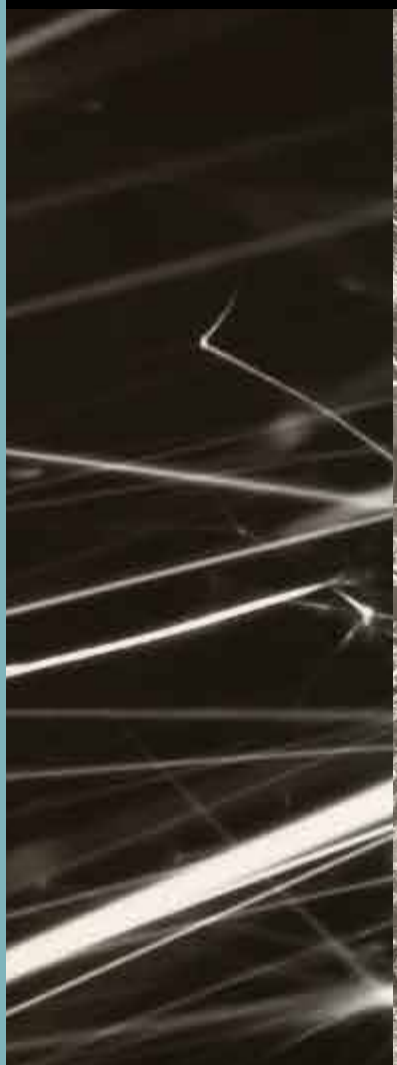
NFPA 18A SEC 7.7

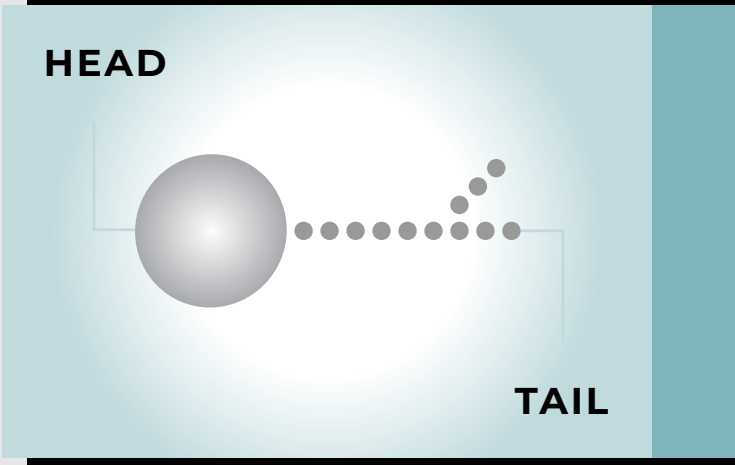
Encapsulator Agents



MECHANICS

HOW DOES AN ENCAPSULATOR AGENT FORM IN SOLUTION?

Our Encapsulator Agents start with a large amphipathic molecule, containing both a hydrophilic polar head and hydrophobic non-polar tail that act independently. When mixed with water, these molecules will instantly form billions of micro spherical micelles as non-polar tails turn inward, avoiding water at all costs. Encapsulator Agents immediately reduce the surface tension of water. This makes droplets smaller, creating more surface area to rapidly absorb heat and better penetrate the pores of solid material.



EXPLORING

ENCAPSULATOR TECHNOLOGY (ET)

Today's fires are burning hotter and faster than ever before. We are faced with new and highly hazardous materials every day. So, why are many fire departments and industry leaders fighting today's fires with yesterday's technology? Encapsulator Agents are a type of water additive whose basic building blocks are spherical micelles. While foam mechanically separates fuel from oxygen, Encapsulator Agents work on a molecular level. Encapsulator Agents alter the chemical makeup of plain water droplets, leading to several advantages.

