



Performance, Environmental & Economic Advantages

Why Choose Eco-Gel™?

Abstract:

Eco-Gel™ shortens knock down times in comparison to existing foams and water additives; lower overall water usage, less expensive clean-up, and competitive prices make it both the least expensive and most effective product to use.

Perhaps more important is that Eco-Gel™ is the only 100% bio-based fire suppression gel available in the market; it is devoid of the toxicity of most of the competition. Independent academic testing shows Eco-Gel™ to be less toxic to both plant and animal species than competing products.

Eco-Gel™ works with commonly used fire fighting equipment, unlike competitive gels. Also, unlike many of the competitive gels and foams, water quality is not an issue. It is a true drop-in solution for fire operations.

A practical benefit is that Eco-Gel™ clings to and coats vertical and horizontal surfaces, acting as a retardant and avoiding the re-ignition or spread of fires. This is valuable in ensuring that firefighters extinguish flames upon entering a burning compartment, providing a safe exit without fire spreading and blocking their safe egress route.

This retardant characteristic is important for the protection of assets from wildland fires and halting the expansion of such fires. Fires will not start or propagate once land, vegetation, and structures are coated. Once the threat has subsided, the gel coating is easily rinsed away with water.

The combination of performance, enhanced economics, environmental advantages, equipment flexibility, and inherent retardant characteristics, positions Eco-Gel™ as the product of choice under ever-tightening environmental regulations.



Our Response To Health Risk Litigation

100% Bio-Based Product



Market Status:

Most foams and gels contain surfactants or other chemicals that, while effective at fire suppression in varying degrees, are known or suspected of being environmentally toxic. These products pose health risks to fire personnel using them, plants and animals, and those living near areas where the product is used. There is increasing litigation over the effect of past uses, and regulators are looking to ensure future products are non-toxic. The market's response has been to lower the usage of chemicals and to conceal the remaining usage by hiding behind loose disclosure requirements with regard to product composition.

FireRein has achieved the development of a non-toxic, environmentally benign fire suppression product that performs as well as existing chemically derived products. The path to success was accomplished without using synthetic chemicals: the product is 100% bio-based as indicated by the product's UL Validated and USDA certifications.

Firefighter Decontamination





Providing Prevention, Protection & Effective Suppression

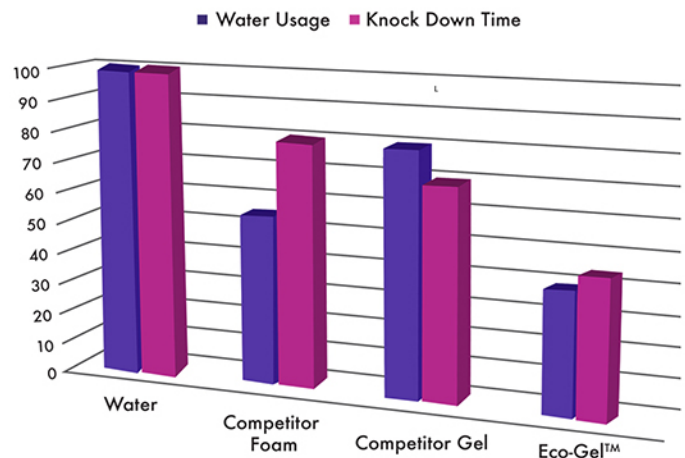
Years of Formulation

Solution:

Years of formulation development have resulted in a proprietary process that blends a number of food grade starches and gums to produce the Eco-Gel™ concentrate. This product is diluted to 1%-6% with water to form a hydrogel, efficiently protecting surfaces to prevent fires and suppress existing Class A (paper, wood, plastics) and Class B (gasoline, diesel, kerosene) fires.

Fire Suppression:

Independent testing to NFPA efficacy standards definitively proves that Eco-Gel™ suppresses fires faster than competitor products.





Evaluating The Environmental Risks With Impact Studies

Independent Research



Environmental Impact:

Independent research has determined that Eco-Gel™, at dilutions used for fire suppression, poses little to no toxicological risk to plants and animals, specifically those species commonly used in environmental science to evaluate chemicals for their ecological impact.

Table 1: Constituents in Eco-Gel™ and competing brands

Formulation	Known Constituents
Eco-Gel™	Polysaccharides, triglyceride
F500®	Nitrotrisethanol aliphatic soap; Alkyl ether amine reaction with aliphatic acids Linear aliphatic alcohols
FireAde®	2-methyl-2, 4-pentenediol; Sodium octyl sulfate; Diethylene glycol monobutyl ether; Proprietary foamer blend; Sodium decyl sulfate
Fire-Brake®	Diethylene glycol monobutyl ether; ethanol
Novacool®	Unknown constituents
ThermoGel®	Sodium polyacrylate based polymer; Petroleum hydrocarbon

Table 2: Aquatic Hazard Assessment with Daphnia magna

*entries in red fail standard guidelines for environmental impact

Fire Suppression Gel	Acute LC50 (%)	Farm pool (15 cm)	Farm ditch (30 cm)	Farm pond-Europe (100 cm)	Farm pond-N. America (200 cm)
Eco-Gel™	0.59	0.17	0.09	0.03	0.01
Competitor A	0.097	1.24*	0.62	0.19	0.09
Competitor B	0.0034	5.89*	2.94*	0.88	0.44
Competitor C	0.00172	4.65*	2.33*	0.70	0.35
Competitor D	0.00159	25.16*	12.58*	3.77*	1.89*
Competitor E	0.000063	952.38*	476.19*	142.86*	71.43*

Conclusion:

Based on both performance and environmental impact criteria, FireRein Eco-Gel™ is a superior product to existing foams and gels on the market. These performance and environmental benefits apply to both urban and wildland fire suppression.

The above Eco-Gel™ advantages are further enhanced by faster knock down times, lower water usage, easier cleanup, compatibility with existing fire equipment, and inherent retardant characteristics.

Eco-Gel™ is a preferable suppression solution, cultivated for firefighting applications across the industry.

For More Information:

For more information on our Canadian-based Eco-Gel™ line of products, please see our informative web link www.firerein.com or call our toll free line and we will be happy to assist you. 1-844-416-0977