughly after handling. Wear eye protection/face protection.

Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. If eye irritation persists: Seek medical attention.

Storage: Store in a well ventilated place. Keep container tightly closed.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>45-99 %</td>
</tr>
<tr>
<td>Citric Acid, anhydrous</td>
<td>77-92-9</td>
<td>1-55 %</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Ingestion: Immediately drink water to dilute. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.

Inhalation: Remove individual to fresh air. Seek medical attention.

Skin Contact: Flush skin with water, rinse thoroughly.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids apart. Call a physician immediately.

5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method): Not flammable.

Suitable extinguishing media: Not applicable. Choose extinguishing media suitable for surrounding materials.

Specific hazards arising from the chemical: Will produce oxides of carbon if evaporated and burned.

Special protective equipment and Precautions for fire-fighters: In case of fire, use fire fighting equipment appropriate to the cause of the fire.

6. ACCIDENTAL RELEASE MEASURES


Environmental precautions: Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protective equipment prior to the start of any response. Evacuate all non-essential personnel.

Methods and materials for containment and cleaning up: Absorb spilled liquid with vermiculite, polypads or other suitable absorbent materials, then place in a suitable chemical waste container. Contain all contaminated water for disposal and/or treatment.
7. HANDLING and STORAGE

Precautions for safe handling: Wear appropriate personal protective equipment. Avoid contact with skin, eyes or clothing. Upon contact with skin or eyes, wash with water. Avoid breathing mist. Wash hands after handling this product. Do not eat or drink while handling this material.

Conditions for safe storage:

For Non-Bulk Containers: Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers, or in a diked area, as appropriate. Store containers away from incompatible chemicals. Keep container tightly closed when not in use. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore, empty containers should be handled with care.

Bulk Containers: All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Engineering Controls: Good general ventilation should be used.

Individual protection measures, such as personal protective equipment

Eye/Face Protection: Use chemical goggles.

Skin Protection: Wear protective gloves.

Respiratory Protection: Respiratory protection is not normally needed since volatility and toxicity are low. If vapors or mists are generated, wear a NIOSH approved respirator.

Hygiene measures: A safety shower and eyewash station should be provided. Keep the product away from food, beverages and feed. Wash hands after handling the material and before eating, drinking and/or smoking. Avoid contact with eyes and skin. Routinely wash work clothing to remove contaminants.

9. PHYSICAL and CHEMICAL PROPERTIES

Appearance and Color: liquid, colorless
Odor: odorless
Odor threshold: not applicable
pH: 0.8
Melting/freezing point: -5°C (23°F).
Boiling point: 103°C (219°F).
Flash point: not flammable
Evaporation rate (n-BuAc=1): 0.33
Vapor pressure: 16 mmHG
Vapor density (air = 1): 0.62
Relative density (specific gravity): 1.24 (at 20°C)
Solubility in water: completely soluble
Partition coefficient (n-octanol/water): not available
10. STABILITY and REACTIVITY

Reactivity: This product is non-reactive under recommended storage conditions.

Chemical stability: Stable under normal conditions

Possibility of hazardous reactions: Hazardous polymerization does not occur.

Conditions to avoid: Contact with incompatible materials

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Oxides of carbon if burned.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion: May cause irritation of the gastrointestinal tract.

Inhalation: May cause irritation to the mucous membranes and upper respiratory tract.

Skin Contact: May cause irritation.

Eye Contact: Causes serious eye irritation.

Information on toxicological effects

Carcinogenicity: This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

Sensitization: This product is not a skin sensitizer.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

Mutagenicity: This product is not reported to produce mutagenic effects in humans.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans.

Toxicity Data: \( \text{LD}_{50} \) (oral, rat) = 6,730 mg/kg  \( \text{LC}_{50} \) (inhalation) = No data

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute hazards to the aquatic environment: No data available

Chronic hazards to the aquatic environment: No data available

Bioaccumulative potential: No data available.

Other information: Do not allow material to be released to the environment without proper governmental permits.
13. DISPOSAL CONSIDERATIONS

Disposal Instructions: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

Contaminated packaging: The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all local, state and federal laws.

Potential US EPA Waste Codes: Not applicable

14. TRANSPORTATION INFORMATION

This material is not hazardous as defined by 49 CFR 172.101 by the U.S. Department of Transportation.

Proper shipping name, hazard class, UN number, packing group and emergency guide number: Not Regulated.

Labels required per 49 CFR 172.101: None

Reportable quantity per 49 CFR 172.101: None

15. REGULATORY INFORMATION

This product is not considered a Hazardous Chemical by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated


CERCLA Hazardous Substance List (40 CFR 302.4): Not listed

Superfund Amendment and Reauthorization Act of 1986 (SARA), Hazard Category: Acute

SARA 302 Extremely hazardous substance: Not regulated

SARA 304 Emergency release notification: Not regulated

SARA 311/312 Hazardous chemical: Citric Acid threshold planning quantity = 500 lbs

SARA 313 (TRI reporting): Not regulated

Other Federal Regulations: Not applicable.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Not regulated

Safe Drinking Water Act (SDWA): Not regulated

State Regulatory Information: Components of this product are covered under specific State regulations, as denoted below:

Massachusetts – Right To Know Substance List - Not Listed.
New Jersey - Right to Know Hazardous Substance List – Not Listed.
Pennsylvania – Community Right to Know – Not Listed.
Rhode Island – Right To Know Hazardous Substance List – Not Listed.
California Proposition 65 – Carcinogens & Reproductive Toxicity list of substances - Not Listed.
Label Information:

![Risk Symbol: Skin and Eye Irritant](image)

Skin and eye irritant

NFPA 704 Rating:

![NFPA Rating Diagram](image)

- **Health**: 1 (Moderate)
- **Flammability**: 0 (Minimal)
- **Reactivity**: 4 (Severe)
DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a Safety Data Sheet. Some of these which are commonly used include the following:

**FLAMMABILITY LIMITS IN AIR:**
Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

**TOXICOLOGICAL INFORMATION:**
Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: LD₅₀ - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; LC₅₀ - Lethal Concentration (gases) which kills 50% of the exposed animals; ppm concentration expressed in parts of material per million parts of air or water; mg/m³ concentration expressed in weight of substance per volume of air; mg/kg quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: IARC - the International Agency for Research on Cancer; NTP - the National Toxicology Program, RTECS - the Registry of Toxic Effects of Chemical Substances, OSHA and CAL/OSHA. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include TDLo, the lowest dose to cause a symptom and TCLo, the lowest concentration to cause a symptom; TDₐ, LDₐ, or TDₐLo, or TC, TCₐ, LCLo, and LCo, the lowest dose (or concentration) to cause death. BEI - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

**REGULATORY INFORMATION:**
This section explains the impact of various laws and regulations on the material. EPA is the U.S. Environmental Protection Agency. WHMIS is the Canadian Workplace Hazardous Materials Information System. DOT and TC are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: Superfund Amendments and Reauthorization Act (SARA); the Toxic Substances Control Act (TSCA); Marine Pollutant status according to the DOT; California's Safe Drinking Water Act (Proposition 65); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund); and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.