Biodegradability [1]

Biodegradability is a measure of the decomposition of organic matter, including foams and water enhancers, through the action of microorganisms. Products that are more biodegradable will more easily or quickly deteriorate into smaller segments which usually do not have the same characteristics. These smaller segments may, or may not, have less impact on the environment; although it is generally assumed that less complex products have less impact.

The grading scale for biodegradability used by the Forest Service has three levels:

- A concentrate which is ≥ 60 % biodegraded within 28 days is considered to be **readily biodegradable**.
- A concentrate which is not ≥ 60 % biodegraded within 28 days but which is ≥ 60 % biodegraded by 42 days is considered to be **biodegradable**.
- A concentrate which is not ≥ 60 % biodegraded by 42 days is considered to be **not biodegradable**.

The Forest Service has used two different test methods to determine biodegradability. These methods give similar results; however, one method used a more straightforward analysis. This in turn meant that it was the test of choice at more facilities and they ran more tests using this method. The Forest Service changed to this method as results are more consistent when the test is run frequently. The results are considered to be equivalent.

Foam concentrates must be readily biodegradable or biodegradable. Water enhancer concentrates must be tested and the results reported. Retardants are not tested for biodegradability as they are primarily composed of inorganic materials.

⏩ Product Performance Data on next page ⏩

1	Standard Test Procedure 1.4 gives instructions for the biodegradability test. STP-1.4 is available at http://www.fs.fed.us/rm/fire/wfcs/tests/stp01_4.htm

Biodegradability
Water Enhancer Concentrates

Product Name (As Evaluated)	Test Method [2]	Results [1]
Chemdal Aqua Shield 100	301D	Not Biodegradable
Barricade II	301B	Not Biodegradable
Thermo-Gel 200L	301B	Not Biodegradable
Thermo-Gel 500 P	301B	Not Biodegradable
Wildfire AFG Firewall II	301B	Not Biodegradable
BioCentral Blazetamer 380	301B	Not Biodegradable
GelTech FireIce	301B	Not Biodegradable
Phos-Chek Insul-8	301B	Not Biodegradable

Notes:

1	A concentrate which is ≥ 60 % biodegraded within 28 days is considered to be **readily biodegradable**. A concentrate which is not ≥ 60 % biodegraded within 28 days but which is ≥ 60 % biodegraded by 42 days is considered to be **biodegradable**. A concentrate which is not ≥ 60 % biodegraded by 42 days is considered to be **not biodegradable**.
2	OPPTS 835.3110(m) is equivalent to OECD 301B; OPPTS 835.3110(o) is equivalent to OECD 301D
3	Standard Test Procedure 1.4 gives instructions for the biodegradability test. STP-1.4 is available at http://www.fs.fed.us/rm/fire/wfcs/tests/stp01_4.htm