

DIRTBAG®

TECH NOTE

BACKGROUND INFORMATION:

ACF Dirtbag® units are manufactured using non-woven or woven polypropylene fabric. The purpose of the ACF Dirtbag® is to collect sand, silt, and fines, from dewatering effluent stormwater that enters streams, surrounding property, and storm sewers. Over the last 25 years during which ACF has produced and sold Dirtbags, ACF has compiled a vast amount of test data from third party laboratories and field installations. The purpose of this technical document is to note and explain the various test methods and results related to the Dirtbag® product.

DEWATERING BAG TEST METHODS:

ASTM D-4751: Standard Test Method for Determining Apparent Opening Size of a Geotextile

ASTM D-4884: Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles

ASTM D-7880: Standard Test Method for Determining Flow Rate of Water and Suspended Solids Retention from a Closed Geosynthetic Bag

APPARENT OPENING SIZE:

The non-woven polypropylene fabric used to manufacture the Dirtbag® product has an AOS measured by U.S. Sieve of 80. This fabric has been tested by a third party lab under ASTM D-4751. A U.S. Sieve of 80 will filter out a 177 micron size particle. This is especially important in dewatering bags, because the efficiency of the Dirtbag® product increases when a sediment coating builds up on the inside walls of the bag after pumping has begun. The discharged water becomes visibly clear due to the smaller particles being retained by the sediment coating. Each project has a different set of variables such as particle size, discharge rate, duration of pumping, and other jobsite specifics that will change the performance of the bag accordingly.

SEAM STRENGTH:

The ACF Dirtbag® is produced by sewing two layers of geotextile fabric together to form a bag, so the strength of the seam that connects the two layers is a very essential characteristic. ACF has third party test data on that seam strength, shown in the table below.

**SUMMARY OF ASTM D-4884
(SEAM STRENGTH TESTING)**

Parameter:	MARV
Type of Seam:	J-SEAM
Maximum Load (lbs)	938
Maximum Strength (ppi)	118

It is important to note that each test result was deemed as a material failure, rather than stitch failure or thread pull out, which shows that the seam and thread used by ACF is an acceptable means of connection for Dirtbag® units.

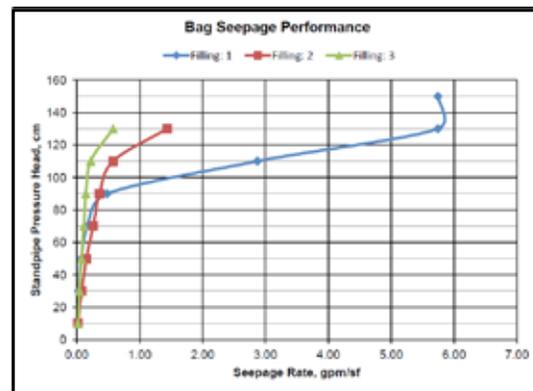
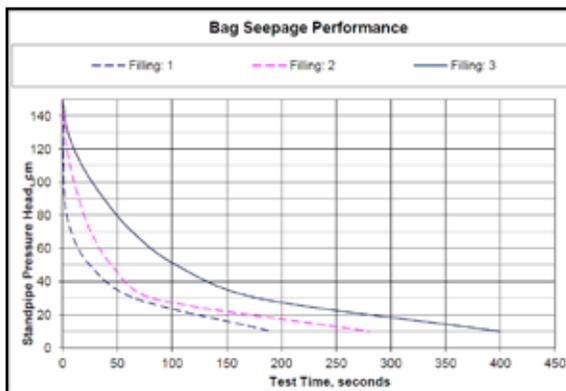
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MANUFACTURED BAG TESTING (ASTM D-7880):

In addition to seam strength and AOS testing, our third party lab has also compiled results for the ACF Dirtbag® when tested as an actual manufactured bag. For this test, a geotextile bag was constructed to form a container that will expand when filled to accommodate a prescribed volume (in this case, 12 gallons) of water/soil slurry. The bag sits on a mesh platform and the slurry is introduced through an inlet standpipe causing the bag to expand into a pillow. Through multiple fillings, the relationship between head pressure and seepage time is established, along with associated flow rate and filtration efficiency. Tests conducted according to the above protocol produced the following results:

SUMMARY OF ASTM D-7880 RESULTS

Avg. Removal/Retention Efficiency (%)	Residual High-Head Flow Rate (gpm/sf)	Residual Low-Head Flow Rate (gpm/sj)
98.4	1.44	0.04



PICTURES FROM TEST SETUP



The results from this test prove the fact that the ACF Dirtbag® becomes more efficient once a sediment coating builds up on the inside walls of the Dirtbag®, while producing discharged water that is visibly clear due to the smaller particles being retained by the sediment coating.

CONCLUSION:

ACF feels that it is important to have the above mentioned test results done by a third party test laboratory in relation to the dewatering bag product. ACF strives to be a high quality manufacturer that goes above and beyond the required test results and information levied by regulatory agencies nationwide.



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