

## F- 500 Customer Features & Benefits

	Feature	Benefit	Proof
	Biodegradable	Reduced risk to the environment	Clemson University Study
	Biodegradable/non-toxic	Less environmental damage and reduced risk to firefighters. Firefighters can focus on hazardous situations at hand rather than worrying about contamination to the environment and personal risk.	Clemson Tests and MSDS Comparisons
	Bioremediation Enhancement	Speeds breakdown of hydrocarbons by increasing the surface area allowing naturally occurring microorganisms to digest the hydrocarbons. Reduces toxicity level of hydrocarbons	Clemson University Study
	Can be successfully treated in biological wastewater treatment systems	Reduce fear of killing microorganisms in plant	Georgia WWTP incident
	Can be used as a dispersant when hydrocarbons enter the waterway.	Neutralizes the fuel, removes flammability, protects fish and sealife from danger destruction.	Testing and use.. Being evaluated for the NCP Schedule.
	Dispersant	May be authorized for use on oil discharges in accordance with the procedures set forth in 40 CFR Subpart J Section 300.910	EPA's NCP Product Schedule
	Favorable BOD and COD	Can outfall into streams, tributaries, navigable waterways, etc. with limited impact	EFEH & Associates Analytical Services, Inc., Clemson University Study
	Low in Toxicity to tested aquatic organisms	Reduced risk to the environment	MSDS, Product Environmental Data Sheets, EFEH & Associates
	Non-Corrosive	Can pre-mix F-500 into booster tanks without worrying about corrosion of pumps or plumbing	Clemson University Study MSDS
	Non-Hazardous	Reduced risk to emergency response personnel. Reduced risk to the environment	Clemson University Study, MSDS, RCRA CFR261
	Non-toxic, non-corrosive, 100% biodegradable, non-hazardous	Puts FF & others at ease knowing they won't get hurt while using F-500- Safer for the environment.	Live Fire Training & Actual Incidents
	Non Corrosive	Won't damage internal pump equipment	Clemson Report
	Non Corrosive	Won't corrode manufacturing or other business sensitive metal equipment	Clemson Report
	Used on burning materials that cannot be extinguished with conventional materials.	Protects the employee and prevents damage and loss of product in the manufacturing facility.	Nu Foam Co. in Chattanooga TN. Demo proved to ext.polystyrene foam blocks

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	Feature		Benefit		Proof
	Factory Training		Hazard Control Technologies, Inc. personnel are dedicated to training your employees/firefighters at your facility in the safe effective application of F-500.		Hazard Control technologies dedication to customer service.
	Factory Training		This provides you with a superior product better trained personnel and direct communication with the manufacturer.		
	HCT offers a SOP manual for F-500 implementation into department standards		Gives the fire department a reference base for many regularly occurring incidents.		SOP manual

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	NFPA Approved	You have the confidence in having the product meet standards and test criteria set forth by the NFPA.	UL Listed
	ISO 9001 Accredited	Assures the customer and end users consistent, reproducible, traceable quality, and reliability of the design and manufacturing process	Registration # 97081.1
	Dispersant	May be authorized for use on oil discharges in accordance with the procedures set forth in 40 CFR Subpart J Section 300.910	EPA's NCP Product Schedule
	ISO 9001 Registered	Assures the end users that we are dedicated and professional for providing a consistently effective prod.	Live Fire Training & Actual Incidents
	Meets NFPA 18 wetting agent criteria	Globally Recognized as a superior Standards and Recommendations Association with Fire Service	As described and supported in the field.
	UL Listed Wetting Agent and single use product good for Class A & B fires	UL is a highly recognized 3rd party independent testing facility	As described and supported in the field.

