

NOVACOOOL UEF®

How does it work?

"Combustion of common class A and B materials can be described as a chaotic oxidation of numerous classes of organic compounds. The chemical yield of these reactions is equally chaotic and produces numerous classes of organic compounds in addition to CO₂, H₂O and CO. The common denominator of all combustion reactions is that the products yielded are at a much lower total Gibbs free energy state than the fuel reactants. In the process of achieving this lower energy state a great photon yield of radiant energy is delivered.

This photon yield is evidenced by the various colors and wavelengths present with flame emissions. These emissions, by striking the fuel load directly and by striking adjacent bodies that reradiate, are responsible for propagating the violent sets of reactions in combustions of organic materials. The Novacool products interfere with these reactions by providing a continuous stream of molecules that will absorb the high energy radiant emissions from the combustion process. Novacool products are of such structure that each will absorb a photon, elevate to an excited state, and revert to the ground state within a period of 10(-3) to 10(-6) seconds."

Simply Stated:

Novacool is a mixture of anionic, nonionic, and amphoteric surfactants that works in three ways to extinguish a fire. It reduces the surface tension of water to improve the penetrating ability of water; it vastly improves the heat transfer from the fuel into water; and it reduces fuel vapor pressure by emulsifying class B materials at the fuel surface.

Most fire suppressants extinguish a fire by coating it and robbing it of oxygen, which is less than optimal because this allows the fire to potentially re-ignite. Novacool is different; it works by combining with water and reducing water's surface tension, which allows the water to develop a high surface area relevant to the mass it's hitting. This high surface area to mass allows for a very rapid and efficient heat transfer from the object to the water. This transfer results in quick extinguishment and rapid cooling. Cooling helps to prevent fire re-ignition.

One gallon of Novacool UEF will treat 250 gallons of water to create an effective foam substance. It is more concentrated than other commonly used firefighting agents, so less is needed to contain and extinguish a fire. This also results in less water use. Novacool is released through a dispensing agent that automatically combines it with water at 0.1%-0.5%, so it is convenient to use.

What about Pollution, and the Environment?

Most currently-used fire suppressants (specifically AFFF's) contain fluorochemical surfactants, Perfluorooctyl sulfates (PFOS), and Perfluorooctylbetaines that can oxidize to Perfluorooctanoic acid (PFOA). PFOA and PFOS do not degrade, which often leads to contamination of groundwater supplies and failure of wastewater treatment systems. These fluorosurfactants are persistent in the environment, and testing has shown them to be bioaccumulative. The Environmental Protection Agency (EPA) has been investigating these aqueous, film-forming compounds because of their environmental buildup and damage to our valuable resources.

Novacool UEF does not contain PFOA or PFOS, NPEs, or glycol ethers. Novacool UEF was tested by CH2M Hill in Corvallis, Oregon for aquatic toxicity and biodegradability and was shown not to cause toxic buildup or pollute groundwater. Novacool UEF exceeds EPA guidelines and provides an environmentally responsible alternative to harsh extinguishers that pollute valuable resources in our environment.

Because Novacool UEF is powerful yet environment-friendly, it assists in water preservation and helps prevent water pollution. With Novacool, fewer chemicals are used and less water is used, which also results in less erosive runoff and less water damage to property. Makers of Novacool UEF want to assist firefighters in helping to protect water, land, and other precious resources while extinguishing fires quickly and effectively.

What Kinds of Benefits does Novacool UEF Provide?

Novacool UEF provides benefits for firefighters.

- Extinguishes A, B, D and K fires
- Effectively extinguishes 3D fires, decreasing unsafe firefighting conditions
- “Triple Action” formula cools, blankets, and emulsifies surfaces
- Creates a rapid cooling effect, decreasing unsafe firefighting conditions
- Works effectively when mixed with fresh, brackish, or sea water

Novacool UEF provides benefits for fire departments.

- Most cost effective fire suppressant on the market
- Low portioning rate of 0.4% with water
- No additional training necessary
- No additional equipment purchase necessary
- Non-corrosive: no adverse effects on tanks, pumps, valves, and portioning equipment
- UL Listed

Novacool UEF provides benefits for property owners.

- Quick extinguishing ability and strength of Novacool UEF minimizes water damage
- Coating and cooling effects minimize fire re-ignition
- Proportioning equipment minimizes fire department prep time.
- Quicker extinguishment equals less fire and smoke damage overall

Novacool UEF provides benefits for the environment.

- Non-toxic and biodegradable
- No EPA or DOT reportable ingredients; exceeds EPA guidelines
- Does not contain any nonylphenolethoxylates (NPE's) or glycol ethers
- Reduced runoff and water damage