

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

POND SEALING OR LINING

Soil Dispersant

(No.)

CODE 521B

DEFINITION

Installing a fixed lining of impervious material or treating the soil in a pond mechanically or chemically to impede or prevent excessive water loss.

SCOPE

The standard applies to the sealing of ponds with soil dispersants.

PURPOSE

To reduce seepage losses in ponds to an acceptable level.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where water loss from a pond through leakage is, or will be, of such proportion as to prevent the pond from fulfilling its planned purpose or where leakage will damage land and crops or cause waste of water or environmental problems.

DESIGN CRITERIA

Ponds to be treated shall be constructed to meet SCS standards for IRRIGATION PITS or REGULATING RESERVOIRS (552), IRRIGATION STORAGE RESERVOIRS (436), IRRIGATION SYSTEM, TAILWATER RECOVERY (447), PONDS (378), WASTE STORAGE PONDS (425), WASTE TREATMENT LAGOONS (359), TROUGH or TANK (614), as appropriate.

Soil Properties

For chemical sealing, soils shall have properties approximating the following:

The soil must contain 15%, or more, particles finer than 0.002 mm. (clay size) and 50%, or more, finer than 0.074 mm. (silt size). The fine fraction must be plastic fines, such as CL or an ML with a PI 10. The soil must have a Cation Exchange Capacity (CEC) of approximately 15 milliequivalents per 100 grams of soil.

The gradation, Atterberg Limits, and CEC are laboratory tests and should be used when field tests are in doubt. See the Engineering Field Manual (Ch. 11, Ponds and Reservoirs) for field test.

Dispersant

Soda ash (sodium carbonate, Na₂CO₃) shall be used in preference to the poly phosphates. If soda ash is not available tetrasodium pyrophosphate (TSPP) may be used. Sodium chloride is generally not effective due to leaching.

These dispersants shall be finely granular; 95% of the material shall pass a No. 30 sieve and less than 5% a No. 100 sieve. The soda ash shall be technical grade, 99-100% sodium carbonate.

Rate of Application

The rate of application and the kind of dispersant to use shall be based on laboratory tests unless sufficient data is available on the field performance of previously tested soils that is similar to the soil to be sealed in texture and chemical characteristics.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service.

POND SEALING OR LINING (521-B)-2 Statewide

In the absence of laboratory tests for the soils to be sealed, the minimum total application shall be either of the following:

soda ash	20 to 25 lbs/100 ft ²
tetrasodium pyrophosphate	5 to 10 lbs/100 ft ²

Thickness of Treated Blanket

The finished treated blanket shall be at least 6 inches thick for water depths 8 feet or less. For greater depths of water, the blanket thickness shall be 12 inches and treated in two 6-inch lifts. A minimum thickness of 12 inches is recommended for the pond area that has a range of water surface fluctuations due to water use, operation and management procedures or evaporation.

In addition to the treated blanket, at least 2 feet of fine-grained soil shall be placed over fractured rock outcrop or other highly permeable material.

PLANS AND SPECIFICATIONS

Plans and specifications for sealing ponds with soil dispersants shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.