



**DEPARTMENT OF THE NAVY**  
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29 Mar 10

From: Commanding Officer, Navy and Marine Corps Public Health Center  
To: Commander, Naval Sea Systems Command (SEA 05Z42, Mr. R. Hagar), 1333 Isaac Hull Avenue SE, Stop 5122, Washington Navy Yard, DC 20376-5122  
Via: Chief, Bureau of Medicine and Surgery (MED M3B4)  
Subj: SUBMARINE MATERIALS REVIEW: HEALTH HAZARD ASSESSMENT FOR 5 NATIVE GREEN™ CLEANING MATERIALS  
Ref: (a) Electronic Correspondence COMSUBFOR T. Deatherage/ NAVMCPUBHLTHCEN P. Krevonick of 10 Feb 10  
(b) NAVMCPUBHLTHCENINST 6270.8B of 6 Apr 09  
(c) Native Green™ EPA Efficacy Data for Total Impact Disinfectant Cleaner (EPA Reg. No. 1839-166-85898)  
(d) Efficacy Data for Native Green™ Food Service Sanitizer (EPA Reg. No. 1839-49-85898)  
(e) NAVSEA S-9510-AB-ATM-010/(U), Nuclear Powered Submarine Atmosphere Control Manual of 30 Jul 92  
Encl: (1) Submarine Materials Review: Health Hazard Assessment for 5 Native Green™ Cleaning Materials

1. Reference (a) requested a health hazard assessment per the guidance in reference (b) for the 5 cleaning materials described in the table below. These products are manufactured by JAWS International, then Native Green™ packages, labels and distributes the products.

**Native Green™ Cleaning Materials**

<b>Trade Name</b>	<b>Product No.</b>	<b>Active Ingredients</b>
Total Impact Disinfectant Cleaner	515-MDS24	Quaternary ammonium compounds, surfactants, salts
Food Services Sanitizer	519-MDS24	Quaternary ammonium compounds
Glass & Surface Cleaner	502-MDS24	Glycol ether, surfactants, preservative
Multi-Purpose Cleaner/Degreaser	501-MDS24	Glycol ether, surfactants, cleaner/solvent, fragrance
Tile, Grout and Bathroom Cleaner	511-MDS24	Glycol ether, surfactants, organic salt

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5 NATIVE GREEN™ CLEANING MATERIALS

The Total Impact Disinfectant Cleaner and Food Services Sanitizer contain quaternary ammonium compounds, a general group of disinfectant chemicals. According to efficacy test data in reference (c), Total Impact is classified as a disinfectant (destroys microorganisms), including virucidal and fungicidal activity.

The sanitizer is approved as a non-food sanitizer per test data in reference (d).

2. We reviewed the complete material safety data sheets (proprietary formulation) for all products.

The primary health concerns associated with using the cleaners are irritation of the eyes and skin. Ingestion can cause irritation of mucosal linings of the mouth, throat, esophagus or stomach.

The Native Green™ cleaners can be used safely by following the precautions in enclosure (1). We recommend that the cleaners be assigned to the "Limited Use" category in reference (e).

3. If you need additional information, please contact Mr. H. C. Zedd at DSN: 377-0726, commercial 757-953-0726, FAX 757-953-0689 or email [Harold.zedd@med.navy.mil](mailto:Harold.zedd@med.navy.mil).



M. A. MILLER  
By direction

Copy to:  
BUMED (M44)  
COMSUBFOR (N451)

Submarine Materials Review: Health Hazard Assessment  
for 5 Native Green™ Cleaning Materials

- Ref: (a) Searches from MEDLINE Plus®, National Library of Medicine, Bethesda, MD (3 Mar 10)  
(b) ANSI Z358.1. Standard for Emergency Eyewash and Shower Equipment (2009)

1. Scope. This health hazard assessment is directed at the mixing and use of 5 different Native Clean™ cleaners to be used on U.S. Navy submarines. The following information can help prevent personnel exposures and minimize the potential for injury or illness.

2. Mixing and Application. The cleaners are supplied in pre-measured concentrate cartridges. To make the diluted, ready-to-use spray, fill the 32-ounce spray bottle to the water line with potable water. Put the desired concentrate cartridge in the neck of the bottle. As the sprayer top is twisted onto the bottle neck, the tube of the spray nozzle punctures the cartridge, thus releasing the concentrated cleaner. After the sprayer is firmly closed, shake gently to mix before using.

The following table lists the concentrate cartridge size and pH and the final cleaning dilution and pH.

**Native Green™ Cleaning Materials**

Trade Name	Concentrate Cartridge Size (ml)	Concentrate pH	Final Dilution Ratio (Product to Water)	Diluted Product pH
Total Impact Disinfectant Cleaner	7.9	6.7	1:128	7
Food Services Sanitizer	5.9	12.5	1:160	10-11
Glass & Surface Cleaner	9.8	7.8	1:95	7-8
Multi-Purpose Cleaner/Degreaser	9.8	9.0	1:95	8-9
Tile, Grout and Bathroom Cleaner	9.8	<1	1:95	1-2

These products will be used daily in the galley, mess decks, berthing areas and heads. They will also be used in the work spaces during the weekly field day.

3. Toxicological Evaluation. To evaluate toxicity in a practical manner, three elements should be considered: type of chemical, exposure dose and frequency, and individual susceptibility of the exposed person. Adverse effects can occur only when all three elements are present. Selecting a relatively safe chemical and controlling exposures are the most readily accessible ways to reduce or prevent potential hazards.

4. Industrial Hygiene Anticipation, Recognition and Evaluation. Adverse health effects associated with the use and handling of these products were researched using information retrieved from reference (a).

In general, prolonged contact with any of the Native Green™ products can cause irritation to the eyes and skin. Ingestion can cause irritation of mucosal linings of the mouth, throat, esophagus or stomach.

The Tile, Grout and Bathroom Cleaner is particularly irritating, with a ready-to-use pH of about 1 (acidic).

The Food Services Sanitizer has a final pH of 10-11, making it corrosive. Splashes or prolonged contact can lead to severe irritation or burns.

5. Industrial Hygiene Control.

a. Safety and Health Education. Ensure personnel are trained on the safe use of cleaning products, especially those that are corrosive.

b. Exposure Protection. Personnel should wear chemical workers' goggles to protect the eyes from accidental splashes/spray when mixing and using any of the Native Green™ products.

When mixing or using the Tile, Grout and Bathroom Cleaner and the Food Services Sanitizer, personnel should wear neoprene gloves.

c. Exposure Response Measures. In the event of prolonged skin contact with the concentrate or diluted spray of the Total Impact Disinfectant, the Glass and Surface Cleaner or the Multi-Purpose Cleaner, wash the affected areas with soap and water.

For prolonged contact with or splashes of the Tile, Grout and Bathroom Cleaner or the Food Services Sanitizer, ensure an eyewash and deluge shower equipment meeting the criteria in reference (b) are available to provide continuous flushing.

6. Emergency Contact. The Regional Poison Control Center (1-800-222-1222) can be contacted regarding acute or chronic poisonings from the components in these cleaning products.