SAFETY DATA SHEET
Revised January 1, 2024

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Citric Descaler
Product Code(s): Citric Descaler

Manufactured by:
Precision Dynamics, Inc.
P.O. Box 1595, Burleson Texas 76097 U.S.A.
Telephone 817-447-9898
Fax 817-447-1126
Toll free 1-800-388-5818
For chemical emergency, call Infotrac at 1-800-535-5053 (outside U.S. and Canada, call collect 1-352-323-3500)

Relevant identified uses of the substance or mixture and uses advised against
General Use: Descaler for hard water scale/mineral salt buildup in water cooled equipment and accessory related equipment.
Uses advised against: **INDUSTRIAL USE ONLY - NOT FOR RESIDENTIAL USE**
Do not mix with other ingredients, compounds, or other acids without consulting manufacture.

SECTION 2: HAZARDS IDENTIFICATION

Classification of substance or mixture
Product definition: Mixture

Classification (REGULATION (EC) No 231-633-2)

Skin irritant – Category 2 [H315]

Eye irritant – Category 2A [H319]

Label Elements
Labeling (REGULATION (EC) No 231-633-2)

Hazard Symbol(s):

Signal Word: Warning

Hazard Statement(s):
H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary Statements:

[Prevention]
P264 - Wash hands or other skin areas contacting this product thoroughly after handling.
P280 - Wear protective gloves and eye protection.
P261 - Avoid breathing mist and spray.

[Response]
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P321 - Specific treatment: Seek medical attention; refer to Section 4 of this SDS.
P332 + P313 - If skin irritation occurs: Get medical attention.
P362 - Take off contaminated clothing and wash before reuse.
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 attention.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances
Not applicable

Mixtures
Chemical characterization (preparation)

Chemical Name	CAS No.	Weight-%
Citric Acid	77-92-9	<15
Phosphate Ester Descaling Compound	Proprietary	<15
Descaling Accelerator	Proprietary	<3
Corrosion Inhibitors and Surfactants	Proprietary	<2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to the health or the environment and hence require reporting in this section.

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Eye contact: Flush eyes immediately with large quantities of water for at least 15 minutes holding eyelids apart to ensure flushing of the entire surface. Washing eyes within one (1) minute is necessary to achieve maximum effectiveness. If irritation persists, get medical attention.
Skin contact: Wash with plenty of water for 15 minutes. Remove contaminated clothing and wash before reuse. Seek medical attention if symptoms are present.
Ingestion: Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. Give large quantities of water or milk of magnesia; if available, several glasses of milk.
Inhalation: Remove to fresh air. If person is not breathing, administer mouth-to-mouth resuscitation. Seek medical attention if loss of consciousness occurs or breathing stops. Seek medical attention if irritation persists.

Most important symptoms and effects, both acute and delayed
Eyes: Causes serious eye irritation and possible burns. Symptoms may include redness, swelling, pain, tearing and blurred vision. May cause chemical conjunctivitis. May cause eye damage. The degree of injury depends on the concentration and duration of contact.
Skin: Causes skin irritation and possible burns. Symptoms may include redness, itching, swelling, pain and possible rash. May cause skin sensitization and allergic contact dermatitis in susceptible individuals. The degree of injury depends on the concentration and duration of contact.
Inhalation: Mist or vapors may cause severe irritation of the nose, throat and respiratory tract. Symptoms may include sore throat, runny nose, cough and shortness of breath
Ingestion: May be harmful if swallowed. Causes severe irritation of and burns to the gastrointestinal tract with abdominal pain, nausea, vomiting and diarrhea. Causes burns to the lips, mouth, throat and digestive tract.
Chronic: Persons with pre-existing disorders of the skin or impaired respiratory function may be more susceptible to the effects of this substance. Prolonged and repeated skin contact can result in allergic contact dermatitis.

Indication of any immediate medical attention and special treatment needed
Advice to Doctor and Hospital Personnel: Treat symptomatically and supportively.

