



# Fire Fighting and Fire Protection with Superabsorbent Gel Technology



Home owners are continually moving into rural settings





Homeowner fights an uphill battle attempting to provide exposure protection

What is Thermo-Gel® 200L?



is a

fire extinguishing additive for Class A fires

which converts

*water* into a *gel*





1/5/05

**Fire Chemicals**  
**For use by USDA Forest Service**  
(Qualified or Approved and commercially available)

Chemical	Mix Ratio	Qualified/Approved Applications <sup>1</sup>					Ground Engine
		Fixed-Wing Airtanker	Fixed-Wing Water Scooper	SEATS	Fixed-Tank Helicopter	Helicopter Bucket	
FIRE SUPPRESSANT WATER ENHANCERS (Approved under Administrative Work Plan – qualification of these product types will be covered by Forest Service Specification 5100-306a as soon as it is implemented). Please review the Notes for Selection and Use ( <a href="http://www.fs.fed.us/rm/fire/retardants/current/gen/documents/waterenh.htm">www.fs.fed.us/rm/fire/retardants/current/gen/documents/waterenh.htm</a> )							
Phos-Chek AquaGel-K <sup>2</sup>	0.4-1.2%					*	*
Thermo-Gel 200L <sup>3</sup>	2%					*	*
Flame Guard Gel	0.6 lb/gal						*
Wildfire AFG Firewall <sup>4</sup>	3.0%						*

<sup>1</sup> \* Fully Qualified      \* Administrative Approval

<sup>2</sup> This product was evaluated and approved under the name Chemikal Aqua Shield.

<sup>3</sup> This product was evaluated and approved under the name Stockhausen Cinder FP-47.

<sup>4</sup> This product was evaluated and approved under the name NoChar B112.

# Composition

The Thermo-Gel® 200L concentrate consists of:

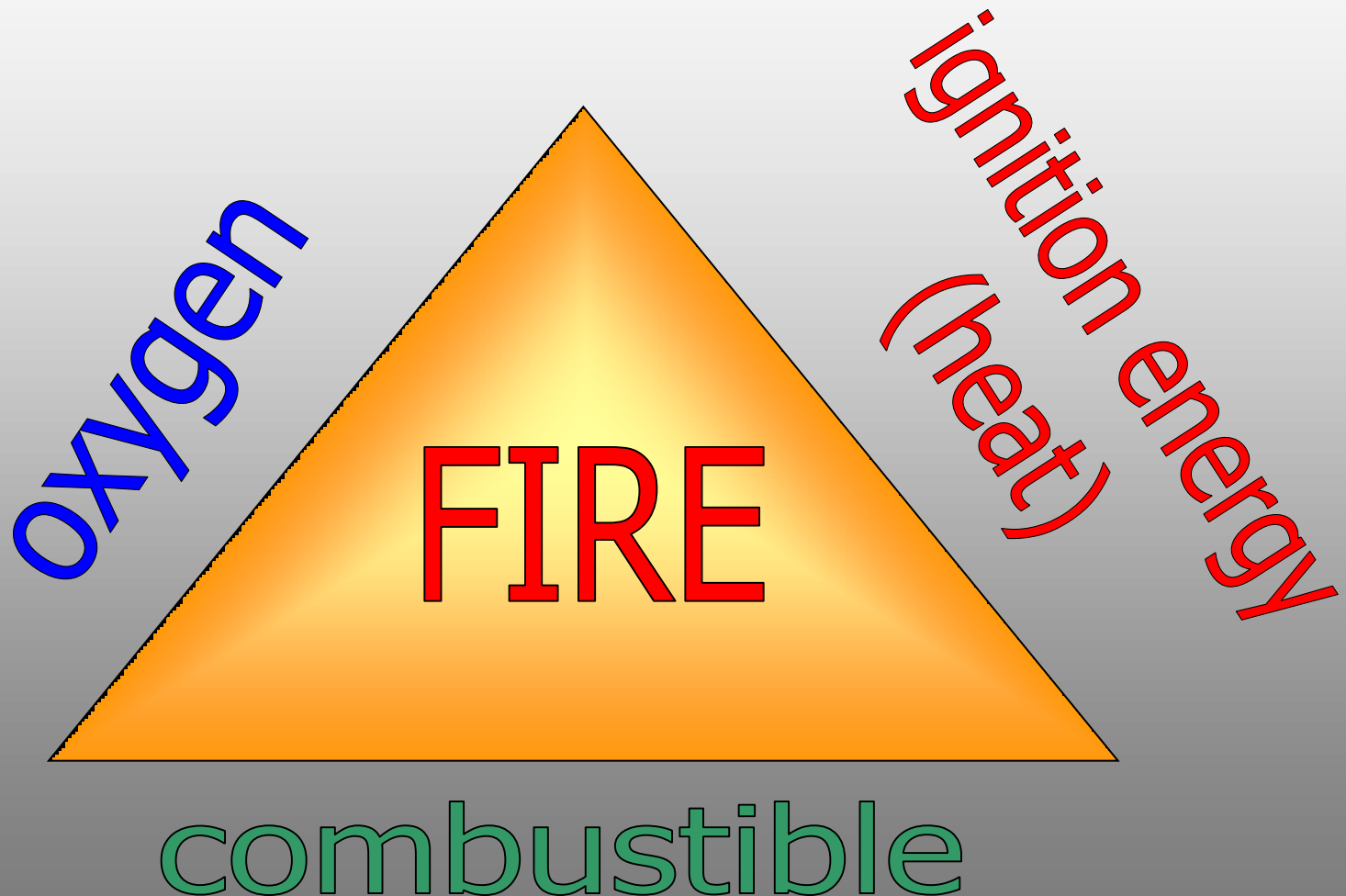
28	%	polymer
43	%	water
23	%	mineral oil
6	%	surfactants

