

## **QUESTIONS ABOUT THERMO-GEL®**

**Q:** What is Thermo-Gel®?

**A:** Thermo-Gel® is a gel concentrate, that when added to water, transforms water into a fire preventing and heat absorbing gel. This gel adheres to any kind of surface, even to vertical window panes and forms a protective layer of gel that cools and protects objects from heating, charring and flame impingement. This gel can also be used for bringing fires under control more quickly. Water and timesavings of up to 50% are possible.

### **Questions related to Structure/Home Protection**

**Q:** What can be protected with Thermo-Gel®?

**A:** Thermo-Gel® will protect any surface, such as shrubs, trees, windows, siding, cars, fuel tanks, rail cars, utility poles, etc.

**Q:** Does Thermo-Gel® cause damage to my house?

**A:** Thermo-Gel® is an environmentally compatible, non aggressive gel, consisting of 98% water, a small portion of surfactants and the gelating agent, which is a super absorbent polymer, similar to those used in baby diapers. Thermo-Gel® is not aggressive to paint, wood, glass, stone or concrete. Due to high water content, direct exposure to electricity should be avoided in order to reduce the risk of short circuits.

**Q:** How much do I need for my house?

**A:** 1 gallon of Thermo-Gel®, per 50 gallons of water (2% dilution), will cover 1,000 square feet.

**Q:** How long does the protection last?

**A:** When applied at the proper amount, Thermo-Gel® will protect a structure for several hours. The cooling effect is provided by the evaporation of water from the gel. As long as there is still a gel layer on the object, it will remain protected. Strong winds and very high temperatures will decrease the protection time.

**Q:** At which temperature does Thermo-Gel® start to burn?

**A:** The gel consists of 98% water. Just like water, the gel never starts to burn. Only after all of the water has been evaporated the residuals can begin to be burnt. However, as they make up for less than 2%, there is barely enough energy set free in this unlikely case. The polymer decomposes mainly into carbon dioxide, nitrogen oxide and water. No toxic components like cyanides or hydrogen chloride have been found.

**Q:** How else can I use Thermo-Gel®?

**A:** Thermo-Gel® is very effective in creating a home defense barrier around a structure so it can be used to create a fire free zone around a house.

## **Questions related to Forest Fire Fighting**

**Q:** How do I create a fire lane/firebreak with Thermo-Gel®?

**A:** Spray the gel on the vegetation. Make sure that the foliage, grass, branches; combustibles on the ground are well covered.

**Q:** How much do I need to create a fire lane?

**A:** One 5 gallon container of Thermo-Gel® at 2% dilution, will cover a surface of approximately 5,000 square feet. At 1% dilution, the same amount will cover 10,000 square feet.

## **Questions related to Fire Fighting**

**Q:** Can Thermo-Gel® be used to extinguish fires?

**A:** Thermo-Gel® is very effective in fighting Class A fires. It can knock down fires in minimum time with a minimum amount of water needed. It also minimizes the risk of rekindling, even when very critical combustibles are burning.

**Q:** Can Thermo-Gel® be used to extinguish liquid combustibles like petroleum or diesel?

**A:** No, Thermo-Gel® is a Class A fire additive. It works perfectly on solids, but Class B pool fires cannot be fought with Thermo-Gel®. It is possible, however, to protect mineral oil tanks and similar items from fire by applying a gel coating on the surface and prevent ignition extremely effectively.

**Q:** Is it easy to cleanup?

**A:** Yes, Thermo-Gel® can be washed off with a strong stream of water pressure. In case of stubborn residues or large amounts of gel, treatment with regular household salt will help.

## **Questions related to Application and Equipment**

**Q:** How is Thermo-Gel® applied and where do I get the equipment?

**A:** It can be applied with a nozzle end eductor as provided by Thermo Technologies, L.L.C. For more information please call (701) 258-8208.

**Q:** Can I dilute Thermo-Gel® inside the container with water?

**A:** No, this is not possible. It must be strictly taken care that no water gets into the container reservoir, as Thermo-Gel® will immediately form gel inside the container, and may block the system.

