



Lot Acceptance and Quality Assurance Program



The USDA Forest Service began developing a formal Lot Acceptance and Quality Assurance (LAQA) Program in 1983. The Fire Management Project (a part of the Intermountain Research Station) and the Fire Program at San Dimas Technology and Development Center (SDTDC) developed the program to monitor the routine testing of samples taken at participating retardant bases.

The Wildland Fire Chemical Systems Program (WFCS) at Missoula Technology and Development Center (MTDC) has been overseeing the receipt and testing of LAQA samples from the Forest Service and other federal and state retardant bases since 1995.

The LAQA program is the 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 retardant bases operated by federal agencies and their cooperators. There is a contractual requirement in the National Retardant Contract (bulk supply and full service) for **all** retardant bases (permanent and temporary/portable) to participate in the program and to submit samples of all retardant received as a part of the inspection process.

Agency personnel must be involved in the sampling and testing process even at a full service base.

Each base may send in any number of samples, depending on local fire activity, in a given season. There are several general categories of retardant samples.

Overwinter Sample – This is the first sample taken from each storage tank after **thorough** recirculation, at the beginning of the season. Every retardant base **must** send in one overwinter sample from each storage tank in use.

Truckload Samples – This is a sample of concentrate or mixed retardant from powder taken from **each** truckload of retardant that is delivered to the base. The number of truckload samples will vary from none if there is no fire activity in the area to many when there is high activity in the area serviced by a particular base.

End of Season Sample – This is the last sample taken from each storage tank after thorough recirculation, at the end of the season, just prior to closing the base for the season. Every retardant base **must** send in one end of season sample from each storage tank in use.

There is a fourth category of sample, taken on when need arises. A **troubleshooting sample** is a sample taken when base personnel have a problem with the retardant. Sometimes the retardant does not look or feel quite right, or it won't test correctly regardless of attempts at adjustment. Frequently these have a high viscosity and low salt content or the reverse situation. This rules out a simple mixing problem and the supplier is then contacted to examine the manufacturing process for problems. Fortunately there are few of these, but they are the real reason for maintaining the program.

Samples received at the lab are logged in and tested to determine basic quality control. Some of these tests are similar to those performed at the base, such as the refractometer reading for salt content, but other tests are not done in the field on a routine basis such as density and Brookfield viscosity. Reports are prepared and sent back to the retardant base. Our goal is to get the results back within 24 hours of receiving the samples.

LA/QA Program Overview

All test results are sent to the base manager, occasionally the mixmaster, the Fire Management Officer of the Forest or other unit that oversees the base, and the LAQA Program administrators.

All of the samples are retained for the current and one previous fire season. During that time samples may be subjected to additional tests to assure that stability and corrosion characteristics are acceptable. From time to time bases are requested to send a large quantity sample to facilitate this additional testing.

Because the LAQA Program is cooperative rather than adversarial in nature, when a problem is found with any of the samples, the base personnel are first contacted to verify that there is a problem and suggestions offered to remedy the problem. Where appropriate, the supplier is contacted and involved in correcting the problem.

Base Quality Control

In addition to the samples already described, each base must take and test sufficient samples at reasonable intervals to assure that equipment is calibrated and that the retardant produced is of proper quality. The basic tests are the same as those performed for the LAQA program but are done at the base by base personnel. Agency personnel need to be involved in the process although contractor's representatives may be designated to perform the tests routinely. These samples and tests are designed as base quality control, and include the following:

- ❑ Salt content (by refractometer) of each aircraft load
- ❑ Viscosity (by Marsh funnel or Brookfield viscometer) of every 5th to 10th load, to be analyzed by the end of the day
- ❑ Salt content and viscosity of mixed retardant in storage should be measured every seven days.

The results of all testing of base samples should be recorded and retained by the agency for internal use as they can be helpful in tracking the source of a problem should one occur. Do not send these samples or the test results to Wildland Fire Chemical Systems unless there is a problem that you would like help with.

If you have any questions or concerns, please let us know. We appreciate your input, questions, and concerns.

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