Thus, 100 lbs **Gel** (at 1.5 % Thermo-Gel® 200L) contain:

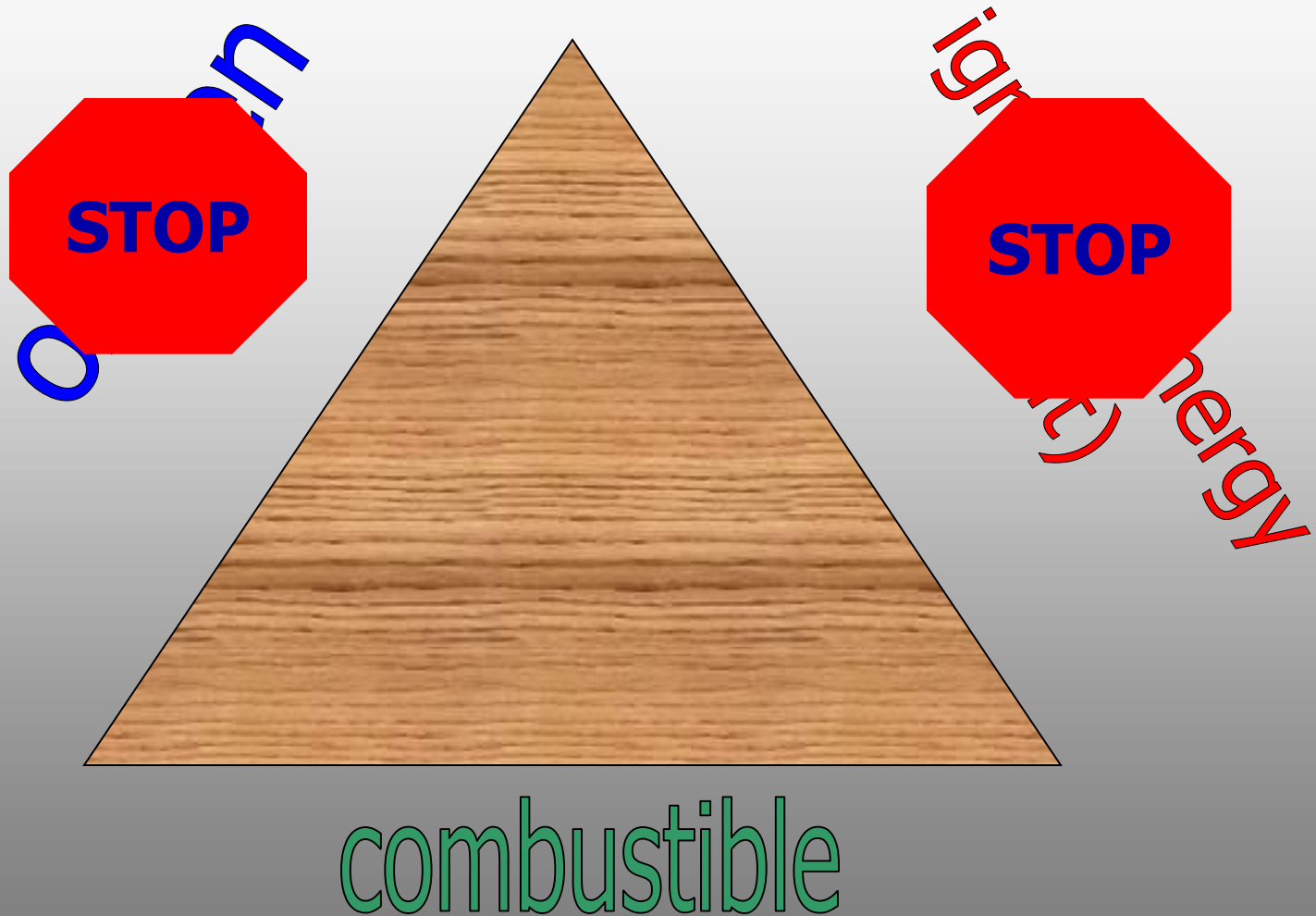
0.42	lbs	polymer
0.34	lbs	mineral oil
0.09	lbs	surfactants
<b>99.15</b>	<b>lbs</b>	<b>water</b>



