



Wildland Fire Chemical Products Effect on Structures



There are several potential effects of wildland fire chemical products on structures. The significance of the effect will depend to a large extent on whether the structure is modern or historical. Metallic items in the area will also be impacted.

- Long-term retardants contain fertilizer salts (ammonium phosphate or ammonium sulfate, not sodium chloride) that can leave a white residue when they dry. This is especially visible against a dark surface. These salts also attract water and can cause the wood that they are in contact with to swell and contract. This is not necessarily damaging to new structure and sound wood since there are fewer areas for the salts to lodge in; but it can be very damaging to old, fragile wood.
- The colorants used in the long-term retardants may impart a red or orange color to surfaces that it comes into contact with. These colors can be stubborn and difficult to remove especially from damaged or fragile surfaces.
- Foams are detergents and surfactants (wetting agents). On metallic surfaces they can hasten rusting by removing natural protective coatings. They will penetrate cellulosic (woody) materials more readily than plain water and can cause swelling and contracting to the extent that wood flakes from an item.
- Water enhancers have been more commonly used by the wildland fire agencies in the last few years, especially in California. They are good for structure protection from the fire but they can have some adverse effects also. To the extent that they soak into the wood, they are very damaging since by their function, they can absorb large amounts of water and then dry slowly.
- Water enhancers are very difficult to remove from wood surfaces. With new construction, if a power washer doesn't take all the gel off or takes siding with it, replacement of the exterior surface is fairly easy to accomplish. However, with an old or fragile surface, not only will it be more easily damaged but the damage can not be easily remedied.

While the use of any of these materials may be better than losing our heritage resources, these concerns should be considered when determining which methods to use to protect them from fire-related damage.

Old or fragile structures should be handled and cleaned gently to minimize additional damage. Scrubbing dampened surfaces with borax and stiff bristled brushes is less harmful to these structures and has been used successfully to remove red stains from retardant as well as the residues of water enhancers.

A "fire shelter" if available can be an effective protection for the more fragile structures; however, even here care must be used. Over use of staples and nails can cause damage to these building. If time allows, use stripping to attach the shelter material rather than attaching it directly to the structure. Use the chemicals to assist in making protection lines or as a starting point for back fires.

Using chemicals is also more feasible with modern structures due to the likely location of those structures.