

## SIGMAtek Flame Suppressant

USE AS FLAME EXTINGUISHER OR RETARDANT WITH LASTING EFFECT

### SIGMAtek Flame Suppressant

SIGMAtek Flame Suppressant is water based flame-resistant treatment for materials such as wood, paper, and natural/synthetic materials. Product may be used as pre-treatment for future flame protections or as an extinguisher with residual effects. May also be used as a sub-layer in conjunction with other MFStek ultra-thin coatings. Product yield is dependent on the extinguishing/application process and the absorbency of the substrate. The longevity ranges from 1-10 years or longer if protected from the elements and abrasion. For example, a wood frame structure beneath paneling is protected from the elements and would have no abrasion. Protected surfaces will blacken and/or char but will not support combustion. The technology is designed to be a flame suppressor and inhibitor. Please consult with OENano Inc. to determine precise figures based on application and variant used.

#### Areas of Application:

**Flame retardant coating** for the protection of flammable materials. Includes, but not limited to, wood, shingles, cardboard, papers, grass, curtains, carpets, mattresses, textiles, paper, packaging, and many other flammable materials.

**Extinguishing Medium:** Firefighting qualities are similar to water. Protective coating is left behind that prevents flare ups while extinguishing.



#### NEW FIRE INHIBITING AGENT: A PROACTIVE APPROACH TO TRADITIONALLY REACTIVE SITUATIONS

1. Thin water-based intumescent technology: creates a layer between 100 nanometers and 100 microns thick. (considered a microscale coating)
2. Biodegradable, non-toxic, No Volatile Organic Compounds (VOC).
3. Contains fire proofing agent(s), gas forming agents and low temperature activator(s)
4. Environmentally friendly
5. Easy and safe to use (OH&S)
6. Swelling characteristics: Intumescent coatings expand up to 50 times their original thickness producing an expanding char that both reflects and absorbs heat
7. Easy and versatile application methods: Spraying, dipping and hand brushing
8. Proprietary surface modification blend
9. Transparent homogeneous finish coat: No orange-peel effect
10. Tunable coating thickness: based on the number of applications
11. This product is not a Dangerous Good and not controlled by WHMIS

**DETAILS:** The product contains known fire-inhibiting agents, which are in a low-viscosity, aqueous solution and contain, amongst other substances, a phosphate. The action of fire-inhibiting agents of this type is that of intumescences, meaning the effect is that of fire-repelling foam on the outbreak of fire. Phosphates are used for the purpose of supporting carbonization, but not as the primary means of fire prevention. Competitive products with phosphoric compounds with epoxy resin mixtures containing fire-inhibiting substances are subject to incessant criticism in that they do not provide sufficiently sustained protection against fire.

When SIGMAtek Flame Suppressant is used outdoors, the protective film could have a minimal amount washed off by rain or melted snow into the ground, or not at all, so that natural growth organisms are not affected. Thanks to the freedom from toxicity class, the soil ratio is neither changed nor interrupted. With the applied SIGMAtek Flame Suppressant solution no solvents are used, water is used as the carrier medium so the SIGMAtek Flame Suppressant can be used on all vegetation. The normal decaying effect is not thereby interrupted, nor the nutrition-related process disrupted. For example, leaves and grasses can be consumed by animals and insects and digested in the normal way. No side effects are known.

**EFFECT:**

For combating a fire, as an extinguishing liquid, SIGMAtek Flame Suppressant has outstanding characteristics. It has nearly the same viscosity as water allowing burning objects to be effectively wetted. In particular, the extinguishing liquid does not evaporate as fast as normal water at the high temperatures caused by the fire.

When the SIGMAtek Flame Suppressant extinguishing liquid is sprayed on an object, the object being extinguished is cooled down by the endothermic reaction, and extinguishing water does not evaporate as quickly as normal water does. The burning objects can therefore be wetted more effectively, making it easier to extinguish the fire and avoiding the high temperatures that normally occur on a fire. When catching fire, impregnated objects are immediately cooled, will therefore not burn, and cannot be ignited easily

SIGMAtek Flame Suppressant is hence, an excellent flame protective layer for outdoor buildings and structures. Thanks to the protective film of SIGMAtek Flame Suppressant, the fire-inhibiting effect remains active until removed by abrasion. When used in the outdoor natural environment, the coating remains until the normal growth of the coated areas requires a new treatment. Dead materials only have to be sprayed with a new protective coating every 3 to 5 years (depending on air humidity and rainfall). SIGMAtek Flame Suppressant can be used on the construction materials used for homes and building and the objects within, which are at risk of being destroyed by fire and can be treated directly e.g. wood, cardboard, papers, grass, curtains, carpets, mattresses, wigs, textiles, paper, packaging, burning oil etc.

**APPLICATION:**

SIGMAtek Flame Suppressant can be used as a fire extinguisher which needs no maintenance and is easy to apply.

SIGMAtek Flame Suppressant is available as a spraying agent in different container quantities.

SIGMAtek Flame Suppressant can be used for fire prevention on all flammable materials.

SIGMAtek Flame Suppressant can be delivered by any method that makes the surface wet. Surface must be completely wet for optimum application. Absorption rate and the way the product wets the surface is basically the same as water.

Aerially applied, SIGMAtek Flame Suppressant can reduce the spread and intensity of field and forest fires.

MFS Technologies Ltd. manufactures and globally distributes ready-to-use and concentrated nanotechnology surface coatings, nano-enhanced paint systems, manufacturing additives and custom formulations. Boasting a product breadth and depth of over one hundred and fifty variants, MFStek offers a wide range of nano-materials and environmentally responsible industrial chemicals, packaged and diluted for maximum sustainability and compatibility.