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Rapid Tire & Rubber Extinguishment	Faster coverage of rubber and tires/allows for rapid cooling and extinguishment. Faster extinguishment reduces fire damage. Environmental damage and contamination is significantly reduced.	Clemson University (Reduction in SurfaceTension)
	F-500 molecules interrupt the free radical chain reaction.	Prevents the free radicals from coming together to form soot	Evident in the color change of smoke. Black to white
		Aids in the removal of toxic materials from the smoke	Clemson Report
	F-500 molecules form micelles around the vapors that exist above the surface of the fuel.	Aids in the removal of toxic materials from the smoke	Clemson Report
		Removes the most unstable leg of the fire tetrahedron, allowing elimination of the combustion threat before ignition.	Pan lock up, followed by an LEL meter reading, and subsequently a fire test with a propane torch
	F-500 is an effective agent of fighting rubber, and rubber tire fires.	F-500 consistently out performs all other agents on tire fires. It gives fire departments a reliable tool in the protection of these hazards	F-500 Video
		F-500 provides a new weapon for fixed systems that protect these kinds of hazards.	NFPA 231D testing (yet to be performed)
	Increased Visibility	Better able to locate victims. Less danger to firefighter (can see where going)	Clemson University Study
	Smoke reduction	FF Safety/ Increased visibility for interior rescue.	Live Fire Training & Actual Incidents
	Used on burning materials that cannot be extinguished with conventional materials.	Protects the employee and prevents damage and loss of product in the manufacturing facility.	Nu Foam Co. in Chattanooga TN. Demo proved to ext.polystyrene foam blocks
	Interupts the free radical chain reaction	removes the toxicity of the free radicals, and increases visibility.	Live Burns and Demo's

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Rapid reduction of heat in Class A Fire	Safety - Reduced risk of injury or death. (85% of all fire fatalities are heat and smoke related).	University of Clemson Study (Dr. Cobb)
		Provides firefighter control - Allows firefighter to get closer to the fire providing for more aggressive attack.	Common sense.
	Rapid Heat reduction in confined spaces	Keeps fire fighters from being exposed to steam burns during initial attack of a confined space	Burn building tests showing no spike of temperatures as F-500 solution is applied
		Keeps victims trapped in a fire from being exposed to steam burns as fire dept. begins initial attack	None
	Can be pre-mixed in booster tanks	Allows Engine company to pull more than one line without having to set up multiple eductor operations	Various Municipal Fire Depts.
		F-500 doesn't rely on bubble structure for fire suppression, therefore bubbles don't overflow the top of your booster tank	Various Municipal Fire Depts.
		Doesn't require a special set up when arriving at the fire scene	Various Municipal Fire Depts.
		Doesn't require additional personnel to monitor the eductor. Particularly useful for understaffed volunteer depts.	Various Municipal Fire Depts.
	Not restricted to 200 ft maximum hose lay lengths beyond the eductor	Allows Engine company to "make foam" close to the engine. This allows the eduction operations to take place in a more secure environment. Additional personnel are not required inside the fire ground with SCBA's on	Confirmation tests need to be performed
		Allows Fire fighters more freedom to move hose as the situation requires. No need to worry about dragging buckets around behind you.	Various Municipal Fire Depts.
	Addition of F-500 to fire water is visually apparent when solution is flowing	F-500 solution shows white in the fire water allowing fire fighters to see that they have product flowing	Various Municipal Fire Depts.
	Addition of F-500 to fire water gives off a distinct smell	Gives fire fighters a quick check to see if product is flowing	Various Municipal Fire Depts.
	HCT offers a SOP manual for F-500 implementation into department standards	Gives the fire department a reference base for many regularly occurring incidents.	SOP manual

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Increased Visibility	Better able to locate victims. Less danger to firefighter (can see where going).	Clemson University Study
	Non-Corrosive	Can pre-mix F-500 into booster tanks without worrying about corrosion of pumps or plumbing	Clemson University Study, MSDS
	Applied with standard foam equip. (Nozzles, Eductors, Proportioners, PW Extinguishers, CAFS, PRO/pak)	No purchase of special equipment needed	UL Testing, Case Histories, In-house testing
	No Foam Blanket	No Blanket to break to release vapors: No Blanket for the Wind to remove. No Blanket for Rain to dissipate.	Visual Inspection
	100% Miscible in water	F-500 will not separate if premixed in a tank	MSDS
	Proportions readily	Can be used with a wide variety of proportioning equipment (fixed, on board, around the pump)	Hale Pump Listing
	Extinguishes a 3-Dimensional Fuel Fire	Multi-use product	Case Histories and Demonstrations
	Extinguishes a Running Fuel Fire	Multi-use product	Macon-Bibb Letter, Case Histories and Demonstrations
	Quick Extinguishment Time	Enhances Firefighter Safety/Less time in the fire bldg.	Live Fire Training & Actual Incidents
	Heat Reduction on all burning surfaces	Quicker knock down/FF Safety/Enhances Burn Back Res.	Live Fire Training & Actual Incidents
	Smoke reduction	FF Safety/ Increased visibility for interior rescue.	Live Fire Training & Actual Incidents
	Less product needed to extinguish Class A & B type fires	Cost effectiveness to the Fire Dept.//	Live Fire Training & Actual Incidents
	Firefighter Friendly-Easy to use - use conventional FF nozzles & hoses to apply	Happy Firefighters- one less thing they have to worry about if they dont have to change out hardware	Live Fire Training & Actual Incidents
	Non-toxic, non-corrosive, 100% biodegradable, non-hazardous	Puts FF & others at ease knowing they won't get hurt while using F-500- Safer for the environment.	Live Fire Training & Actual Incidents
	Reduces thermo current when fighting A & B fires-	Allows for quicker Exting. because FF can get to the burning materials quicker and do it safely	Live Fire Training & Actual Incidents
	Cools metals very quickly without violent reactions. Class D Fires	Enables FF to extinguish many class of materials burning in structures etc. without changing agents.	Live Fire Training & Actual Incidents
	Vapor mitigation and spill control agent	1 product with multi use capabilities. Cost effective for fire departments. no need for 3 or 4 products	As used in the field.

