FIRECARE

FIRE EXTINGUISHING

An application of water barrier compositions used for firefighting either on building surfaces, or in forests, shrubs, weeds, etc.

FIRE CARE

FIRE EXTINGUSHING

It includes treating Fire Care with water in a **proportion of 0.008 to 0.08 lb. / gal of water and at a temperature between 50 and 104 °** F to obtain the gelling capacity. Fire Care's main application is quickly and safelyextingush a fire. This invention is framed within the technical field of preparing potassium gels, especially applicable for extinguishing fires. Its function, the application of water barrier gel compositions for firefighting either on building surfaces, or in forests, shrubs, weeds, etc. These compositions comprise up to 99.9% of water retained inFire Care, overall presenting the appearance of a gelwith a higher or lower viscosity.

These gel barrier compositions are prepared by mixing the Fire Care with water in the desired proportions. Typically these proportions range from 95 to 99.9%byweight of water and 0.1 to 5%byweight of Fire Care, based on the weight of the product.

FireCare has extraordinary characteristics in terms of biodegradability, safety, high performanceatlowdoses and ease of transport, storage and handling. Fire Care used in the process is a derivative of polyacrylic acid with a potassium salt reagent aswell as a sodium stabilizer.

FIRE CARE
TECHNICAL SHEET

Appearance:	White powder
Size:	Microgranules
Moisture Content:	7% of its weight
Odor:	Not perceptible
PH:	7 –7.3(dissolved 1% in water)
Solubility:	Soluble inwater and organic solvents. Gradually increases in size depending on available water.
Degradation:	Diluted with water, it degrades through contact with UV light and breakdown of mineral salts.
Stability:	Stable, in the absence of humidity.
Absorption Capacity:	Around 850 units by weight, in distilled water according to manufacturer.
Specific Weight:	Approx. 4 lb./gal
Harmful effects:	None. Harmless to touch and ingestion.

FIRE CARE
APPLICATIONS

Fire Care as a starting product can achieve the formation of the gel in a time of 1 to 10 seconds, so it can be mixed continuously with water without the need for prior formation and storage in containers or tanks.

By applying the procedure for obtaining the gel with Fire Care, a heat source by combustion is quickly controlled. **In firefighting water hoses, the end nozzle is exchanged for a nozzle that performs the function of SELF-VENTING LANCE.** The suction-venturi effect caused by the pressure of the passage of water through the LANCE, favors the aspiration of Fire Care, flowing from a container and through a conduit until it meets the water flow forming the gels at a high consistency.

Fire Care, a water-product mixture in proportions that can be dosed from0.008 to 0.08 lb. / gal of water, is deposited on combustible materials, whether on fire or not, in such a way that they incorporate a large layer of water, thick, fireproof and viscous, which adheres to surfaces, preventing the spread of fire. **The gel provides a high humidity index, which prevents the rise in temperature, interrupting the combustion phase, greatly reducing the opportunity for reignition.** The substantial improvement introduced by the application of Fire Care is the speed and performance of the formation of the gel to fight fires from the direct attack with water projections, where the mixture is being formed at the same moment of use.

Using Fire Care in "direct attack" and mixing continuously at the water outlet, an immediate cooling and suffocating effect could be achieved, since the powder and water when combined transform into a viscous and sticky gel with a very high extinguishing capacity

> ***In the fight against fire it is especially important to remember:***
> ***1.- Only a small amount of powder is needed to obtain the mixture.***
> ***2.- In direct attack, hydration occurs instantly.***

The formulation of the mixture not only reduces the time in minutes, but it is achieved instantaneously while the dust-water is projected on the combustible material, allowing the formation of fire and fire barriers in moments. All this positively impacts the speed and efficiency in the extinction and control of fires.

FIRE CARE
APPLICATIONS

Its application in the aerial extinguishing of fires is based on the capacity of the Fire Care mixed with the collected water to increase the extinction by at least 60% as well as the increase in its permanenceresistance capacity of the humidity percentage by 80% - 90 % of the applied areas.

- ***Considerable retention in the advance of the fire.***
- ***Reduction of heat generated by combustion.***

For a certain type of fuel (shrubland) the decrease represents 35%.
For another type of fuel (timber forest) the decrease represents 40%.
For other types of fuels (holm oak and kermes oak) the decrease represents 45%.
(*) According to measurements in real time and after extinguished fire
(**) Working with dosages of 0.008 - 0.016 lbs./gal of water.

Said percentages can be increased proportionally to the amount of product applied, reaching percentages between 150-200% with a mixture of 8.8 lbs. per 264 gal of water, these mixtures should only be used for the realization of artificial firebreaks, being very careful when applying it on the terrain given the increase in the specific weight of the mixture, avoiding at all times its application on people, animals or things where this fall could cause accidents due to its weight.

FIRE CARE
APPLICATIONS

In the judgment of the pilots and in view of the results, as well as its easy handling and conservation, since it does not produce corrosion and is biodegradable and innocuous, it deserves the qualification of "The only current alternative ...". The environmental data were typical of the summer months in the Spanish Andalusian region.

Ambient temperature:	***89.6 F°***
Temperature of the water used:	***68 F°***

Mixing time for the loading of airplanes and tanker trucks: instantaneous when the product is added to the water stream.

Fire Care will be applied in the aircraft's water collection tanks as soon as it is filled, through the hatch for this purpose, while the more hydration is applied before it will be achieved. It should be applied in such a way that its emptying is carried out continuously until the bag is completely emptied, if its application were to be carried out abruptly and suddenly, the gelatinization would occur in the form of lumps and it would take more time to hydrate. In the case of helicopters, it must be applied from the apparatus through an application tube until it falls into the bag, as other retardants were applied until now, its application must be carried out with the same caution as in airplanes.

In land cisterns, the only precaution should be to check the nozzles and pumps and their ability to expel the water with the applied product. This mixture does not set times, so it can be done at any time as long as it is left a period of 10 to 30 minutes before its application.

Hydration occurs by electrical ion exchange so the application of salt water mixtures will decrease the performance of Fire Care.

FIRE CARE
CHARACTERISTICS

Fire Resistant.

Once hydrated, FireCare can resist direct fire froma torchfor tens of minutes, all of this is due to the fact that the water collected inside has a much higher surface tension than water alone, allowing it to flow out of the composition in a gradual way preventing immediate extreme evaporation butmaintaining the humidity index to extinguish the fire. **Its initial strengthexceeds 482 F° to over 752 F° depending on thehydrationlevel of Fire Care.** The residual in value of the mixture is1 per thousand, a totally insignificant value.

Safe & Biodegradable.

Our product **has a high biodegradable capacity in a period between 14 to 180 days depending on its degrading agent and concentration of the mixture** (UVA solar rays), contributing to the earth the excess potassium ions, a very beneficial product for the entire population. In the vegetation world, with respect to the sodium stabilizer, it is transformed into carbon dioxide in the fire, and its biodegradation outside the fire is irrelevant because less than 0.01% is formed inside the compound.

Regarding animal life, it is totally innocuous, the product does not have any compound considered harmful by any established standard.

Informative Technical Sheet available.

Risk classification

It is not a dangerous substance or mixture according to Regulation (EC) N ° 1272/2008 and SRT Resolution N ° 801/2015.


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