## **Questions related to Application and Equipment (Cont.)**

**Q:** Can Thermo-Gel<sup>®</sup> be added to a secondary foam tank on fire engines?

**A:** Yes, it must be clean and free of water. Care must be taken that also the plumbing and the metering device are water free before it is injected.

**Q:** Can Thermo-Gel<sup>®</sup> be mixed with fire fighting foams?

**A:** Thermo-Gel<sup>®</sup> cannot be mixed with Class A foam concentrates due to the high water content of the foam concentrate. This would lead to uncontrolled gelation in the reservoir before the product can be used.

**Q:** Can the product be used with very hard water?

**A:** Yes, but the proportions may have to be increased due to the loss of effectiveness with very hard water.

**Q:** Does it require any special handling?

**A:** Thermo-Gel<sup>®</sup> is very slippery when applied, please use caution.

**Q:** How far can I project the gel? Does it behave similar to foam?

**A:** When the same nozzle pressure is applied, the projection distance is at least equal to water. Foam cannot be projected as far as Thermo-Gel<sup>®</sup> and Thermo-Gel<sup>®</sup> lasts much longer.

## **Questions related to Storage**

**Q:** How long can I store Thermo-Gel<sup>®</sup>?

**A:** 3 years from the date of purchase, after that the product has expired.

**Q:** Can I store Thermo-Gel<sup>®</sup> in any container?

**A:** Some metals can be affected, high-grade steel and aluminum work just fine. Plastic materials should be plasticizer free (no Styrofoam), HD-PE and polyester resins are fine. We recommend storing product in its original container.

**Q:** Are there any specific requirements for storage?

**A:** Thermo-Gel<sup>®</sup> should be stored above freezing and below 104 degrees Fahrenheit. It should preferably be stored in a place without direct UV exposure. Containers must always be tightly closed.

**Q:** What is the shelf life of a 1% solution?

**A:** Tests with fire extinguishers show at least a 2-year shelf life. UV exposure shortens shelf life.

## **Questions related to the Environment**

**Q:** What happens to a plant that is protected by Thermo-Gel<sup>®</sup>?

**A:** We have not observed any long-term damage to plants in recent years. The gel at the foliage can cause spots on the leaves due to the tendency of the gel to absorb moisture. At a very heavy coverage over some days and under drought conditions, this depending on the type of plant, can cause a drying effect on the leaves. Some plant species may lose their leaves. However, this effect is only temporary and very soon these plants develop new leaves again.

**Q:** What happens when the gel will get in the soil?

**A:** The gel will only enter the top layer of the soil. There is no possibility for leaching.

**Q:** Will Thermo-Gel<sup>®</sup> persist in the environment?

**A:** Thermo-Gel<sup>®</sup> is a water/oil emulsion containing a polymer. The main constitution of the oil phase is a fatty acid ester of biological origin. The oil phase is readily biodegradable, while the remaining polymer is expected to biodegrade with time. This is reflected in biodegrading studies that were carried out with similar polymers. Recent studies demonstrated that polymers of this kind are biodegraded by white rot fungus in soil. The process is at a low but constant rate. The polymers are solubilized, incorporated into the fungus mycelia and mineralized. The constituents of the polymer will enter into the natural carbon and nitrogen cycle. No toxic metabolites have been identified.

**Q:** What are the effects of Thermo-Gel<sup>®</sup> until it is biodegraded?

**A:** The polymer in Thermo-Gel<sup>®</sup> which provides the gelation effect and which shows the slowest biodegrading among the components of Thermo-Gel<sup>®</sup>, is very similar to other products which are used for soil enhancement or erosion control. These products improve and help to recover soil by balancing the moisture content or preventing erosion after catastrophes like flooding, severe drought or fires. They are intentionally brought into the environment and are harmless. There is no proof that the polymers in Thermo-Gel<sup>®</sup> are effective in this way, too, yet negative effects of the polymers are obviously not expected.

**Product is covered by U.S. patent numbers 5,989,446 & 6,245,252. Other patents pending.**

**THERMO TECHNOLOGIES, LLC.**  
400 East Broadway Suite 50 • Bismarck ND 58501  
Phone: (701) 258-8208 • Toll Free (800) 538-8122  
Fax: (701) 258-7259 • [www.thermo-gel.com](http://www.thermo-gel.com)