

NASA TECH BRIEF



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Sea Dye Marker Provides Visibility for 20 Hours

The problem:

To devise a sea dye marker that will release a visible slick on a 1000-square-foot area of water for a period of at least 12 hours. Available dye markers, used as marine recovery aids, provide a slick that lasts for only 6 to 8 hours.

The solution:

A sea dye-marker block incorporating a fluorescent dye in a heat-cured binder, which when immersed in seawater releases the dye at a controlled rate.

How it's done:

Sodium fluorescein is mixed with a water soluble binder containing gum arabic and methyl cellulose. This mixture is blended with a solvent consisting of ethylene glycol and butyl ether. The blend is molded into a 5.39 x 2.86 x 2.97-inch block, which is then cured for 80 to 100 hours at gradually stepped-up temperatures of 150°, 175°, 200°, and 250° F to remove all of the solvent and moisture. The molded block is glazed with binder solution and then baked at 175° F for 2 hours to seal the glaze. The glazed block is edge sealed in a 0.002-inch-thick film of polyvinyl alcohol and then covered with a porous nylon fabric which is secured by handstitching with nylon thread. The block is completed by edge sealing a

second 0.002-inch-thick film of polyvinyl alcohol around the nylon fabric. Entrapped moisture in the film layers is removed by heating the completely wrapped block at 200° F for 2 hours in an air circulating oven. To package the block for long storage, it is removed, while lukewarm, from the oven and heat sealed together with a small pouch of desiccant in a polyethylene bag.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
Houston, Texas 77058
Reference: B66-10313

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: F. DeLaat
of North American Aviation, Inc.
under contract to
Manned Spacecraft Center
(MSC-714)

Category 03