

HAZARD CONTROL TECHNOLOGIES, INC.

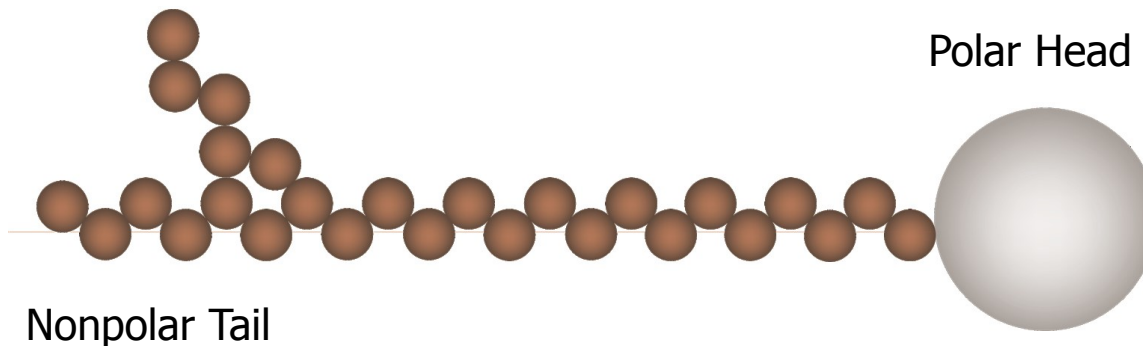
**ENCAPSULATOR AGENT
INTRODUCTION**

www.hct-world.com



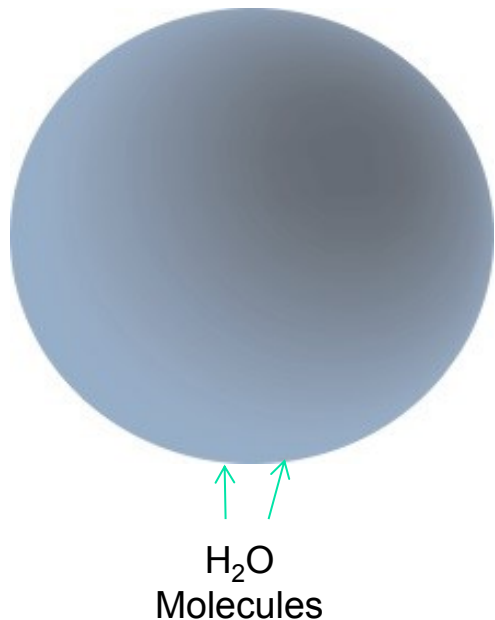
F-500 Encapsulator Agent Characteristics

- Amphipathic Molecules
 - Large molecule with a polar end and a nonpolar end with sufficient distance between so each end acts independently
 - Polar end (hydrophilic - “loves water”)
 - Soluble; it dissolves in water
 - Nonpolar end (hydrophobic - “fears/hates water”)
 - Protrudes out of the water droplet and seeks out molecules other than water (such as hydrocarbon)