# F- 500

## Customer Features & Benefits

Feature	Benefit	Proof
Multi-purpose agent	One agent does the job of three. Class A, Class B and spill control hazards are all threats that Fuel Buster F-500 can neutralize. This alone provides the department with streamlined training procedure.	UL Listed, Clemson University and Hands-on Demonstration.
F-500 is a multi-use fire suppression agent	Can be implemented for use as a replacement to Class A & Class B agents as well as used for HAZMAT incidents	Demo references for a wide variety of hazards
	F-500 becomes the most economical choice for a fire department	Economic comparison presented by Jay D'Alba at the winter training meeting
	Eliminates confusion at the fire scene over which product to choose for a particular hazard.	Various Municipal Fire Depts.
	Eliminates the need to duplicate inventories of agents for different hazard protection	Various Municipal Fire Depts.
Multi-Purpose Agent	Class A fire extinguishing agent	UL listed
	Class B fire extinguishing agent	UL listed
	HazMat vapor suppression agent	University of Clemson Study
Can be used in combination with Dry Chemical, Dry Powder, Carbon Dioxide and Halon	No need to dispose of existing agents in stock	Field Experience
Extinguishes a 3-Dimensional Fuel Fire	Multi-use product	Case Histories and Demonstrations
Extinguishes a Running Fuel Fire	Multi-use product	Macon-Bibb Letter, Case Histories and Demonstrations
Cools metals very quickly without violent reactions. Class D Fires	Enables FF to extinguish many class of materials burning in structures etc. without changing agents.	Live Fire Training & Actual Incidents
Used on burning materials that cannot be extinguished with conventional materials.	Protects the employee and prevents damage and loss of product in the manufacturing facility.	Nu Foam Co. in Chattanooga TN. Demo proved to ext. polystyrene foam blocks
Can be used in extinguishers.	Easy application to spilled polar & non-polar liquids. Places the F-500 over the area effected.	Used on actual spills in an emergency mode.
Used in hand held extinguishers to extinguish small Class A & B fires	Quick knockdown and provides for burnback resistance on class A materials.	Used in the field with positive results.
Vapor mitigation and spill control agent	1 product with multi use capabilities. Cost effective for fire departments. no need for 3 or 4 products	As used in the field.

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Surface tension reduction allows for delivery of F-500 molecules to deep recesses of Class A materials	Quick knockdown on deep seated fires. Increased penetration allows for extended burnback resistance.	Demo with mattresses or couches
	Enhanced Burnback Resistance  Heat Reduction on all burning surfaces	When F-500 and water are applied at the proper rates, firefighters can walk through fuel with no threat of reignition Penetration of F-500 into pores of Class A materials severely inhibits the fire from restarting Quicker knock down/FF Safety/Enhances Burn Back Res.	Clemson University Study, Pan Lock-up  Reno Study Live Fire Training & Actual Incidents
	Provides a higher level of burn back resistance on all Class A type fires	Less chance for re-ignite and loosing the structure after the FD leaves the scene.Less damage to mat's.	Live Fire Training & Actual Incidents
	Used in handheld extinguishers to extinguish small Class A & B fires	Quick knockdown and provides for burnback resistance on class A materials.	Used in the field with positive results.
	Creates and maintains the Micelle Blanket on Class B materials	Quick extinguishment-provides for burnback resistance. Stages the neutralization of B materials	Demo's and Live incidents.



## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
Vapor suppression capability	Reduces explosive vapors in confined space.	Clemson University / Study
	Eliminates risk of explosion by sparks from extraction equipment.	Common sense based on product performance.
	Creates a safe environment for firefighters to conduct fireground and rescue operations.	Common sense based on product performance.
Class B Hazard Neutralization	Elimination of flammability and prevention of vapor release.	Clemson University / Study
	Allows for rapid extinguishment of Class B fires and prevents reignition.	Clemson University / Study (Dr. Cobb)
F-500 molecules form micelles around the vapors that exist above the surface of the fuel.	Aids in the removal of toxic materials from the smoke	Clemson Report
	Removes the most unstable leg of the fire tetrahedron, allowing elimination of the combustion threat before ignition.	Pan lock up, followed by an LEL meter reading, and subsequently a fire test with a propane torch
	Facilitates the removal of fine particulate matter. I.e. can remove the explosive threat of coal dust in coal fired generating plants.	spray a 3% solution of F-500 on a small coal dust fire with a low pressure applicator and observe no coal dust explosion
F-500 molecules form micelles around the hydrocarbon portion of flammable liquids	Renders flammable liquids non-flammable	Pan lock up, followed by an LEL meter reading, and subsequently a fire test with a propane torch
	Aids in bio-degradation of the flammable liquid by naturally occurring micro-organisms	F-500 places hydrocarbons in a aqueous sphere allowing them to be attacked more easily via a larger amount of available surface area
	Doesn't chemically alter the material that it is encapsulating. This allows for recovery of the spilled product, and therefore no lost revenues.	F-500/Gasoline mixture in a sealed environment will separate once the vapor pressures equalize.
Micelle formation occurs in a stable and maintainable state	Allows F-500 solution to maintain its vapor suppression and non-flammability characteristics much longer than any other product currently available in the market	F-500/Gasoline mixture in a open environment will evaporate at a rate so slow, that it will never again support combustion

## F- 500 Customer Features & Benefits

Feature	Benefit	Proof
	Allows us to separate ourselves from an ordinary emulsion. Our difference is that we have form an emulsion that is stable in a hydrocarbon environment. After all isn't foam just a bunch of bubbles that remain stable in the presence of heat and fuel.	F-500/Gasoline mixture in a open environment will evaporate at a rate so slow, that it will never again support combustion
Vapor Suppression (Reduces vapors below the Lower Explosive Limit)	Eliminates the risk of explosion by sparks from extrication equipment	
	Safer highway fuel spills	Macon-Bibb letter
	Reduces explosive vapors in confined space	Clemson University Study
	Faster Tank Degassing / Tank Turnaround	Letter from Terminal Technologies and Charles Holston, Inc.
No Foam Blanket	No Blanket to break to release vapors:	Visual Inspection
Creates and maintains the Micelle Blanket on Class B materials	Quick extinguishment-provides for burnback resistance. Stages the neutralization of B materials	Demo's and Live incidents.
Fuel neutralization - by way of micelle foramtion-encapsulates the hydroc. molecule	Allows for complete fuel lockup and neutralization which provides higher levels of safety to FF's.	In Field Use on emergency incidents

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Reduces Surface Tension of Water	Allows for rapid penetration in the Class A materials such as hay, cotton and wood. Allows for faster heat reduction in vapors and smoke.	UL Listed
		Faster knockdown creates a safer environment and reduces risk of fire injury. Elimination of fire reduces release of toxic vapors and smoke.	Product Performance
	Rapid Heat reduction in confined spaces	Keeps fire fighters from being exposed to steam burns during initial attack of a confined space	Burn building tests showing no spike of temperatures as F-500 solution is applied
		Keeps victims trapped in a fire from being exposed to steam burns as fire dept. begins initial attack	None
	Surface tension reduction allows for delivery of F-500 molecules to deep recesses of Class A materials	Quick knockdown on deep seated fires	Demo with mattresses or couches
		Long resistance to re-ignite	Demo with pallets that are tried to be relighted.
		Allows for more efficient use of water. More surface area is exposed to the fire and converted to steam. This absorbs more energy reducing the temperature of the fuel.	Ability to place your hand on demo materials immediately after extinguishment with F-500.
		May change the number of calories absorbed as water converts to steam	No proof to date
	Fast Extinguishment	Save lives (victims and firefighters)	Case Histories and Demonstrations
		Less property damage	
		Reduce insurance claim amounts and premiums	
		Less workmen's compensation	
		Less worry from firefighter's family	
	Quick Fire Knockdown	Gain control of fire and assess damage	Case Histories and Demonstrations
	Quick Extinguishment Time	Enhances Firefighter Safety/Less time in the fire bldg.	Live Fire Training & Actual Incidents
	Quick Extinguishment Time	Less fatigue and stress on the firefighters. They are able to get in and out quicker with quick exting.	Live Fire Training & Actual Incidents
	Quick Extinguishment Time	Reduces Worker compensation injuries because the risk of injury is less because of less time spent in fire	Live Fire Training & Actual Incidents