HAZARD CONTROL TECHNOLOGIES

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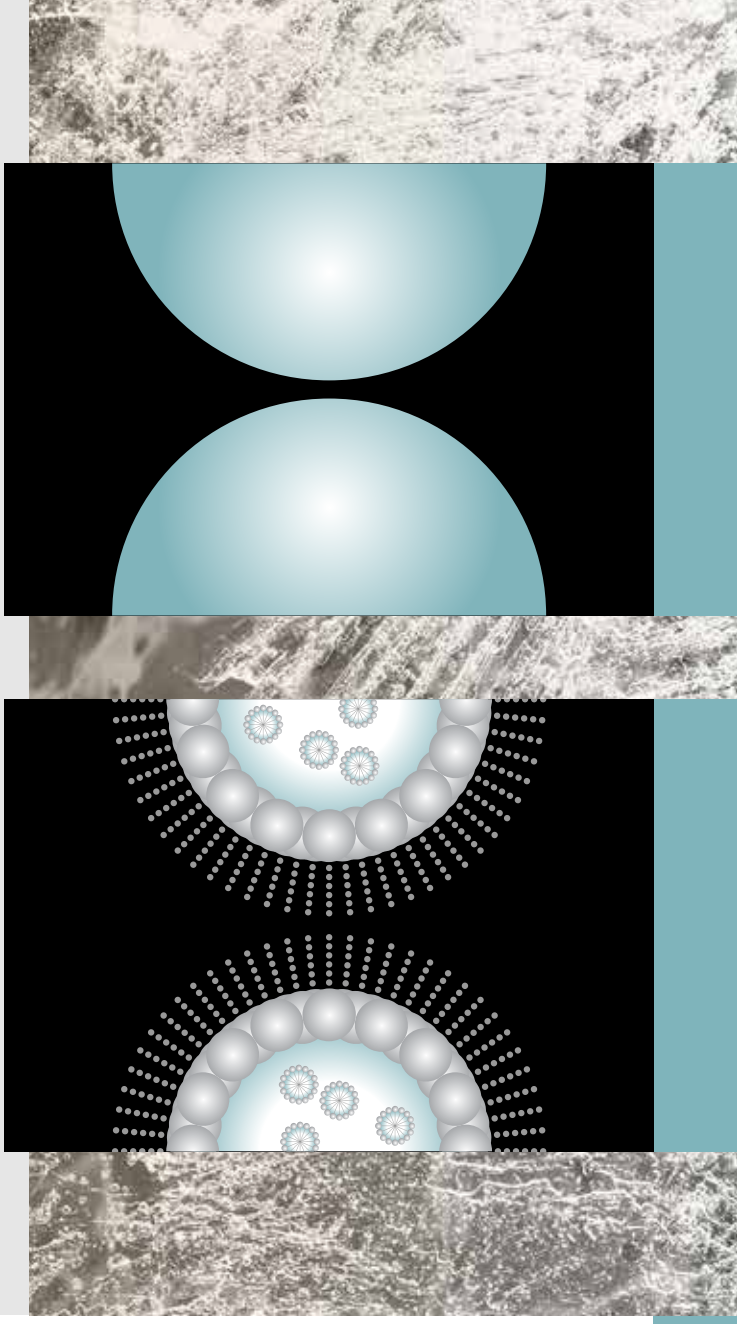
EXPLORING

VERSATILITY

As Encapsulator Agent (EA) droplets leave the nozzle, non-polar tails near the surface turn outward, forming a protective “skin” around each droplet. This happens instantly, leaving a multitude of spherical micelles within each EA droplet, changing the EA droplet’s heat reduction mechanism. This enables an EA droplet to absorb significantly more heat than a plain water droplet. Thermal energy is driven inward towards the countless spherical micelles inside. A plain water droplet lacks the ability to absorb heat three -dimensionally, and therefore generates scalding steam. This feature allows Encapsulator Agents to extinguish fires more efficiently than plain water and gives them the ability to safely mitigate fires that plain water cannot.



CLASS A MATERIALS	0.5% – 1%
CLASS B FUELS [POLAR + NON-POLAR]	3%
ENERGIZED ENVIRONMENTS	3%
CLASS D METALS	3%
LITHIUM-ION BATTERIES	3%

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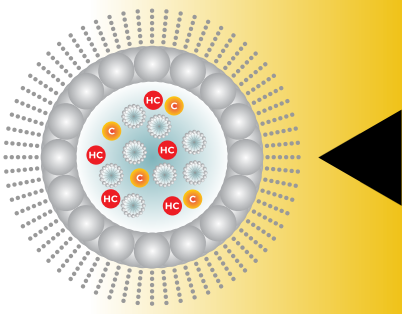
UNIQUE FEATURES

CHARACTERISTICS CONTRIBUTING TO THE EFFECTIVENESS OF AN ENCAPSULATOR AGENT

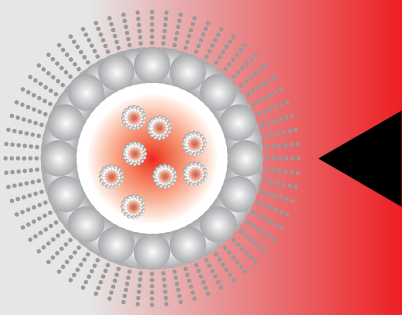
ENCAPSULATION

Encapsulation of polar and non-polar fuels reduces the risk of re-ignition and provides unprecedented burn back resistance.



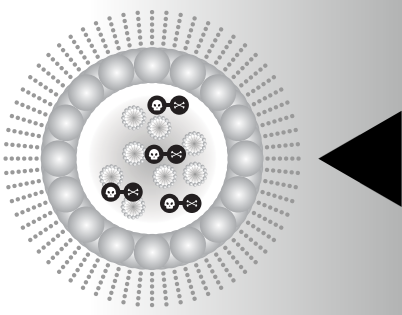
RAPID HEAT REDUCTION

Molecules form an outer layer of agent on each droplet. This drives heat internally, rapidly cooling fuel.