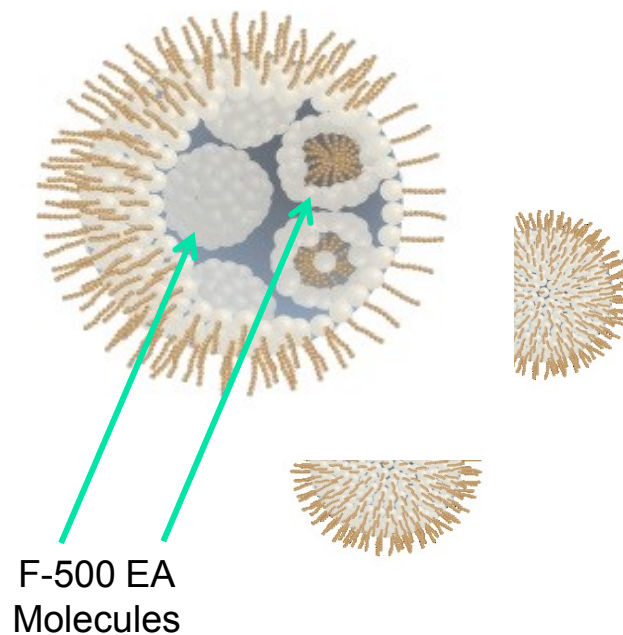




Water Droplet



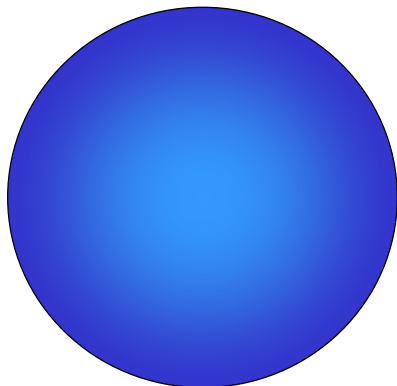
F-500 FA Droplet



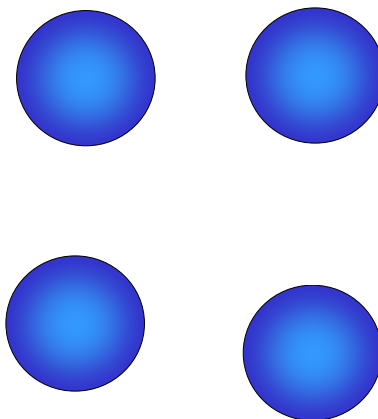
Droplet	Molecular Weight	Boiling Point	Thermal Conveyance
Water	18 g/mol	212°F (100°C)	Inefficient
F-500 EA	>1000 g/mol	248°F (120°C)	Highly Efficient