# Three pre-requisites of fire

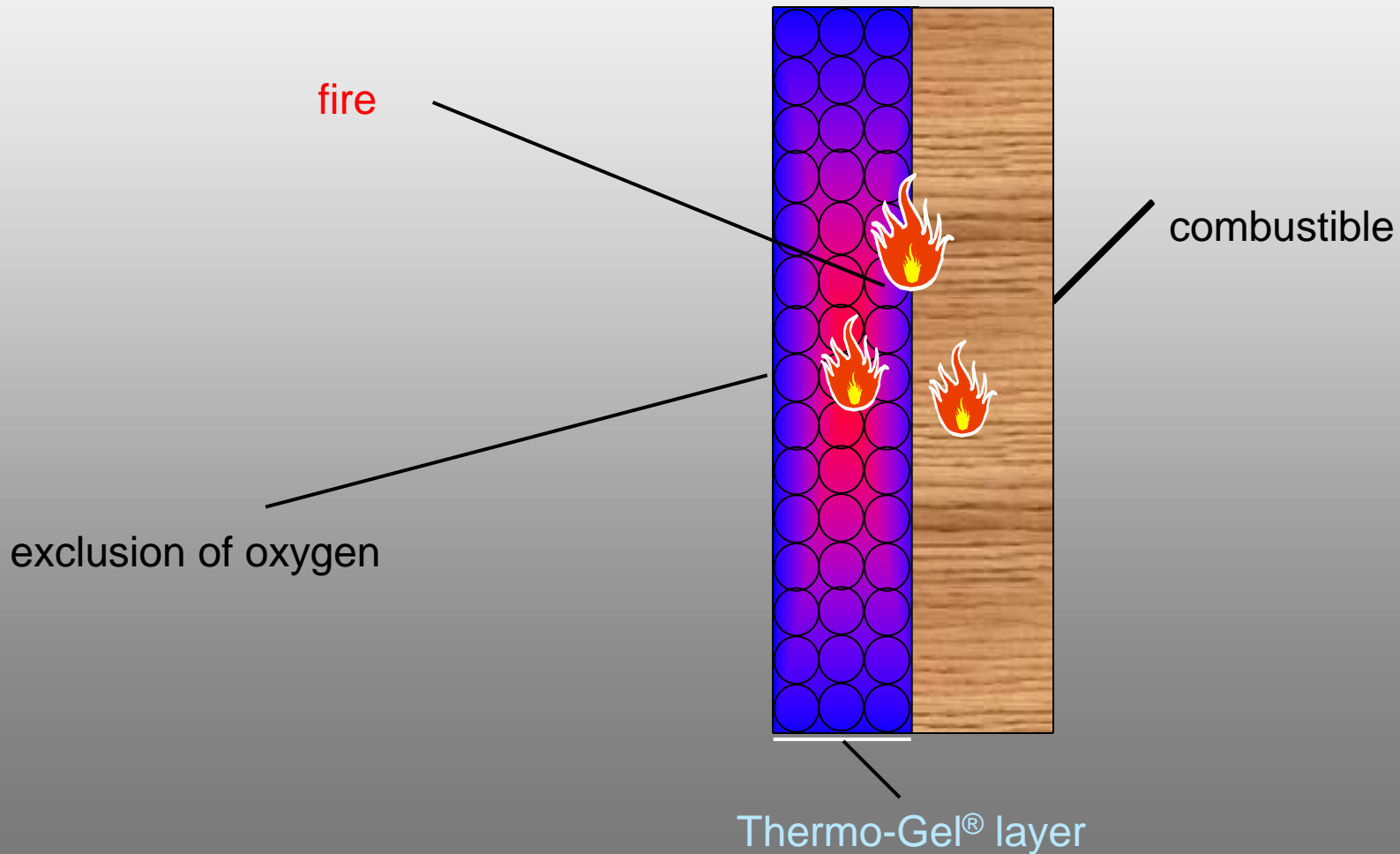


# The role of *Therma-Gel*® 200L

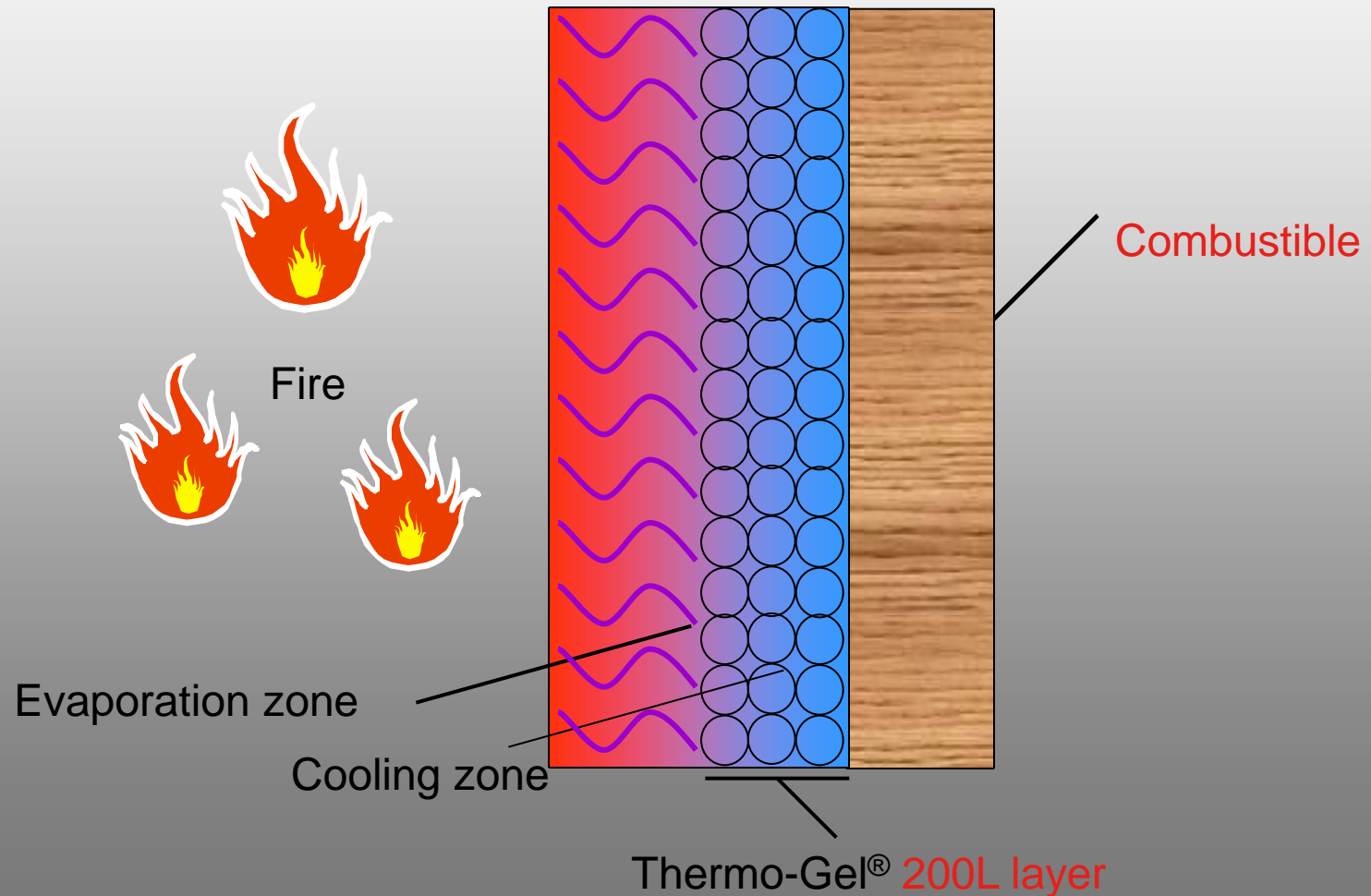




# Cooling + Suffocation with *Therma-Gel®* 200L



# Cooling / Protection





Clings to overhanging surfaces





Adheres to glass and metal surfaces



Covers flammable roof surfaces



# Structure protection with *Thermo-Gel*® 200L

A comparative trial of  
Thermo-Gel® 200L vs. Class A Foam



Application of Thermo-Gel® 200L



# Structure protection with *Therma-Gel*® 200L (Test)





Protection with  
Class A foam at 1%



Protection with  
*Therma-Gel*® 200L  
at 2 %

Fire taking impact on structure

(Fuel 2.5 gal Chevron Training Fuel III, time on fire 10 min.)

	Side A (Foam)	Side B (Thermax-Gel® 2006)	
<b>After 2 min</b>	Shows signs of pre-heating	Full protection	
<b>Within 3 min</b>	Eaves ignite and begin burning	Full protection	
<b>4 min</b>	Glass window pane cracks	Window pane stayed intact over duration of test	
<b>3 to 7 min</b>	Water needs to be applied repeatedly to prevent house from burning too rapidly	No action needed No signs of charring	
<b>After 10 min</b>	Fire inside the wall	No hot spots No signs of impingement	
<b>End of test</b>	Structure lost	Structure saved and fully intact	

