

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



United States
Environmental Protection
Agency

Office of Pesticide Programs

March 12, 2008

MEMORANDUM

**SUBJECT: Carboserve – Oil Field Biocide and Materials Preservative;
Environmental Hazards Review (D346337)
PC Code: 069208**

**TO: Jacqueline Campbell-McFarlane
Velma Noble, RM-31
Dennis Edwards, Branch Chief
Regulatory Management Branch I
Antimicrobials Division (7510C)**

**FROM: Richard C. Petrie, Agronomist/Team 3 Leader
Risk Assessment and Science Support Branch
Antimicrobials Division (7510C)**

Richard C. Petrie 3/12/08

**THRU: Norm Cook, Chief
Risk Assessment and Science Support Branch
Antimicrobials Division (7510C)**

Norm Cook 3/12/08

Lonza, Inc. is requesting the addition of estuarine/marine use of Carboserve to control slime forming and sulfate reducing bacteria in oil field water flood or salt water disposal systems. Carboserve is 50% didecyl dimethyl ammonium carbonate/bicarbonate. The Carboserve label had previously restricted use in marine or estuarine oil fields.

Potential Risks To Non-target Organisms:

Oilfield uses such as treatments of drilling muds and waterfloods are considered by AD to pose little adverse risk to non-target organisms or listed species. Antimicrobials are typically minor use chemicals, recycled, diluted, and greatly reduced before discharge into water, and are often regulated by other Federal or EPA offices (OW, Office of Solid Waste, OPPTS, state NPDES permits). In the case of oil fields, the US Department of the Interior, Minerals Management Service (MMS) had jurisdiction over the environmental impacts of synthetic drilling fluids in terrestrial and aquatic areas.

Terrestrial oil fields typically use berms and catch basins to prevent surface runoff of oil drilling muds and wastes from oil drilling areas. Estuarine and marine aquatic organisms may be temporarily exposed during marine drilling, however, impacts are limited to a defined area around the oil well (Neff, 2000).

RASSB considers the proposed use to be a closed-system or indoor use that does not require a risk assessment as long as label directions are followed. However, a hazard review is conducted to determine if Carboquat is toxic to estuarine/marine fish, oysters, and shrimp. If aquatic ecotoxicity data indicates that the EC or LC 50 toxicity value for any given test organism is less than 1.0 mg ai/L, the label must indicate that the product is toxic in the environmental hazards section.

In order to conduct the hazard assessment for estuarine/marine aquatic organisms the following 3 tests are required:

- 850.1075 Acute estuarine/marine fish
- 850.1035 Acute Mysid shrimp
- 850.1025 Acute E. Oyster

A previous carboquat review for another use pattern is available: RASSB Norm Cook memorandum to Velma Noble, June 20, 2007, Carboquat (Bardac 22C50) Environmental Monitoring Study – Dock Wood Treatment Review and Revised Ecological Risk Assessment. D332891, 332720, 332892, 332909, 332905. PC code: 069208. This review concluded that the acute estuarine/marine fish study and the E. Oyster study were acceptable. Carboquat ecotoxicity values for estuarine/marine fish and oysters were less than 1.0 mg ai/L thus requiring the label statement: "This product is toxic to fish and oysters." No ecotoxicity studies are available for the Mysid shrimp, therefore, this study is outstanding (as noted in the June 20, 2007 review).

Endangered Species Considerations

Section 7 of the Endangered Species Act, 16 U.S.C. Section 1536(a)(2), requires all federal agencies to consult with the National Marine Fisheries Service (NMFS) for marine and anadromous listed species, or the United States Fish and Wildlife Services (FWS) for listed wildlife and freshwater organisms, if they are proposing an "action" that may affect listed species or their designated habitat. Each federal agency is required under the Act to insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. To jeopardize the continued existence of a listed species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of the species." 50 C.F.R. ' 402.02.

To facilitate compliance with the requirements of the Endangered Species Act subsection (a)(2) the Environmental Protection Agency, Office of Pesticide Programs has

established procedures to evaluate whether a proposed registration action may directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of any listed species (U.S. EPA 2004). After the Agency's screening-level risk assessment is performed, if any of the Agency's Listed Species LOC Criteria are exceeded for either direct or indirect effects, a determination is made to identify if any listed or candidate species may co-occur in the area of the proposed pesticide use. If determined that listed or candidate species may be present in the proposed use areas, further biological assessment is undertaken. The extent to which listed species may be at risk then determines the need for the development of a more comprehensive consultation package as required by the Endangered Species Act.

For certain use categories, the Agency assumes there will be minimal environmental exposure, and only a minimal toxicity data set is required (Overview of the Ecological Risk Assessment Process in the Office of Pesticide Programs U.S. Environmental Protection Agency - Endangered and Threatened Species Effects Determinations, 1/23/04, Appendix A, Section IIB, pg.81). Chemicals in these categories therefore do not undergo a full screening-level risk assessment. The oil field uses of carboquat fall into this category.

If it is determined that there is potential for carboquat oil field uses to overlap with listed species and that a more refined assessment is warranted, to include direct, indirect and habitat effects, the refined assessment should involve clear delineation of the action area associated with carboquat oil field uses and best available information on the temporal and spatial co-location of listed species with respect to the action area. This analysis has not been conducted for this assessment. An endangered species effect determination will not be made at this time.

OUTSTANDING CONFIRMATORY DATA

850.1035 - Acute Mysid shrimp

LABELING

The carboquat product labels must state: "This product is toxic to fish, aquatic invertebrates, oysters, and shrimp."

Bibliography

Neff, J.M., S. McKelvie and R.C. Ayers, Jr. 2000. "Environmental Impacts of Synthetic Based Drilling Fluids. Report prepared for MMS by Robert Ayers & Associates, Inc. August 2000. U.S. Department of the Interior, Minerals management Service, Gulf of Mexico OCS Region, New Orleans, L.A. OCS Study MMS 2000-064. 118pp.