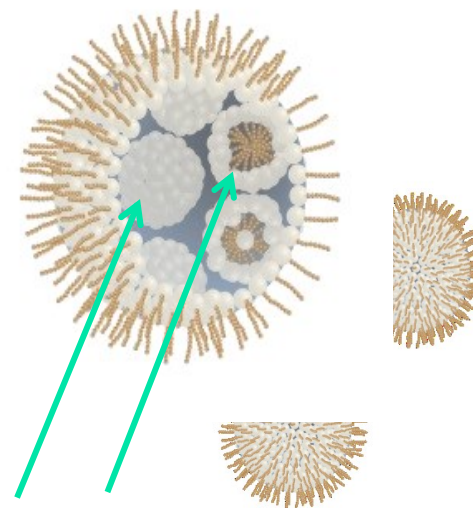
Droplet Comparison



**Plain
Water**



Wetting Agent



F-500 EA
Molecules

**F-500
Encapsulator
Agent**



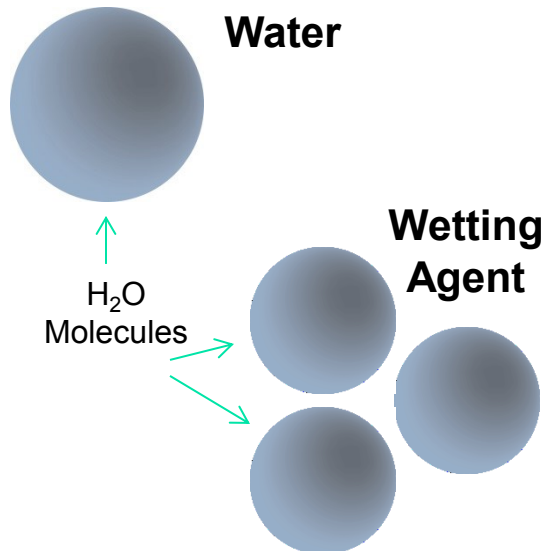
WETTING AGENT

Surface Tension Reduction

- Spreads
- Penetrates

Heat Reduction

- Same mechanism as water
- Converts H₂O to Steam



FOAM

Surface Tension Reduction

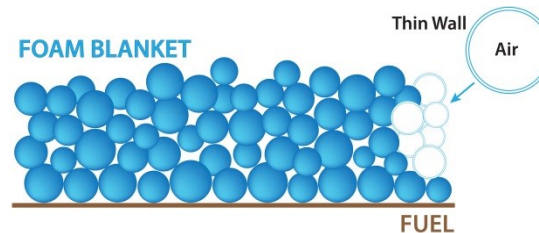
- Aids in spreading the blanket

Blankets

- Separates fuel from oxygen to smother the fire

Heat Reduction

- Blanket insulates and traps the heat
- Counterproductive to heat reduction
- Requires maintenance of separation for extended period until heat slowly dissipates



ENCAPSULATOR AGENT

Surface Tension Reduction

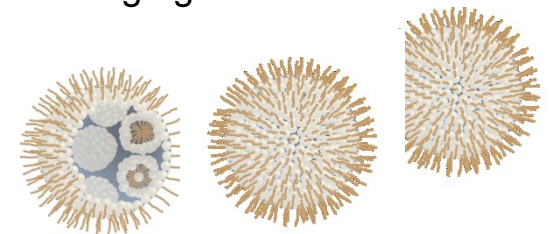
- Aids in spreading MEA

Encapsulation

- Encapsulates fuel and vapor molecules and renders them nonflammable and nonignitable

Heat Reduction

- Changes the heat reduction mechanism of water droplet
- 10-20 times faster heat reduction than plain water, wetting agents and





Market-Applications

- **Municipal Fire Departments**
 - Class A and B Fire Suppression
 - Class B Spill Control
- **Power Companies**
(Fixed Systems and Hand line)
 - Coal Handling Systems (PRB Coal)
 - Turbine/Generator/Boiler/Transformer
- **Petro-Chemical**
 - Class B Spill Control
 - Tank Degassing and Cleaning
 - Pipeline Cleaning and Devaporization
 - Soil Washing
- **Rubber Tire Industry**
(Fixed Systems and Hand line)
 - Production Lines and Areas
 - Warehouse Storage
 - Scrap Pile Storage
- **Paper Industry**
(Fixed Systems and Hand line)
 - Raw Material Stock Piles
 - Recycling Stock Piles
 - Hydraulic Pit Press Areas
 - Warehouse Storage
- **Military**
 - Structural Firefighting
 - Spill Control

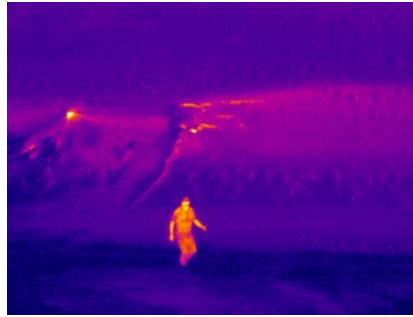




HAZARD CONTROL TECHNOLOGIES, INC.
FIRE, VAPOR, AND CONTAMINATION CONTROL SOLUTIONS



Industrial Hazards and HCT Solutions





HAZARD CONTROL TECHNOLOGIES, INC.

FIRE, VAPOR, AND CONTAMINATION CONTROL SOLUTIONS



HCT Proven Solutions

WISCONSIN FIRE JOURNAL
SEPTEMBER/OCTOBER 2009

Watertown Tire Fire

F-500 ENCAPSULATOR TECHNOLOGY

Hazard Control Technologies, Inc.
100 Miller Way, Franklin, WI 53124
Phone: 770-749-9142 Fax: 770-749-9147
Web: <http://www.hctworld.com>

Response to Crash of Flight 3407

BY DAVID CASE

ON FEBRUARY 12, 2009, AT 10:20 P.M., THE CLARENCE COUNTY Volunteer Fire Company and Clarence Fire District #1 were dispatched to 6050 Long Street, New Town, serving 40 teenagers and four crew members, involved in a house, killing six children and one adult in the home (Hatched), but other people who had the home were able to make it out and suffered minor injuries and were transported to the hospital for evaluation. The article describes the operations of that evening through the following fire through the eyes of the incident commander.

