

CONE TEST

Determining Tube Performance – An Accurate Test

The TITANTube® Cone Test is a fast and easy test to determine how well a sludge sample dewateres in the OS425 textile. The test is designed to evaluate the efficiency of the candidate polymers and to help predict the percent moisture remaining in the sludge after dewatering in cone. The user will measure the time it takes for free water to be released from the sludge, how well the dewatered sludge releases from the TITANTube® textile, the volume of effluent released from the sludge, and the quality of the effluent.



Required Equipment for the TITANTube® Cone Test

1. Two five-gallon (20L) plastic buckets
2. Plastic cups
3. One liter measuring cups
4. 100ml graduated cylinder
5. 18" (46cm) diameter TITANTube® OS425 fabric
6. Spring loaded hand clamps
7. Hand mixer (to make down neat polymer to solution)
8. Syringes
9. Latex gloves
10. Hand sanitizer



Step 1

Measure 100ml of water into 4 cups in which to make down polymer solution. This is usually an ample amount to conduct several 1-liter sludge tests. If sludge sample is high in solids by weight, a higher dose of polymer will be required.

Step 2

Make down neat polymer into 1.0%, .5%, .3% or .25% solution by adding neat polymer to each cup of 100ml of water. Make down charts are available from Flint. Vigorous shaking or mechanical mixing is required to invert the neat polymer into solution. If using an electric hand mixer, mix for about 10-15 seconds only. Allow the polymer solution to age for 15-20 minutes before adding polymer solution to the sludge samples. Repeat this make down procedure with other candidate polymers being tested.

Step 3

Wet the 18" (46cm) diameter TITANTube® OS425 textile sample, supplied by Flint, to eliminate surface tension. Fold the fabric to form a cone shape and clamp the cone onto a bucket.

Step 4

Fill a one liter measuring cup or beaker with the sludge to be tested. Determine a starting point for the polymer dosage in PPM and draw the required amount of polymer into a syringe. Example: Start with 40 PPM. If this dosage creates a good floc, test a lower dosage until the optimum dose is determined. A chart of dosages is available from Flint. Add the polymer solution to the 1 liter of sludge and begin to pour the sample back and forth between two 1-liter containers until a floc forms.

Step 5

Pour the liter of conditioned sludge into the cone filter. Time the free water flow through the cone and record. Remove the cone filter, roll the fabric back and forth, and examine how the cake releases from the fabric.

Step 6

Pour the filtrate from the bucket into a 1-liter container and measure the volume. Examine the filtrate for clarity and suspended solids. Repeat this procedure for all the candidate polymers. After determining the most efficient polymer in terms of time to dewater, volume of filtrate, and clarity of filtrate, proceed to Step 7.

Step 7

Collect a sample of dewatered sludge. Conduct a moisture content test to determine percent dewatered solids.