SECTION 5: FIRE FIGHTING MEASURES
Flash Point: N/A **Flammable Limits:** N/A
Extinguishing Media: Water spray, foam, CO_2
Special Fire Fighting Procedures: Use NIOSH/MSHA approved self-contained breathing apparatus in areas where this material is involved in a fire. This product is nonflammable.
Unusual Fire Fighting and Explosion Hazards: Protective clothing for skin and eye protection should be worn. Not considered to be an explosion hazard. If possible, fire fighters should contain water contaminated by this material from being discharged to any waterway, sewer or drain to prevent environmental contamination.

SECTION 6: ACCIDENTAL RELEASE MEASURES
Steps to be taken if material is spilled or released: This material is biodegradable. Use appropriate protection—rubber gloves, goggles or safety glasses. Contain spill. Neutralize with copious amounts of water. Slowly add a soda ash mixture to the residue. This mixture should be 10 pounds of soda ash to 5 gallons of water. This should bring the spill residue within normal pH range of 6-8.

SECTION 7: HANDLING AND STORAGE
Precautions for safe handling
Wear all appropriate personal protective equipment specified in Section 8. Do not get in eyes or on skin or clothing. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear appropriate respiratory protection.
Conditions for safe storage, including any incompatibilities
This product has a wide temperature storage range (-15°C to 82°C). Make sure containers are sealed in storage when not used. Shelf life is 4 (four) years. Protect container against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers of this material may be hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
Control parameters
Occupational Exposure Limits

CAS Number	Ingredient	OSHA PEL - TWA	ACGIH TLV	NIOSH - TWA
77-92-9	CITRIC ACID	5ppm	2ppm	----------

Exposure controls
Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable.
Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.
Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking or using the lavatory.
Eye/face protection: Wear safety glasses with non-perforated side shields. Refer to 29 CFR 1910.133, ANSI Z87.4 or Standard EN166.
Hand protection: Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of gloves must be greater than the intended use period.
Other protective equipment: Protective clothing. Protective boots, if the situation requires.
Respiratory protection: None needed with normal handling. Wear an approved filter type dust respirator if needed when handling this product. Where risk assessment shows air purifying respirators are appropriate use a full-faced respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respiratory and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
Boiling Point: 100°C
Vapor Pressure (mm. Hg): 20 Torr
Vapor Density (air=1): 1.27
Solubility in Water: Complete
Appearance and Odor: Clear
pH: < 2
Specific Gravity (H_2O=1): 1.27
Melting Point: Not determined
Evaporation Rate: (Butyl Acetate=1)2.0

SECTION 10: STABILITY AND REACTIVITY

Conditions contributing to instability: Under normal conditions this product is stable.
Incompatibility: Do not mix with alkaline products.
Hazards Decomposition Products: None.
Conditions Contributing to Hazardous Polymerization: None.

SECTION 11: TOXICOLOGICAL INFORMATION

This product has been approved by the U.S. Navy, British Royal Navy, Ford Motor Company, Dow Chemical and General Motors Corp., following complete toxicological and environmental health evaluations. This product does not contain any material shown to be carcinogen by the National Toxicology Program (NTP) or The International Agency for Research in Cancer (IRAC).

Information on toxicological effects

Acute Oral Toxicity
Expected to have low acute oral toxicity

Acute inhalation toxicity
No data available

Acute dermal toxicity
No data available

Skin irritation/corrosion
Causes skin irritation

Eye irritation/corrosion
Causes serious eye irritation and possible burns

Sensitization
May cause allergic skin reaction in susceptible individuals.

Genotoxicity in vitro/in vivo
No data available

Mutagenicity
No data available

Specific organ toxicity - single exposure
No data available

Specific organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Chronic Effects: None of the chemicals in this product are listed as a carcinogen by IARC, ACGIH, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicates it causes adverse developmental or fertility effects. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity
Large discharges of this product to the environment may decrease the pH of aquatic systems to a value <2, which may be fatal to aquatic life and soil micro-organisms.

Persistence and degradability
The organic components in this product are readily biodegradable. The inorganic substances are not biodegradable. Methods for the determination of biodegradability are not applicable to inorganic substances.

Bioaccumulation potential
Product is not expected to bioaccumulate.