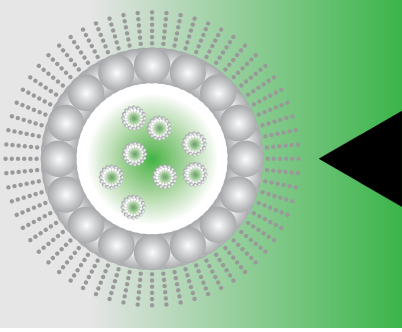
FREE RADICAL INTERRUPTION

Harmful carbons and hydrocarbons are reduced as free radical energy is absorbed. Third-party confirmed carcinogen reduction.



ECO-FRIENDLY

A fluorine free solution that's noncorrosive, biodegradable and capable of extinguishing multi-class hazards.



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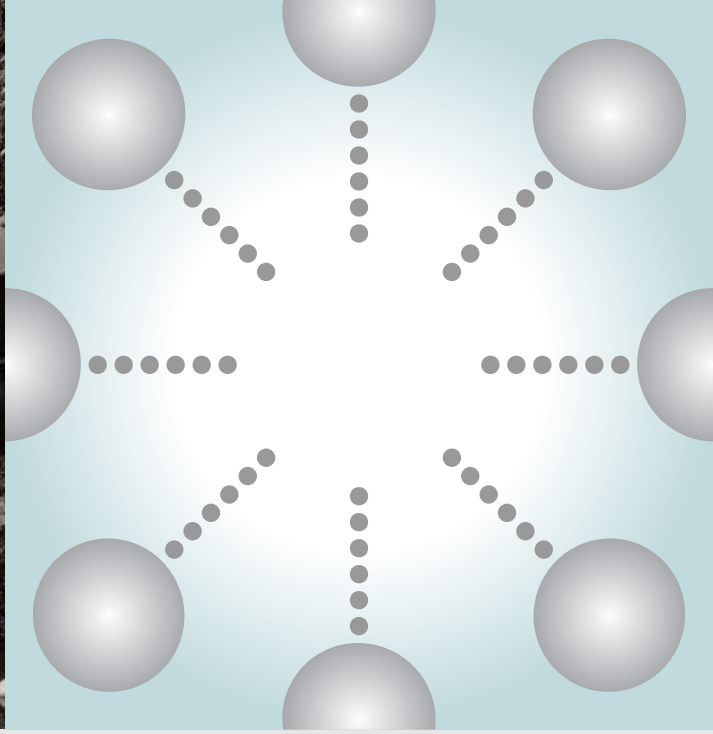

NFPA 18A

ENCAPSULATOR AGENTS (EA)

SECTION 7.7

This section covers the test procedure to evaluate the ability of a water additive solution to form and maintain stable spherical micelles capable of encapsulating combustible and flammable liquids (polar and non -polar), rendering the flammable liquids non-flammable, non-ignitable and non-explosive and maintaining that encapsulation in the presence of high heat over an extended period of time.

SPHERICAL MICELLE STABILITY

EXPLORING

NFPA STANDARDS

CH 8 SEC 8.1

Standardized testing guidelines for energized Class C hazards.

CH 9 SEC 9.1

Standardized testing guidelines for Class D flammable metals.

ANX 4.3

Third-party testing for Encapsulator Agents on lithium-ion hazards.

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MULTI-LEVEL

PROTECTION

COMPARISON

The four unique features of an Encapsulator Agent offer countless benefits for both fire suppression and spill control applications.

TESTING SHOWS A 1% EA SOLUTION CAN REDUCE THE WATER NEEDED TO EXTINGUISH A FIRE BY 60%

BENEFIT	EA	WATER	FFF
STABLE BURN BACK RESISTANCE	✓	✗	✗
ADVANCED COOLING [1,200°F TO 127°F]	✓	✗	✗
RAPID KNOCKDOWN [3 SECONDS]	✓	✗	✗
INCREASED VISIBILITY [≈68% MORE]	✓	✗	✗
SMOKE + SOOT REDUCTION [≈97% LESS]	✓	✗	✗
CARCINOGEN REDUCTION [≈97% LESS]	✓	✗	✗
SCALDING STEAM ELIMINATION	✓	✗	✗
MINIMIZED RUNOFF [≈60% LESS]	✓	✗	✗

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EUROPEAN WATER MIST HOSE + NOZZLE

Decades of third-party testing conducted in Europe confirms the effectiveness of utilizing our signature hose and nozzle for lithium-ion battery fires.

ENGINEERED

MOBILE EQUIPMENT

We offer a full line of engineered Encapsulator Agent powered equipment and delivery systems for convenient and effective hazard mitigation big and small.

FIRE EXTINGUISHER	**2.5 G**
QAMU	**25 L, 50 L, 75 L, 100 L**
TKO NOZZLE	**75 LPM**
DIAMOND DOSER	**CUSTOM**

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