

# CAL FIRE WILDLAND FIRE RETARDANT FAQ



CALIFORNIA DEPARTMENT OF  
FORESTRY & FIRE PROTECTION

AVIATION  
PROGRAM



AIR  
OPERATIONS

## WHAT IS FIRE RETARDANT MADE OF?

Fire retardant is 88% water while the other 12% is ammonium phosphate, commonly found in fertilizers, which acts as the fire-retardant component. Other ingredients include gum thickeners to help the retardant stick to vegetation, flow conditioner to allow for easier transfer and mixing, and red coloring to help pilots see the fire retardant from the sky.

## HOW DOES WILDLAND FIRE RETARDANT WORK?

When retardant is applied to vegetation, it acts as a fuel break to help slow the fire. The solution coats the grass, brush, and trees and as the fire approaches, the phosphate salts react with the natural material present in the vegetation. This chemical reaction helps prevent combustion of the vegetation and woody materials, which normally provides fuel for the fire. The now coated vegetation decomposes under the increasing heat and gives off water vapor, leaving behind a non-flammable carbon coating.

## IS IT SAFE?

**People:** Fire retardant, when mixed with water, is not considered hazardous for potential respiratory side effects. Contact with the skin may cause irritation due to the ammonium. Immediate action

is not required, but soap and water should be used for removal and any contaminated clothing should be washed before reuse. If there are any additional concerns, contact a physician or a poison control center for advice.

**Animals:** There are no known adverse side effects to domestic or farm animals, which may eat small amounts of vegetation that has been covered in fire retardant. However, reactions may vary in animals. Should your pet eat significant amounts of fire retardant coated vegetation, consult a veterinarian.

Another way to help protect your animals is to fill in any puddles or water supplies that could be contaminated with fire retardant. Use sand or dirt. Ensure all other water sources are thoroughly cleaned out and refilled with fresh water.

Fish and other water creatures may be impacted by fire retardant, but that threat is low. Direct contact can be harmful which is why care is exercised to minimize any introduction to sources of water. Sadly, fish are quite sensitive and even small impacts can be harmful, such as increased temperatures due to the fire and runoff of burned vegetation and debris.

**Plants:** Fire retardant is similar to fertilizer. While not 100% biodegradable, it is able to provide plants nourishment due to the inorganic compounds used,

like fire retardant salts. Other ingredients like the gum thickener are biodegradable and will break down over time. Retardant not removed from vegetation may cause it to brown and wither. After rain, plants should return to normal and be enhanced due to the plant nutrients.

## WHAT ARE THE BEST WAYS TO REMOVE FIRE RETARDANT?

Fire retardant can dissolve in water and be removed quite easily prior to drying. If dried, the gum thickener additive can hold tightly to what it lands on and is harder to remove. The red coloring can also stain certain materials. After drying, scrubbing surfaces or power washing off structures and equipment may be required. A mild surfactant (soap or detergent) can help in the cleaning process. Use caution when cleaning due to the increase in slipperiness that fire retardant may cause.

