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From: Commanding Officer, Navy Experimental Diving Unit
To: Commander, Naval Sea Systems Command (00C3)

Subj: RECOMMENDATION FOR REPLACEMENT OF WESCODYNE AS A SANITIZING AGENT FOR USN DIVING EQUIPMENT

Ref: (a) ISEA report on sanitizing agents dtd 13 Apr 00
(b) NAVSEA Task 98-010

Encl: (1) Recommended disinfecting agents
(2) Cleaning procedures for US Navy Diving and Recompression equipment.

1. Navy Experimental Diving Unit received an ISEA report on Sanitizing agents dated 13 April 2000 reference (a). This report identified several concerns regarding the use of Wescodyne cleaning solution. The most pressing problem for units of the Pacific Fleet is the lapse of Wescodyne's California Environmental Protection Agency registration in 1988. In response to this situation, and in accordance with reference (b) NEDU is identifying replacement sanitizing agents and cleaning procedures for use on U.S. Navy diving equipment.

2. A search of the market and contact with several manufactures of cleaning, disinfecting, and sanitizing solutions, respiratory therapy departments, both in and outside the Navy, DAN, and other groups has resulted in the identification and recommendation the four following agents (Enclosure (1)):

- 1) SaniZide Plus
- 2) Advance TB_E
- 3) Bi-Arrest 2
- 4) Confidence Plus

3. The agents were used as directed by the manufacture to clean and sanitize various pieces of diving gear. The gear was off-gas tested at the Navy Underwater Equipment Lab and found to be safe for hyperbaric use. A recommended procedure for sanitizing diving equipment with these agents has been developed (Enclosure (2)) as an interim procedure until changes can be made in the Navy PMS system and Maintenance manuals.

4. NEDU will continue to query the market and the concerned groups mentioned above to insure these agents and procedures are the most current, effective and safe agents available. My NEDU point of contact is HM1/SCW/DV D. Stanga at (850) 230-3100.

J. R. O'ROURKE
By direction

SaniZide Plus

Sanizide plus is a germicidal solution that is effective against a broad range of bacteria, viruses, and many fungi. The solution is provided in several sizes ranging from 1 gallon bottles to 16 oz. trigger sprayers. Sanizide is delivered ready for use and requires no mixing. The quaternary ammonium compound is non-corrosive and will not damage lens, plastics, rubber, or metal surfaces. Manufactured by Safetec 1-800-456-7077 , the cost is approximately \$1.60 per 2 oz. Spray bottle or \$6.00 per 32 oz. Spray bottle. Safetec is a GSA contract company.

Effectiveness in 30 second contact time kills:

- HIV
- Influenza A2/HK
- Herpes simplex II

3 minute contact time kills:

- Polio I virus
- Rhinovirus

5 minute contact time kills:

- Staphylococcus aureus
- Salmonella choleraesuis
- Pseudomonas Aeruginosa
- Klebsiella Pneumoniae
- Candida Albicans

10 minute contact time kills:

- Mycobacterium Bovis BCG (**Tuberculosis**)

Advance TB_E

Advance TB_E is a germicidal compound, containing the same quaternary ammonium compound found in SaniZide. The solution has the same disinfective characteristics and requires the same contact time as SaniZide. The Advance TB_E is provided ready to use in 16 oz. spray bottle or 1 gallon bottle. Manufactured by Infection Control Technology 1-800-551-0735, the cost is approximately \$7.00 per 16 oz. bottle or \$12.00 per gallon.

Specific germicidal activity:

10 minute contact time

- HIV-1
- Hepatitis A, B
- Escherichia coli
- Herpes Simplex
- Influenza
- Mycobacterium tuberculosis
- Pseudomonas aeruginosa
- Salmonella choleraesuis
- Staphylococcus aureus
- Trichophyton mentagrophytes
- Aspergillus niger

Bi-Arrest 2

Bi-Arrest 2 is a non-alkaline germicidal cleaner that offers a broad spectrum of effectiveness against many bacteria, viruses, and fungi. Its germicidal activity is not diminished by hard water and is non-corrosive. The solution is provided in a 4oz. concentrate bottle with a pump attached. Mixing directions are: Mix 2 pumps of the concentrate in a 16-oz spray bottle of water. Spray bottle is provided with the concentrate.

Manufactured by Infection Control Technology (MSA), 1-800-551-0735, the cost is approximately \$3.00 per gallon. MSA is a GSA contract company.