Clarence County Fire Company is a voluntary fire protection organization controlled by the town of Clarence, a suburb of Buffalo, New York. We provide fire, rescue, and EMS services to the citizens in the district. Our district is high cost, rural and hard to reach. We do not have an air force. We have had to rely on our firefighters. The fire company has an active roster of 60 active firefighters, the total company roster is approximately 900 members per year. The company has 100 members. Clarence is dependent on these firefighters through the Town of Clarence and their budgeting committee.

WITAL ALARM

Minutes before we were dispatched, I was in a house when I heard a loud bang. I looked out my window to see if there had been an accident in front of my house. I saw a flash and heard an explosion. We were dispatched for a fire with three on fire on Long Street. Headed toward the scene in my chief's

Photo by David P. Chivers.

FIRE ENGINEERING August 2009 87

	FIRE PROTECTION COAL BUNKER, HOPPER & SILO FIRE PROTECTION GUIDELINES	Revision Effective Date 1-10-08
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PRB COAL USERS' GROUP (PRBCUG)

Recommended Practice

COAL BUNKER, HOPPER & SILO FIRE PROTECTION GUIDELINES

REVISION LOG

Revision Number	Effective Date	From	To	Description of Revisions
0	1-10-08	All	Initial Issue	
1	1-10-08	All	Final Edition and Technical Revisions	

WVCE encourages an aggressive approach to safety on the company site. A lot of time and effort is required to get this done. When looking at the safety of a plant, the first thing to do is to get a good idea of the risks involved. Before the start-up, the management of the facility should get information and data to get a good idea of the risks involved. The management should have created various maps to get a good idea of the risks involved. The following article is

ENR November 2008 220

Special Section: Asset Management

Managing silo, bunker, and dust-collector fires

By Diana Merrill, Western Kentucky Energy Corp. and Newby Resources Inc.

Coal fires at powerplants happen far too frequently these days. Despite a century of industry experience, opinions vary on how to prevent the fires from occurring, and how to extinguish them if they do.

Coal fires at powerplants can cause serious destruction. If handled incorrectly, the results can be catastrophic. In some cases, damage to powerplant assets can be the loss of money (Fig. 1, 2). One of the coal-fired plants operated by Western Kentucky Energy Corp. (WKEC), Henderson, Ky., recently experienced a silo fire that resulted in the loss of valuable time during a busy outage (see box, p. 24). Because of the outages, the plant more than doubled the cost of the outage, beginning with the construction that prevented the fire through the incident.

WKEC encourages an aggressive approach to safety on the company site. A lot of time and effort is required to get this done. When looking at the safety of a plant, the first thing to do is to get a good idea of the risks involved. Before the start-up, the management of the facility should get information and data to get a good idea of the risks involved. The management should have created various maps to get a good idea of the risks involved. The following article is

ENR November 2008 220

INDUSTRIAL FIRE JOURNAL

www.industrialfirejournal.com April 2009 Issue no. 75

BASIC TACTICAL RESPONSE
ARFF concept that buys extra time

BLUEPRINT FOR DISASTER
Competency and dust don't mix

PLANT PROTECTION FOCUS
Viable explosion protection

FDSC INTERNATIONAL FIREFIX NFPA

New eco solution for large tank problems

Encapsulating volatile substances, hydrocarbons and dust to prevent a fire's devastating effects on the ecosystem is the new frontier of scientific research into new applications on the fire safety field. A new low pressure watermist system has been launched that happens to do just that.

An innovative technology in fire suppression systems was officially presented during a convention that brought together the major fire services, universities, fire brigades and representatives from international air, gas and military sectors.

The event, held in late 2010 February, was the synthesis of a partnership between the International Hazard Control Technologies, the European Affiliated Hazard Control Technologies, Europe, and the Italian company, Fire Systems.

