

NATURAL RESOURCES CONSERVATION SERVICE
 CONSERVATION PRACTICE STANDARD

POND SEALING OR LINING

SOIL DISPERSANT

(number)

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.

polyphosphate salts. Commercial phosphatic fertilizer is not acceptable. Soda ash, technical grade, 99-100 percent sodium carbonate may be used.

PURPOSE

Reduce seepage losses in ponds to an acceptable level.

These dispersants shall be finely granular; 95 percent of the material shall pass a number 30 sieve and less than 5 percent a number 100 sieve.

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.

Standard commercial sodium chloride is satisfactory in the granulated form normally available.

Other dispersants may be used in the form found to be satisfactory by local experience.

CRITERIA

Ponds to be lined shall be constructed to meet the NRCS Conservation Practice Standard for IRRIGATION PITS (552A) OR REGULATING RESERVOIRS (552B), IRRIGATION STORAGE RESERVOIRS (436), PONDS (378), WASTE TREATMENT LAGOON (359), WASTE STORAGE PONDS (425), or WILDLIFE WATERING FACILITIES (648) as appropriate.

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

Sodium..... polyphosphate 5 to 10 pound per 100 square feet

Sodium chloride20 to 33 pound per 100 square feet

Soda ash 10 to 20 pound per 100 square feet

OtherAs found to be adequate by local experience.

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

1. At least 50 percent finer than 0.074 mm diameter (No. 200 sieve).
2. At least 15 percent finer than 0.002 mm diameter.
3. Less than 0.50 percent soluble salts (based on dry soil weight).

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 all areas in the vertical range of water surface fluctuation.

Dispersants. Tetrasodium pyrophosphate (TSP) and sodium tripolyphosphate (STPP) shall be used in preference to other

Conservation practice standards are reviewed periodically. To obtain a current version of this standard contact the Natural Resources Conservation Service.

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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 keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

A maintenance job sheet or maintenance plan shall be provided for each resource management system and practice. The maintenance plans for the pond sealing shall include maintenance requirements for the sealant and all pond components and appurtenances. Maintenance should include inspection of appurtenances on a periodic basis and after each large storm. Failures should be corrected as soon as possible to prevent major damages.

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GENERAL

Construction shall be carried out in such a manner that erosion and air and water pollution are minimized. The completed job shall present a workmanlike finish.

CONSTRUCTION DETAILS

The area to be treated shall be cleared of all vegetation and trash and all stones or other objects large enough to interfere with operation of the compaction equipment.

The moisture content of the soil must be near optimum for compaction.

Sealing chemicals shall be distributed evenly over the surface to be treated with a drill, seeder, or fertilizer spreader or by hand broadcasting. If broadcast by hand, the area must be staked or otherwise marked in grids of 100 square feet.

The chemicals shall be thoroughly mixed into the 6- to 8-inch layer of soil being treated. Mixing shall be done with disk, rototiller, pulverizer, or similar equipment. A second mixing shall be perpendicular to the first mixing.

If the moisture is inadequate for maximum compaction, water shall be added by sprinkling during the mixing operation. If the moisture is too high, the soil shall be dried by disking or some other effective process.

Each treated layer of soil shall be compacted to a dry density of 90 percent or more of maximum standard Proctor density with the soil at optimum or slightly higher moisture content.

Treated areas shall be protected from puncture by livestock trampling. Areas near the normal waterline and at points of concentrated surface flow into the pond shall be protected against erosion.

Sediment coagulating chemicals, such as gypsum or iron sulfate, shall not be used to clear reservoir water after treatment.