Specific germicidal activity:

10 minute contact time

- Mycobacterium tuberculosis
- Pseudomonas aeruginosa
- Staphylococcus aureus
- Herpes simplex
- Salmonella choleraesuis
- Streptococcus hemolyticus
- Diplococcus pneumoniae
- Salmonella typhosa
- Escherichia coli
- Proteus vulgaris
- Trichophyton interdigitale
- Aspergillus
- Influenza

Confidence Plus

Confidence Plus is a germicidal solution that is effective against a broad range of bacteria, viruses, and many fungi. The active chemical compounds are closely related to those found in Advance TB_E, and Sanizide Plus. It requires the same contact time, and has similar disinfecting actions. The solution is provided in a 32 oz. bottle of concentrate with a graduated measuring cup built into the top of the container. Mixing directions are 1 oz per gallon of water.

Manufactured by Mine Safety Appliances Company, 1-800-672-2222, the cost is \$12.97 per 32 oz. bottle of concentrate.

Specific germicidal activity:

10 minute contact time

- Salmonella choleraesuis
- Staphylococcus aureus
- Streptococcus pyogenes
- Escherichia coli
- Enterobacter aerogenes
- Shigella sonnei
- Candida albicans
- HIV-1

Cleaning procedures:

1. SCUBA regulators
 - With scrub brush and a non-ionic detergent solution, remove any gross contamination from the regulator.
 - Rinse thoroughly with fresh water
 - Spray a liberal coat of solution on and into the mouthpiece and all second stage parts until all surfaces are wet.
 - Let stand for 10 minutes. If solution appears to be drying, apply more solution to keep it wet for the full 10 minutes.
 - After 10 minutes, rinse the entire second stage in a container of clean fresh water, or rinse under running potable water.

2. BIBS masks
 - Remove BIBS mask from hose
 - Spray a liberal coat of solution to all surfaces including straps.
 - Let stand for 10 minutes. If the solution appears to be drying, apply more solution to keep it wet for the full 10 minutes
 - After 10 minutes, rinse the entire mask in a container of clean fresh water, or rinse under running potable water.
 - Allow to air dry before placing back in the chamber.

3. MK 20 Diving Mask
 - With scrub brush and a non-ionic detergent solution, remove any gross contamination from the mask.
 - Rinse thoroughly with fresh water
 - Spray entire oral-nasal mask interior and nose-clearing device with solution until all surfaces are wet.
 - Let stand for 10 minutes. If the solution appears to be drying, apply more solution to keep it wet for the full 10 minutes
 - After 10 minutes, rinse the entire mask in a container of clean fresh water, or rinse under running potable water.

4. MK 21 Diving Helmet and MK 24 Full Face Mask
 - With scrub brush, and a non-ionic detergent solution, remove any gross contamination from the mask and helmet.
 - **Rinse thoroughly with fresh water**
 - Remove nose-clearing device and oral-nasal mask from helmet.
 - Spray entire oral-nasal mask and nose-clearing device with solution until all surfaces are wet.
 - Let stand for 10 minutes. If the solution appears to be drying, apply more solution to keep it wet for the full 10 minutes
 - After 10 minutes, rinse the entire mask in a container of clean fresh water, or rinse under running potable water.
 - Reinstall mask and nose-clearing device in helmet

5. MK 25 and MK 16 breathing hose and mouthpiece
 - With scrub brush, and a non-ionic detergent solution, remove any gross contamination from breathing hose assembly.
 - Rinse thoroughly with fresh water
 - Remove hoses from backpack
 - Rinse with fresh water
 - Spray a liberal coat of solution on and into the mouthpiece and into hoses. A properly mixed solution in a deep sink may also be used.
 - Let stand for 10 minutes. If solution appears to be drying, apply more solution to keep it wet for the full 10 minutes.
 - After 10 minutes, rinse the entire assembly in a container of clean fresh water, or rinse under running potable water.

6. Chamber oxygen hood
 - Spray entire inside surface of hood and neck dam with solution.
 - Let stand for 10 minutes. If the solution appears to be drying, apply more solution to keep it wet for the full 10 minutes
 - After 10 minutes, rinse the entire hood in a container of clean fresh water, or rinse under running potable water.
 - Allow to air dry before placing back in the chamber.

7. Recompression chamber interior.
 - Clean interior surfaces of chamber with non-ionic detergent solution to remove any gross contamination.
 - Rinse with fresh water
 - Spray solution directly on chamber bulkheads, deck-plates or benches, or pour solution onto a lint-free cloth and use it to wipe down surfaces. Do not apply to bedding.
 - Allow to stand for 10 minutes, then wipe down with fresh water.