



I. Product and Supplier Information

Product Name: NLR 404
 Product Number: NA
 Product Synonyms: Membrane cleaner
 Chemical Family or Formula: Water solution of alkaline salts and detergents.

MSDS Number: NLR404
 Publication Date: Apr. 14, 2004

Supplier: New Logic Research, Inc.
 1295 67th
 Emeryville, CA 94608

Phone: 510-655-7305
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Product Information: 510-655-7305
 Transportation Emergency: 800-424-9300

II. Composition and Information on Ingredients

CAS #	SARA 313	Material or Component	Exposure Limits				
			%	RQ#	TWA*	STEL*	WEEL*
77-92-9	No	Citric acid	<50	None	Not established		NE

No component is listed in "Threshold and Biological Exposure Indices for 2004" from ACGIH except as noted above. Components listed in Title III Sec. 313 (EPCRA) are indicated by "Yes" above.

*TWA= Time Weighted Average; STEL= Short Term Exposure Limit; WEEL= Workplace Employee Exposure Level. NE= Not Established

III. Hazards Identification

OSHA Hazard Classification: Eye irritant, skin irritant

Routes of Entry: Inhalation, skin, eyes, ingestion

Chemical Interactions: Reacts with alkaline materials to form salts, and corrods many metals.

Medical Conditions Aggravated:
 None known.

Human Threshold Response Data

Odor Threshold: Not established

Irritation Threshold: Not established

Hazard Category Classifications and Ratings

Hazard Categories:	Health	Fire	Pressure	Reactivity	Reference 49 CFR 171.8, OSHA 29 CFR 1910.1200 and SARA 302/311/312/313.
Immediate	Yes	No	No	No	
Delayed	No	No	No	No	
HMIS Hazard Ratings: Health 2 Fire 0 Instability 0 Other B (Glasses, gloves)					
NFPA 704 Hazard Ratings: Health 2 Flammability 0 Reactivity 0 Special NA					
Hazard Ratings: Least: 0 Slight: 1 Moderate: 2 High: 3 Extreme: 4					

Immediate (Acute) Health Effects

Inhalation Toxicity:

Not expected to be toxic by inhalation.

Inhalation Irritation:

Moderately irritating to the eyes, nose, throat, and lungs.

Skin Contact:

Skin contact may cause minor irritation consisting of transient redness and/or swelling.

Skin Absorption:

No significant adverse effects to health would be expected to occur from incidental dermal contact.

Eye Contact

Contact may cause moderate irritation consisting of transient redness, swelling, and mucous membrane discharge to the conjunctiva.

Ingestion Irritation:

Irritation may result.

Ingestion Toxicity:

See Sec. 11 for animal toxicological results.

Acute Target Organ Toxicity:

Eyes, skin, mucous membranes, respiratory tract

Prolonged (Chronic) Health Effects**Carcinogenicity:**

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

Reproductive and Developmental Toxicity:

No reproductive or developmental risk to humans is expected from exposure to this product.

See Sec. 11 for animal study results.

Sensitization:

No sensitizing effects known.

Inhalation:

No information.

Skin Contact:

Repeated or prolonged dermal contact may cause defatting of skin and/or dermatitis.

Skin Absorption:

No information.

Ingestion:

Chronic ingestion will chelate calcium in teeth and bones, weakening them.

Chronic Target Organ Toxicity:

No data.

Supplemental Health Hazard Information:

No additional health information available.

IV. First Aid**Inhalation:**

IF INHALED: Remove individual to fresh air. Seek medical attention.

Skin Contact:

IF ON SKIN: Flush skin with water, rinse thoroughly.

Eyes:

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

Ingestion:

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

V. Fire Fighting Measures**Flammability Summary (OSHA):**

Non flammable water solution.

Flammable Properties
Flash Point None

Autoignition Temperature: Not applicable

Upper Flammable/Explosive Limit, % in air: Not applicable
Lower Flammable/Explosive Limit, % in air: Not applicable

Fire/Explosion Hazards: Material will not ignite or burn.

Extinguishing Media:
Not Applicable. Choose extinguishing media suitable for surrounding materials.

Fire Fighting Instructions:
In case of fire, use fire fighting equipment appropriate to the cause of the fire.

Hazardous Combustion Products:
Will produce oxides of carbon if evaporated and burned.

VI. Accidental Release Measures

Personal Protection for Emergency Situations:

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

Spill Mitigation Procedures

Air Release:
Not a likely scenario, nor source of personnel hazard.

Water Release:
This material is soluble in water. Contain all liquid for treatment and/or disposal.
Notify all downstream users of possible contamination.

Land Release:
Create a dike or trench to contain materials. Absorb spill with inert material (e.g., dry sand, earth or commercial absorbent), then place in a chemical waste container. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water. Contain all contaminated water for disposal and/or treatment.

