

LOT ACCEPTANCE, QUALITY ASSURANCE, AND FIELD QUALITY CONTROL TESTING OF LONG-TERM RETARDANT

8415

(No. 1 October 2003)

As previously stated, CDF use of aerially-delivered fire retardant averages 4.9 million gallons per year. The average annual cost of retardant used by CDF is \$3.52 million. For both tactical effectiveness and cost effectiveness, the retardant must be properly formulated and prepared. In addition, the retardant must be delivered recognizing the performance characteristics of many different types of airtankers and tank and gating systems.

Retardants in use have been subjected to laboratory testing wherein the performance of properly mixed retardant is measured and evaluated. Retardant must also be tested in the field to assure that certain critical characteristics are being maintained.

Proper performance of fire retardants requires that the dry or liquid concentrate is mixed with water in the proper proportions and that the properties of the mixed solution remain within prescribed limits until used. To assure this condition, field personnel must have simple and reliable means of measuring the critical parameters.

LA/QA stands for Lot Acceptance and Quality Assurance. This program is CDF's means of spot-checking the various retardants used by different bases and assuring that a high standard of quality is maintained by the retardant manufacturing companies and the agency tanker bases. "[Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals](#)", (Publication Number NFES 1245, PMS 444-1) is adopted in reference as part of this handbook for use by those personnel whose duties encompass the measurement of critical retardant parameters. Thus, CDF personnel form a vital link in the long process that begins at the manufacturer's laboratory and ends on the fireline.

CDF's LA/QA RESPONSIBILITIES

8415.1

(No. 2 November 2004)

CDF Air Attack Base staff are responsible to inspect **and provide oversight to testing as described in Section 8415.3**. The CDF LA/QA program consists of all CDF air attack bases sending retardant samples to WFCS Missoula for analysis. (At this time WFCS does not conduct LA/QA tests on chemicals other than long-term retardants.) The retardant samples that must be submitted are:

- (1) **Base Opening Sample:** When each base opens in the spring or early summer and the retardant is thoroughly re-circulated, take a one quart sample from each tank for lot acceptance testing. Label this sample "base opening" or "overwinter", include the date the sample was taken and tank identification, and send to WFCS.

- (2) **Base Closing Sample:** Just before closing for the winter, recirculate the contents of each tank thoroughly, take a one quart sample, label it as the “base closing” sample, include the date the sample was taken and tank identification, and send to WFCS.
- (3) **Truckload Sample:** Every shipment of retardant that the base receives during the year must be sampled and tested at the base. Some bases will be asked to send a one-quart sample to WFCS from each truckload that is delivered to the base. These bases will change from year to year. Managers will be informed at the beginning of each season if they will be required to send in truckload samples. Include the shipper number and bag tag or batch number, the date delivered, and base information.
- (4) **Troubleshooting Samples:** Sometimes the retardant does not look or feel quite right, or it won't test out regardless of attempts at adjustment. Send these samples with a description of the problem to WFCS and we will attempt to resolve to problem. Frequently these have high viscosity and low salt content or the reverse. This rules out a simple mixing problem. We can go back to the supplier to examine the manufacturing process for other possible causes.
- (5) **A Retardant Use Report (RUR)** will be sent to each base at the beginning and near the end of each season by WFCS staff. Each base must complete one report and return it to WFCS at the end of each season. It is the responsibility of each base manager to complete and send in this report. This information is used to fill out the EPA Form R, which is a component of the Toxic Release Inventory, and is required from certain bases by the EPA. Return this form to WFCS as soon as possible after your season ends.

Questions regarding the LA/QA program should be directed to:

USDA Forest Service
Missoula Technology and Development Center
Wildland Fire Chemical Systems
Attn: LA/QA Coordinator
5785 Hwy 10 West
Missoula, MT 59808

**Note: If sending samples via Federal Express the phone number to use is
(406) 329-4859**

INSPECTION AND ACCEPTANCE OF MIXED RETARDANT (FULL-SERVICE BASES)

8415.2

(September 2003)

- A. CDF shall inspect the mixed product for compliance with the specifications for mixed product. Inspection will take place as shown in Section 8415.3 "Testing".
- B. The delivery destination of the mixed retardant is inside the aircraft being loaded. Acceptance of the mixed product takes place when the product has entered the aircraft.
- C. Acceptance tests will be conducted in accordance with the procedures and requirements established during the qualification test. The tests will generally be conducted prior to acceptance of the mixed retardant and will consist of simple measurements and requirements such as visual observations, salt content, and viscosity.

TESTING LONG-TERM RETARDANT

8415.3

(September 2003)

Testing shall be performed during mixing and pumping operations in accordance with "Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals", Publication Number NFES 1445. Field quality control testing shall be accomplished by the Contractor and monitored by the CDF Base Manager. Test results shall be recorded on forms provided by WFCS.

Quality Control Testing. Quality Control Testing is the testing done at the base to ensure that product going into the aircraft is of proper quality. All test results shall be recorded and maintained for future reference. Base Managers are responsible for oversight and ensuring that the following is accomplished:

- 1. The Contractor shall be required to test every aircraft load for salt content (refractometer reading).
- 2. The Contractor shall test for viscosity by taking samples every five (5) to ten (10) aircraft loads and analyzing samples at the end of each day if the product is a thickened product.
- 3. The Contractor shall re-circulate mixed and concentrated retardant as appropriate for the product.
- 4. The Contractor shall test mixed retardant in storage for compliance every 7 days.

(see next section)

(see HB Table of Contents)

(see Forms or Forms Samples)