



## The Pattern Characteristics of Gum-Thickened Retardant versus Water as Drop Height Varies

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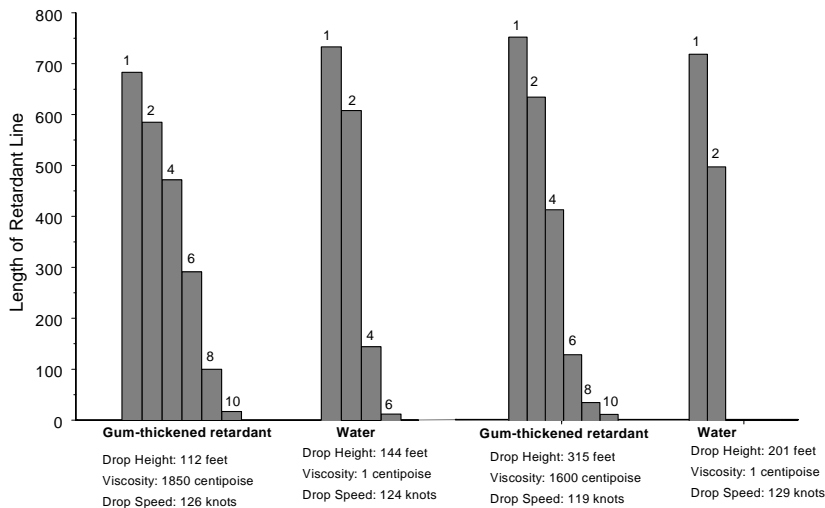
The Forest Service tests aerial delivery systems to evaluate drop characteristics and ground patterns of fire fighting chemicals. Data from early drop tests suggest an increase in the elasticity of fire retardant from adding a gum-thickener results in larger droplets within the retardant cloud.

Larger droplets

- have less exposed surface area relative to volume, and therefore less evaporation;
- are less impacted by wind, thermal drafts, and drop height.

The result is more retardant reaches the ground.

SP2H Dropping Approximately 2000 Gallons at Setting 6



The figure above shows the relationship between fire retardant, drop height, and length of line at different coverage levels. Two drops were made with gum-thickened retardant at heights of 112 and 315 feet, respectively. Also, two drops were made with water at heights of 144 and 201 feet. The numbers above the bars indicate the coverage level attained for a length of retardant line.

A 203-foot increase in drop height for gum-thickened retardant produced less of a change in line length at coverage levels 2 and 4 than a 57-foot increase for water. The difference between gum-thickened retardant dropped at 315 feet and water dropped at 144 feet is remarkable. Gum-thickened retardant maintains high coverage levels at greater heights when compared to water.