Additional Spill Information:
Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section XIII, Disposal Considerations.

VII. Handling and Storage

Handling:
Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash with water. Avoid breathing mist.

Storage
Do not store in metal container.

Shelf Life Limitations:
See label or certificate of analysis for shelf life if applicable.

Incompatible Materials for Storage:
Storage in original containers is preferred. Do not store together with alkaline materials.

VIII. Exposure Controls and Personal Protection

Ventilation:
General exhaust ventilation is likely to be sufficient for general worker safety and comfort.

Protective Equipment for Routine Use of Product

Respiratory Protection:

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

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Eyes: Use chemical goggles.

Protective Clothing Type: Impervious

Exposure Limit Data : See Section II

IX. Physical Data

Physical State: Liquid
 Color: Water white
 Odor: None

Molecular Weight: Not Applicable for a solution.

pH (@ 25 Deg. C): Acid

Octanol/Water Coeff: No data.

Solubility in Water: Completely miscible

Bulk Density: Not applicable

Specific Gravity: Approx. 1.2

Phosphorous %: 1.16

Vapor Density (Air = 1): Not applicable

Vapor Pressure: (@ 25 Deg. C): No data

Evaporation Rate (Water = 1) Not applicable

Volatiles % by vol.: Approx. 50% water

Boiling Point: About 105°C

Freezing Point: Below 0°C

X. Stability and Reactivity

Stability and Reactivity Summary:

Stable under normal conditions.

Reactive Properties:

Sensitivity to mechanical shock: None

Hazardous Polymerization: Will not occur

Conditions to Avoid: None known.

Chemical Incompatibility: Reacts with alkaline and caustic materials.

Hazardous Decomposition Product: Oxides of carbon, nitrogen and sulfur if burned.

Decomposition Temperature: No data

Product May Be Unstable At Temperatures Above: No data

XI. Toxicological Information

Component Animal Toxicology

Data are for 100% citric acid from Alfa Aesar MSDS dated 3/11/02.

Irritation of skin: Moderate: 500 mg/24 hr (rbt)

Irritation of eyes: Severe: 750 ug/24 hr (rbt)

Inhalation LC50 value: No information.

LD 50mg/kg: 5040 (mus); 6730 (rat)

Skin Irritation:

This material is expected to be moderately irritating.

Eye Irritation:

This material is expected to be severely irritating.

Reproductive and Developmental Toxicity:

No reproductive or developmental risk to humans is expected from exposure to this product.

Sub acute to chronic toxicity:

To the best of our knowledge the acute and chronic toxicity of this material is not fully known.

Carcinogenicity:

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

XII. Ecological Information

Ecological Toxicity Values:

No data.

Do not allow material to be released to the environment without proper governmental permits.

XIII. Disposal Considerations

Care must be taken to prevent environmental contamination from the use of this material.

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.

Waste Disposal Summary:

Product as made has the characteristic of corrosivity, like " Unlisted Hazardous Waste D002", RQ 100#.

Potential US EPA Waste Codes:

Not applicable

Disposal Methods:

As a corrosive hazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations.

Components subject to land ban restrictions:

No components subject to land ban restrictions.

XIV. Transportation Information

Proper Shipping Name, Hazard Class, UN/NA Number Packing Group, Emergency Response Guide Number

Corrosive liquid, acidic, organic, nos, (Contains Citric acid), 8, UN 3265, PG III

ERG 153

Labels required per 49 CFR 172.101: Corrosive

Size for "Limited quantity" per 49 CFR 173.150-.155: 1 gal. max. in 66# max. container

Reportable Quantity ("RQ") per 49 CFR 172.101: None or not possible in one non-bulk package

Aircraft - Passenger: 5 L

Aircraft - Cargo: 60 L

Vessel stowage- Location: A

Vessel stowage- Other (49 CFR 176.84): 40

XV. Regulatory Information

UNITED STATES:

Toxic Substances Control Act (TSCA):

The components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

Pesticide acceptance indication: US EPA Registration Number:

Not applicable

Superfund Amendments and Reauthorization Act (SARA) Title III:

See Section III of this MSDS.

Hazard Categories Sections 311/312 (40 CFR 370.2):

Health:

Acute

Chronic

Physical: None

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

Not applicable

State Right-to-Know Regulations Status of Ingredients

No data.

XVI. Additional Information

MSDS REVISION STATUS:

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. WE BELIEVE THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF ITS PUBLICATION DATE, BUT MAKE NO WARRANTY THAT IT IS. IF THIS MSDS IS MORE THAN THREE YEARS OLD YOU SHOULD CONTACT THE SUPPLIER TO MAKE CERTAIN THAT THE INFORMATION IS CURRENT.