

Evaluation of Wildland Fire Chemicals

STANDARD TEST PROCEDURES

Water Retention of Enhanced Water Mixtures

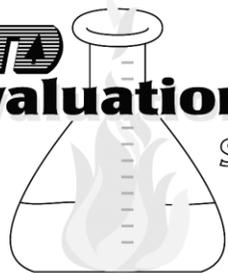
Summary: An inexpensive, disposable furnace filter screen is used to support the water enhancer mixture over a pan. As the water drains from the mixture, the weight of the water can be measured at intervals by simply lifting the screen slightly from the containment pan.

Equipment:

Furnace Screen: StrataDensity by American Air filter International (UPC 37947 14500)
Lightweight pan or tray
Balance, readable to 0.01 grams

Test Method:

1. Place a pan on the balance and record the weight of the pan
2. Place a screen on top of the pan and record the combined weight.
3. Prepare water enhancer mixture, using 250 ml of water and the appropriate amount of concentrate, using the method(s) established earlier during the evaluation.
4. Immediately after mixing, pour/dump the water enhancer mixture, all at one time, into a pile on the center of the screen. Refer to "Consistency of Enhanced Water Mixtures."
5. Record the weight of the pan, screen, and water enhancer mixture.
6. Record the approximate diameter and height of the pile of water enhancer on the screen.
7. At 5 minutes after mixing record the total weight of pan, screen and enhancer (to account for evaporation) and then lift the screen to weigh the pan and drained liquid.
8. Repeat the last step at 10 and 15 minutes after mixing, and every 30 minutes thereafter until the weight of drained liquid remains constant.
9. Note changes in the diameter and height of the pile of water enhancer on the screen at each time interval.
10. If sufficient liquid can be collected in the pan, the surface tension of the drained liquid can be determined to assess its wetting ability.
11. Products may be placed in categories based on the rate that water drains from the pan and the wetting ability of the drained liquid.



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Consistency of Enhanced Water Mixtures



Summary: The consistency of a product may be evaluated by determining how well a prepared sample of known size and shape retains that size and shape when it is removed from a mold and becomes free standing.

This test will be performed in conjunction with the water retention test.

Test Method:

1. Prepare the mixed product using deionized water. Use the previously determined mix method for the specific product.
2. Measure and record the viscosity of the mixed product at 10 minutes and 60 minutes after mixing.
3. Prepare a disposable beaker or “Dixie” cup by punching several small holes in the bottom of the cup. (Adequate numbers and size will have to be determined.)
4. Measure the inside height and upper and lower diameter of the container.
5. Carefully fill the container to the top with the mixed product while blocking the hole with a finger.
6. Invert the container onto a furnace filter.
7. Unblock the holes in the container and carefully remove the cup.
8. After 15 seconds, measure and record the height and diameter of the mound of product.
9. Repeat the measurements after 10 and 15 minutes have elapsed.