



## FIRE MANAGEMENT BOARD

FMB Memorandum 19-003

August 6, 2019

TO: Fire Management Board Members

FROM: Meagan Conry for Grant Beebe, Chair, FMB Executive Board

SUBJECT: FS-DOI On-Board Injection and Blending of Chemicals

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The US Department of Interior (DOI) Bureau of Land Management, DOI Bureau of Indian Affairs, and US Department of Agriculture Forest Service held a meeting in Missoula, MT to discuss water enhancer evaluation and on-board injection and blending of these chemicals. The objective of this meeting was to determine methods to evaluate on-board water enhancer injection systems in helicopters and SEATs.

At this time, the federal land management agencies are not prepared to approve the use of fire chemicals mixed with on-board fire chemical injection systems on federal lands or on federally-contracted aircraft. This position will be in effect for the remainder of the 2019 fire season at a minimum. The concerns regarding on-board injection systems include but are not limited to:

- Potential environmental contamination from the aircraft when dipping or scooping from waterways. Although water enhancers are generally less toxic than other fire chemicals, intentionally introducing them into waterways could be a violation of federal policy and laws.
- No quality control/quality assurance protocols exist to assure proper mix ratios and/or blending is attained on-board.
- On-Board Blending Systems: Testing performed by the Forest Service National Technology and Development Program (NTDP) in Missoula MT indicates that currently available on-board injection systems are not capable of achieving a consistent mix throughout the tank for certain products. In some cases there is insufficient shear to thoroughly blend products, resulting in a lower than expected viscosity and in some cases products were not uniformly mixed and were very difficult to remove from the tank and internal hardware.
- Standardized mixing is impractical due to sensitivity of water enhancers to water quality, temperature and shear. These variables make it difficult to calculate how much concentrate will be required to produce an acceptable product in an on-board mixing environment. Even within the specified Qualified Products List (QPL) mix ratios, a usable product may not be possible because the final mix is too thin or too thick to be useful, resulting in safety and effectiveness concerns.

The use of demand-mixed water enhancers mixed through a proportioner and loaded from ground-based equipment will be acceptable according to their qualified applications as specified on the Forest Service QPL (<https://www.fs.fed.us/rm/fire/wfcs/water-en.htm>).

**Attachments:** USFS Qualified Product List – Colored Water Enhancers for Wildland Fire Management July 2019

**Distribution:**

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