# Fire Trial at DMT

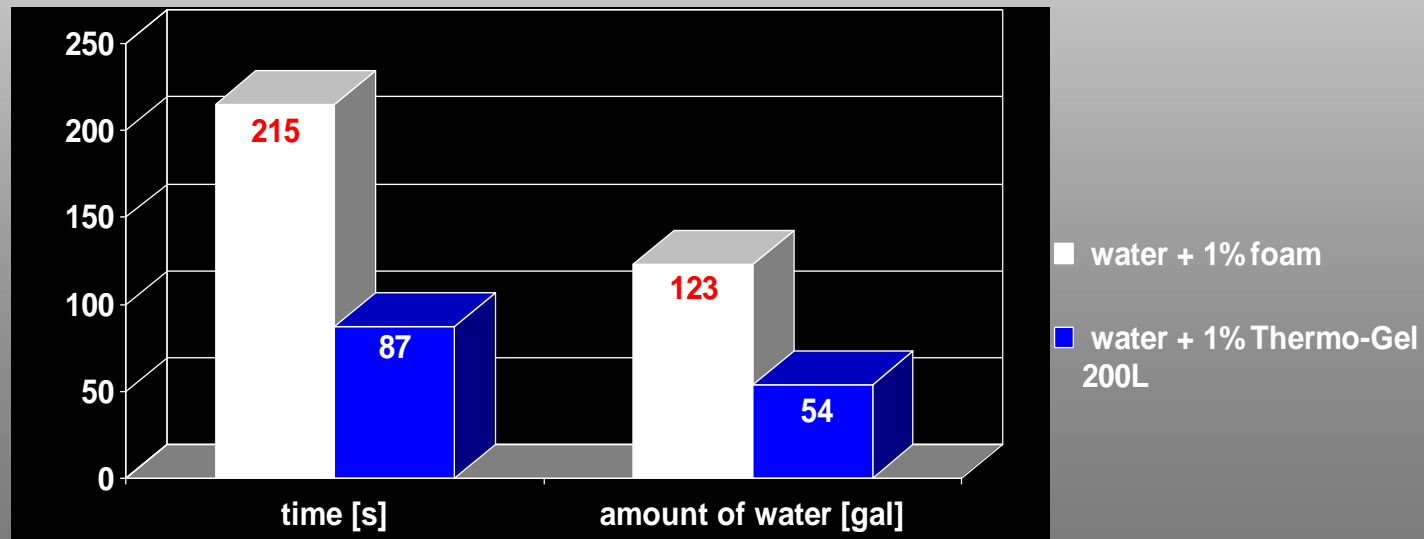
**Test material:** 660 lbs (300 kg) car  
tires

**Burning time:** 8 minutes

**Extinguishing additives:**

Foam as wetting agent: 1.0 %

Thermo-Gel® 200L: 1.0 %





Cleans up with water



# Therma-Gel<sup>®</sup> Clean-Up



# A p p l i c a t i o n s



Forest fire

**Creation of fire breaks without removal of vegetation**



Tire fire

**Most effective prevention of rekindling**

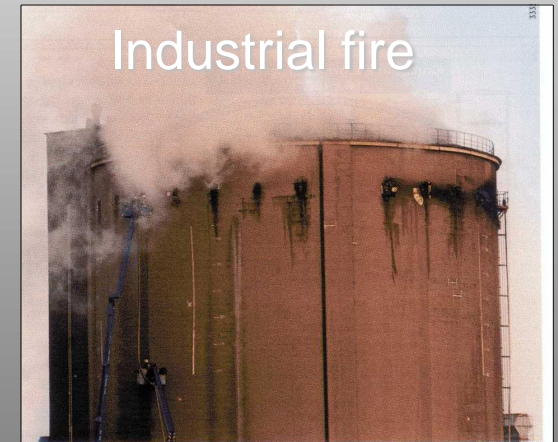


Object protection



Structure protection

**Two gallons of Thermo-Gel® 200L can save a home**



Industrial fire

**35,000,000 lbs sugar beets in silo extinguished with Thermo-Gel® 200L**

# Fire Suppression

- Gel adheres to the burning material
- Increases the water's effectiveness
- Reduces extinguishment time
- Cools the material
- Excludes oxygen
- Suffocates the fire
- Prevents rekindle



# Industrial Fires



- Grain Silos
- Sawdust Bins or Piles
- Log Landings
- Warehouse
- Container Storage
- Palletized Products



# Structure Fires



# Wildland Fires





# Tire Fires



# Prescribed Burning



# Protection

- Clings to glass, metal, siding, vegetation
- Provides thermal barrier
- Prevents radiant heat ignition
- Blocks direct flame impingement
- Easily removed when threat passes



