Fire Retardants and A-Class Foams

Use of retardant and A-Class foams during bushfire operations

The Department of Fire and Emergency Services (DFES) drop fire suppressant retardants from aircraft during bush firefighting operations to help slow the spread of fire. A-class foams can also be applied by firefighters in controlling and containing a fire and this helps to protect properties.

Things to remember

- Retardant is coloured so firefighters can easily see where it has landed. A-Class foam is not coloured
- If fire suppressants come into contact with skin, wash with a gentle soap ad fresh water
- If in eyes, rinse with fresh water for 15 minutes, then consult a doctor
- If swallowed, rinse your mouth out with fresh water, then consult a doctor
- When cleaning surfaces, wear safety glasses, disposable gloves and disposable face mask (such as a P2 mask), and wash hands regularly
- Fire suppressants will degrade with exposure to the sun

What are fire suppressants?

Fire suppressants are chemicals that slow the spread or intensity of a fire. They help firefighters on the ground and are sometimes also dropped from an aircraft.

Short-term fire suppressants are detergents mixed into foam, then applied using water.

Long-term fire suppressants such as fire retardant are chemicals that are mixed with water to form a slurry, which coats surfaces it is applied to (such as vegetation) and retards ignition or burning.

A-Class foam and retardant used in bushfire firefighting are different to B-Class foams used to fight flammable liquid fires. They do not contain PFAS (Per – and polyfluoroalkyl substances).

Civic and Administration Centre: 2 Southern Drive Busselton WA 6280
Locked Bag 1 Busselton WA 6280
T: (08) 9781 0444 E: city@busselton.wa.gov.au www.busselton.wa.gov.au

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Why do fire fighters use additives and not just water?

Water additives reduce fire intensity and spread more effectively than water alone, giving firefighters a greater chance of successfully protecting life and property. By using additives, firefighters can use available water more effectively and efficiently.

The use of retardants also allows firefighters to fight fires indirectly as they can create chemical firebreaks ahead of the threatening fire without having to clear or back-burn vegetation.

What are they made of?

Short-term fire suppressant foams are a combination of wetting agents and foaming chemicals, mixed with water. This allows the water to penetrate surfaces more easily.

Long-term suppressants are essentially fertilisers (ammonium and diammonium sulphate and ammonium polyphosphate), with thickeners (guar gum) and corrosion inhibitors (to protect aircraft). Sometimes a red coloured pigment, made from iron oxide, is added to show where retardant has been applied.

Due to interstate firefighting arrangements, brands and types of water additives may vary slightly.

What are the environmental effects?

Current evidence does not suggest any significant effects on birds or mammals. However, in Australia long-term fire retardants have been observed to cause effects on some species of native plants (leading to low level damage to new growth).

Water plants and animals are more sensitive to the effects of fire retardants. A-Class foams can be moderately toxic to aquatic life. For this reason, pilots try not to apply fire suppressant retardants within 10 metres of waterways, but these agents can drift.

What are the health effects?

Irritancy testing on animals shows these chemicals have little effect. The concentrated powder may cause minor respiratory irritation to workers who are handling it. This health effect does not occur once it is mixed into slurry. Workers require gloves, goggles and dust masks when handling the powder.

If you or your pets (and livestock) come into contact with a firefighting water additive, wash the skin with mild soap and cold water as soon as possible. Remove any contaminated clothing and, using disposable gloves, hand wash in cold water.

If you begin to feel unwell, contact the Poisons Information Centre on 13 11 26.

Tips on cleaning up fire retardant residue

If aerial fire suppressants or firefighting foam residue is present on the house and/or cars, use a mild detergent and brushes to scrub and dilute the dried residue and flush it from the surfaces. Rinse with clean water. Take care – it could be slippery. Gloves and non-slip shoes should be worn.

Where downpipes are connected to water tanks, these should be disconnected to stop further retardant being washed into tanks. Wash the roof down and let the first rain flush through before reattaching the roof runoff to the rainwater tank.

If the fire retardant does enter your water tank, do not drink it. High levels of retardant in water will make it smell terrible and taste salty. It will not be suitable as drinking water for humans or animals (pets or livestock). The water can still be used for irrigation and firefighting. The tank should be drained and thoroughly washed out, then rinsed with fresh water before refilling for use.

Further information

This is a guideline only. For more information, please contact the City's Environmental Health team on 9781 0444.

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