DEPARTMENT OF THE NAVY
NAVAL SURFACE WARFARE CENTER
CARDEROCK DIVISION

NAVAL SHIP SYSTEMS
ENGINEERING STATION
5001 S. BROAD STREET
PHILADELPHIA, PA 19112-1403

IN REPLY REFER TO

9220
Ser 622/469
09 APR 2004

From: Commander, Naval Surface Warfare Center, Carderock Division,
       Philadelphia, PA
To: Commander, Naval Sea Systems Command (05Z9)

Subj: **AUTHORIZATION TO CLEAN HEAT EXCHANGER USING DYNAMIC DESCALER FROM PRECISION DYNAMIC INC**

Ref: (a) NSWCCD ltr 9520 Ser 622/367 of Oct 02
       (b) Precision Dynamics Inc. ltr of 18 Mar 04

Encl: (1) Material Safety Data Sheet for Precision Dynamics' Dynamic
           Descaler

1. By reference (a), Naval Surface Warfare Center, Carderock Division, Ship Systems Engineering Station (NSWCCD-SSES) approved "Dynamic Descaler" for use in acid cleaning fouled heat exchangers and coolers on non-nuclear surface ships. It has been confirmed that Precision Dynamics, the original supplier of Dynamic Descaler, is manufacturing this product to the original formula. Reference (b) refers. "Dynamic Descaler", manufactured by Precision Dynamics Inc. of Burleson TX, is authorized for use by shipyards, contractors, and depot level activities experienced in acid cleaning operations to remove scale from heat exchangers and coolers on non-nuclear surface ships. The Material Safety Data Sheet (MSDS) for "Dynamic Descaler" from Precision Dynamics is provided as enclosure (1).

2. NSWCCD-SSES technical point of contact for acid cleaning is Ralph Wood, Code 622, Commercial (215) 897-7498, Defense Switched Network 443-7498, email: woodrj@nswccd.navy.mil.

T. M. STECK
Head, Materials Processes
and Engineering Branch
By direction

Subj: **AUTHORIZATION TO CLEAN HEAT EXCHANGER USING DYNAMIC DESCALER FROM PRECISION DYNAMICS INC**

Copy to:
NAVSEA (04M, 05N, 05Z1, 07T2, 08J)
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62/622(file), 622, 912, 913, 923

MATERIAL SAFETY DATA SHEET
(SIMILAR TO OSHA FORM 174)

N.A.= Not Applicable

SECTION 1-MANUFACTURER/DISTRIBUTOR INFORMATION

Product Name: DYNAMIC DESCALER   **Product #: DYN/5, DYN/55, DYN/275, DYN/330**

MFG. BY: PRECISION DYNAMICS INC.
 Address: P.O. Box 1595
          BURLESON, TX 76097
          800-388-5818   **Emergency Phone #:** 1-800-535-5053
HMIS Hazard Code: Health-1, Flammability-0, Reactivity-1   **Chemical Name:** NA
Chemical Family: NA   **Hazard Class:** NA   **D.O.T. ID#:** NA
Formula: NA   **NFPA:** Health-1, Flammability-0, Reactivity-1
D.O.T. Shipping Name: NA

SECTION 2-HAZARDOUS INGREDIENTS

CHEMICAL NAME	CAS NO.	%CONCENTRATE RANGE	OSHA PEL	ACGIH TLV
Hydrogen Chloride	7647-01-0	<10%	5 ppm	5 ppm
Proprietary Blend	N/A	5-15%	N/A	N/A

SECTION 3-PHYSICAL DATA

Boiling Point (F): > 212 (>100 C)
Vapor Pressure (mm Hg): 20
Vapor Density: (air=1) 1.27
Solubility In Water: 100% Complete
Appearance / Odor: Brown, Fruity odor.
Specific Gravity: (water=1) 1.04
Melting Point: Not determined
Evaporation Rate: (butyl acetate=1) 2.0
Other: pH <2

SECTION 4-FIRE AND EXPLOSION DATA

Flash Point (F) / Method: None to IBP
Flammable Limits: for hydrogen chloride   **LEL:** none **UEL:** none
Extinguishing Media: Use water fog, foam, dry chemical or Carbon Dioxide.
Special Fire Fighting Procedures: Wear an approved self-contained breathing apparatus and protective clothing with full face piece operated in the positive pressure demand mode and full body protection.
Unusual Fire &Explosion Hazards: Can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc. to release hydrogen gas which is combustible.

SECTION 5-HEALTH HAZARD DATA

Route(s) of entry: Inhalation, Skin, Ingestion
Health Hazards: Eyes—may cause irreversible damage. Skin—may cause burns with prolonged exposure. Inhalation—may cause damage to mucous membranes and deep tissues.
Effects of Overexposure: Irritating to eyes & skin. Burning/redness/irritation. Ingestion—may cause vomiting, headache and other medical problems. Inhalation—may cause coughing, sneezing and upper respiratory irritation.
Conditions generally aggravated by exposure: Pre-existing eye, skin & respiratory disorders may be aggravated with contact.
Emergency & First Aid Procedures: Eyes & Skin—flush with water for 15 minutes, if irritation persists get medical attention. Ingestion—do not induce vomiting. Drink water, milk of magnesia. Seek medical attention. Inhalation—move to fresh air.
Carcinogenicity: Not a carcinogen

SECTION 6-REACTIVITY DATA

Stability: Stable
Conditions to Avoid: None known
Incompatibility: Oxidizers, chlorates or highly flammable substances. Mixing with strong bases may produce high temperatures.
Hazardous Decomposition Products: Flammable hydrogen gas when reacted with certain metals.
Hazardous Polymerization: Will not occur

SECTION 7-SPILL OR LEAK PROCEDURES

Steps to be taken if material is released or spilled: Small spill: cover contaminated area with sodium bicarbonate or soda ash and add water if necessary to form a slurry. Large spill: dike to prevent spreading.
Waste disposal method: Dispose of in accordance with federal, state, and local regulations.

SECTION 8-SPECIAL PROTECTION INFORMATION

Respiratory Protection: None required if used as directed in well ventilated area
Ventilation: Mechanical (general)
Protective Gloves: Rubber gloves may be used
Eye Protection: Chemical goggles and/or Face shield
Other Protective Equipment: Eye wash and sink area for washing skin. Wash hands before eating. Launder contaminated clothing before re-use.

SECTION 9-SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage:

Other Precautions: Container may be under pressure. Do not weld empty container, vapors may ignite.

Encl (1)