# Structures and Vehicles



# Fuel and Propane Tanks



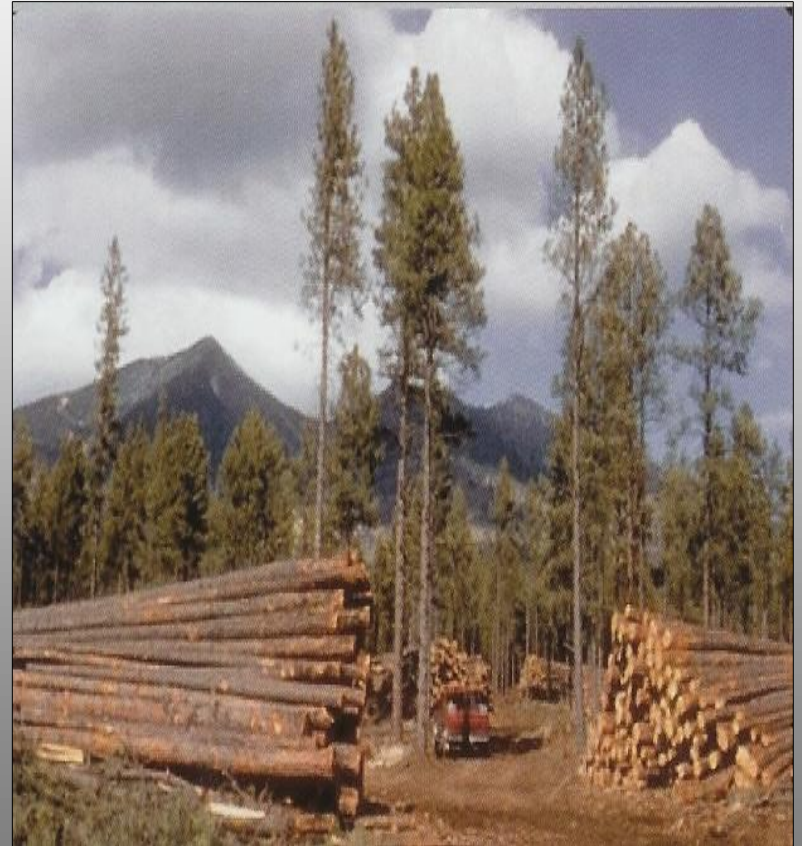


# Exposures

Vegetation



Log Deck





# Application Systems

## 1-Gallon Garden Hose Eductor Nozzle



## 5-Gallon Fire Hose Eductor Nozzle





# 5-Gallon



# 1-Gallon



# Advisements - Thermo-Gel®

- **Non-Aggressive: Thermo-Gel® can be applied to**
  - Paint
  - Wood
  - Glass
  - Stone
  - Stucco
  - Concrete
  - Rubber
  - Vegetation
- **Environmentally Safe and Bio-degradable**
  - Breaks down by ultra-violet sunlight
  - Can be washed off with water and into drainage systems
  - Thermo-Gel® is Non-Toxic

# Homeowner Information

## ➤ Clean-up – After threat passes

- Rinse surfaces thoroughly with water from top down
- Windows can be cleaned with window cleaner
- It is Not necessary to rinse from vegetation
- Thoroughly rinse gel from sidewalks, driveways or walkways – gel is very slippery
- Milky-white color is normal and will NOT harm the environment

## ➤ SAFETY

- Thermo-Gel® is slippery and extreme caution must be taken while walking, standing, or working in treated areas. Wear non-slip footwear while applying or rinsing gel from surfaces. Never attempt to climb or stand on a treated roof. Falls and serious injury can result.



# *Thermo-Gel*®

**The Solution for Fire Professionals.**

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[www.thermo-gel.com](http://www.thermo-gel.com)

24 hour Emergency/EERA/BPA  
866-255-8137

U.S. Patents 5,989,446; 6,245,252 Addl Patents Pending

**U.S. Forest Service Approved!**  
**Meets NFPA 1150 Standard!**