

DRAFT RECLAMATION MANUAL RELEASE
Comments on this draft release must be submitted to Talmadge Oxford
(toxford@usbr.gov) by October 2, 2012.

The FIST 4-10, "Bolt Anchor Sulfaset" is being retired because it is out of date and no longer viable for use in the Reclamation Operations and Maintenance Program. In accordance with Reclamation Manual procedures this FIST will be posted for a minimum of 30 days.

See the following pages for the FIST 4-10, "Bolt Anchor Sulfaset".

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BOLT ANCHOR SULFASET

AUGUST 1992

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Bolt Anchor Sulfaset

I. PURPOSE:

To inform maintenance personnel on the procedure for using Bolt Anchor Sulfaset for potential application during powerplant or pumping plant modifications.

II. GENERAL:

F-181 W Bolt Anchor Sulfaset is an anchoring cement used for setting anchor bolts in concrete. Sulfaset is a dry powder; when mixed with water, it forms a fast setting anchoring cement. Sulfaset expands as it sets to lock the bolt to the concrete. The manufacturer states that 100 pounds of sulfaset is required to fill a 1-cubic-foot volume.

Use F-181 W sulfaset instead of F-181. The W sulfaset is made for wet climates; and in Bonneville Power Administration Laboratory tests, it weathered better than the F-181.

An advantage of sulfaset is it can be used in inclement weather. With epoxy anchoring cement, the concrete hole had to be dried by burning alcohol in it, and the temperature was kept above 55 °F by adding heat overnight to get a good set.

III. PROCEDURE:

A. Drill Hole

Drill a hole in the concrete large enough to accommodate the bolt head. Hole depth should be a minimum of 4 inches deep. Laboratory tests showed bolt pullout strength increases with hole depth.

1. Star drill. - An air hammer with a star drill can be used. Problems occur with large bolts since star drills are not large enough to drill holes to accommodate them. Bolt head can be cut off, but the pullout strength is reduced by roughly 4/5. If possible, grind off the bolt head, leaving enough head into which the sulfaset can bite.

2. Core drill. - Use the small core drill which drills up to 2-inch-diameter holes. A 2-inch hole should accommodate most anchor bolts.

B. Clean Hole and Place Bolt

Clean all loose material from the hole and place the bolt in it. The addition of a washer on the bolt made little difference pullout strength tests conducted by the Bonneville Power Administration Laboratory.

C. Mix the Sulfaset

Mix a small amount of sulfaset with water. Stir until the mixture is smooth and creamy, about the consistency of pancake batter.

D. Fill Hole

Pour the mixture into the hole while jogging the bolt up and down to prevent air pockets.

E. Let Set

Let the mixture set for a minimum of 30 minutes before tightening the nuts.

F. Obtaining Sulfaset

Sulfaset is manufactured by:

Randustrial Corporation 13251 Union Avenue Cleveland, Ohio 44120 Telephone: (216) 283-0300

Sulfaset comes in 1- and 5-gallon cans. A 1-gallon can is most practical for maintenance since that amount will normally do one job.

G. Storing

Store sulfaset in a dry place. It will set up after the can is opened if it is stored for a long period in a humid area.