Hazard Control Technologies' F-500 multi-purpose engineered fire suppression system combines the benefits of a wetting agent (to reduce surface tension, rapid spreading, penetration capability) with encapsulation technology.

Amphiphilic molecular design in the formulation of F-500's fire suppression mechanism, which, fundamentally, is used for heat sink, and low volume fog of the fire, reduces high temperatures and is environmentally safe, non-toxic, non-corrosive, 100% biodegradable, and systems are non-flammable liquid spill control.

F-500 is also a new tool in the arsenal for tank firefighting which is the first product of its kind, which also results in a significant reduction of smoke.

The system is designed to be used for a variety of innovative systems using F-500, and it has created the new low pressure watermist system called "Aqua-Fog", which uses a mixture of water and F-500. The system uses water spray, which disperses and F-500, which is used to create a fine mist by using F-500 ability to simplify water's high surface tension.

The release of very fine drops allows the generated fog to penetrate even the thickest atmospheric dust. The change in consistency of the drops reduces high temperatures and is environmentally safe, non-toxic, non-corrosive, 100% biodegradable, and systems are non-flammable liquid spill control.

During the recent convention a full-scale test was carried out using Aqua-Fog in a fire tank. The test was designed to show the effectiveness of the system in a controlled environment (during the convention), and designed to act in the outdoor cover (during the convention).

The philosophy of the system is based on the simultaneous combination of water and F-500. The system is designed to be used for a variety of innovative systems using F-500, and it has created the new low pressure watermist system called "Aqua-Fog", which uses a mixture of water and F-500.

Firehouse

September 2006/6.00

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Methane Encapsulator Technology May Be Major Breakthrough in Mine Safety

By Diana Merrill, Western Kentucky Energy Corp. and Newby Resources Inc.

When you think of a mine safety, the first thing that comes to mind is the risk of methane gas. Methane gas is a highly flammable and explosive gas that can cause a major disaster in a mine. The risk of methane gas is a major concern for mine operators and regulators alike. The risk of methane gas is a major concern for mine operators and regulators alike.

Methane Encapsulator Technology (MET) is a new technology that has been developed to reduce the risk of methane gas in mines. MET is a low-pressure watermist system that is designed to reduce the risk of methane gas in mines. MET is a low-pressure watermist system that is designed to reduce the risk of methane gas in mines.

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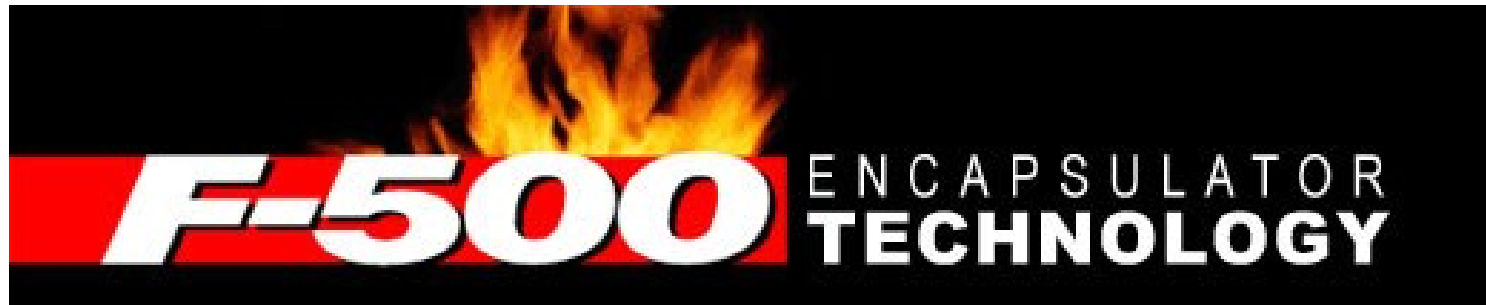
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Any questions?



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