



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.
- Several of the long-term retardants contain a corrosion inhibitor that can impart a blue or black color to surfaces that it comes into contact with. This is especially true of metallic surfaces such as old nails, wire fencing, or mining equipment.
- 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 better than plain water and again can cause swelling and contracting to the extent that wood flakes from an item.
- Few gels or elastomers are approved for use by the Forest Service but they are used anyway. 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.
- Gels and elastomers 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.

It might be better to use a "fire shelter" if available for the more fragile structures and use the chemicals to assist in making fire 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.