Mobility in soil
Expected to have high mobility in soil.

Results of PBT and vPvB assessment
PBT/vPvB assessment not available.

Other adverse effects

Additional ecological information
Do not allow material to enter into surface waters, wastewater or soil.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: This product is diluted and expended during use. It is recommended that it be pumped back into the delivery container and disposed of with non-hazardous by-products and production residues. Residues can also be disposed of through normal sump and sewage treatment systems.
Precautions to be Taken in Handling and Storage: Good industrial hygiene practices should be adhered to when storing and handling this product. Avoid contact with undiluted product. This material when used or completely spent is non-hazardous. It neutralizes itself in use.

SECTION 14: TRANSPORT INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping. This product ships non-hazardous.

SECTION 15: REGULATORY INFORMATION

This product complies with current Workplace Hazardous Information Systems.
Safety, health and environmental regulations/legislation specific for substance or mixture

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as non-hazardous in accordance with OSHA 29 CRF 1910.1200.
OSHA Process Safety Management Standard: The components of this product are not regulated under OSHA PSM Standard 29 CFR 1910.119. **EPA Risk Management Planning Standard:** The components of this product are not regulated under EPA RMP Standard (RMP) 40 CFR Part 68. **EPA Federal Insecticide, Fungicide and Rodenticide Act:** This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

TSCA Status: All components of this product are listed on the Toxic Substance Control Act (TSCA) Inventory. This product is subject to TSCA 12(b) Export Notification.

Superfund Amendments and Reauthorization Act (SARA)

SARA 313 Information: None of the chemicals in this product exceed the threshold (de minimis) reporting levels established by Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

SARA Section 311/312 Hazard Categories: Acute Health Hazard

SARA 302/304 Extremely Hazardous Substance: None of the components of this product are subject to reporting requirements of these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the chemicals in this product are subject to reporting requirements of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): None of the components of this product exceed the threshold (de minimis) reporting levels for hazardous wastes established by CERCLA.

Clean Air Act (CCA):

This product does not contain any substances that are listed as Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).
This product does not contain any Class 1 Ozone depletors.
This product does not contain any Class 2 Ozone depletors.

Clean Water Act (CWA):

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product contains no chemical(s) known to the State of California to cause cancer or other reproductive harm.

Canadian Controlled Products Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations, and the SDS contains all the information required by the Controlled Products Regulations.

Canadian Ingredient Disclosure List (IDL): Citric Acid (77-92-9)

Canadian National Pollutant Release Inventory (NPRI): None of the substances in this product are listed on the NPRI. **European Economic Community**

Risk Phrases: R36/38 - Irritating to eyes and skin.

Safety Phrases: S2 - Keep out of the reach of children.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 - Wear suitable gloves and eye/face protection.

WGK, Germany (Water danger/protection): 1

Global Chemical Inventory Lists

Country	Inventory Name	Inventory Listing*
Canada	Domestic Substance List (DSL).	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*"Yes" indicates that all components of this product are in compliance with the inventory requirements administered by the governing country.
*"No" indicates that one or more components of this product are not on the inventory and are not exempt from listing.

Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: OTHER INFORMATION:

Do not circulate this product for more than a four (4) hour period without consulting the manufacturer or your local representative. Most cleaning cycles can be accomplished within a two (2) to four (4) hour cycle. For Stainless Steel, 0contact manufacture for instructions and precautions. This material should be used only as directed. Use at ambient temperatures. Increase in temperature places personnel at risk.

This Safety Data Sheet was prepared in accordance with 29 CFR 1910:1200 and the ANSI Z400.1 sixteen-part format. All information, recommendations and suggestions appearing herein concerning our product are based upon tests and data believed to be reliable; however it is the user's responsibility to determine the safety, toxicity and suitability for their own use of the product described herein. Since actual use by others is beyond our control, no guarantees, expressed or implied, are made by Precision Dynamics, Inc. and its representatives as to the effects of such use, the results to be obtained or the safety and toxicity of the product, nor does Precision Dynamics, Inc. or its representatives assume any liability arising out of the use by others of the product referred herein. The information herein is not be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws of government regulations.

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