## F- 500

### Customer Features & Benefits

	<b>Feature</b>	<b>Benefit</b>	<b>Proof</b>
	Reduces thermo current when fighting A & B fires-	Allows for quicker Exting. because FF can get to the burning materials quicker and do it safely	Live Fire Training & Actual Incidents
	Excellent Penetrating capabilities on Class A & D materials	Extinguishes deep seated type fires that normally take time and large amounts of water	In Field Use

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Rapid reduction of heat in Class A Fire	Safety - Reduced risk of injury or death. (85% of all fire fatalities are heat and smoke related).	University of Clemson Study (Dr. Cobb)
		Provides firefighter control - Allows firefighter to get closer to the fire providing for more aggressive attack.	Common sense.
	Reduces Surface Tension of Water	Allows for rapid penetration in the Class A materials such as hay, cotton and wood. Allows for faster heat reduction in vapors and smoke.	UL Listed
		Faster knockdown creates a safer environment and reduces risk of fire injury. Elimination of fire reduces release of toxic vapors and smoke.	Product Performance
	Rapid Heat reduction in confined spaces	Keeps fire fighters from being exposed to steam burns during initial attack of a confined space	Burn building tests showing no spike of temperatures as F-500 solution is applied
		Keeps victims trapped in a fire from being exposed to steam burns as fire dept. begins initial attack	None
	Surface tension reduction allows for delivery of F-500 molecules to deep recesses of Class A materials	Quick knockdown on deep seated fires	Demo with mattresses or couches
		Long resistance to re-ignite	Demo with pallets that are tried to be relighted.
		Allows for more efficient use of water. More surface area is exposed to the fire and converted to steam. This absorbs more energy reducing the temperature of the fuel.	Ability to place your hand on demo materials immediately after extinguishment with F-500.
		May change the number of calories absorbed as water converts to steam	No proof to date
	Rapid Heat Reduction	Fast extinguishment of Class A and Class B fuels Firefighter can approach fire more safely Reduces threat of spontaneous reignition Reduces combustion threat of surrounding infrastructure	Clemson University Study, Reno Study, Visual Inspection
	Heat Reduction on all burning surfaces	Quicker knock down/FF Safety/Enhances Burn Back Res.	Live Fire Training & Actual Incidents
	Reduces thermo current when fighting A & B fires-	Allows for quicker Exting. because FF can get to the burning materials quicker and do it safely	Live Fire Training & Actual Incidents

## F- 500

### Customer Features & Benefits

	Feature	Benefit	Proof
	Cools metals very quickly without violent reactions. Class D Fires	Enables FF to extinguish many class of materials burning in structures etc. without changing agents.	Live Fire Training & Actual Incidents
	Cools materials as part of the manufacturing process.	Cost savings to manufacturing companies due to time saved in production and processing.	As stated by some manufacturing groups
	Can act as a fire prevention material when applied in a cooling format/NucleaPlants/Gs	Personnel Safety/ prevent catastrophic failure to the plant/ keeps employees at work/prevents litigationq	As discussed by companies wanting to use the F-500 in this capacity
	Rapid Cool down on metals such as high pressure gasoline manifold fires.	Protects exposed plant structures from excessive heat and minimizes damage to the facility.	Demo at Shell Refinery in Houston

## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
Rapid reduction of heat in Class A Fire	1a Safety - Reduced risk of injury or death. (85% of all fire fatalities are heat and smoke related).	1a University of Clemson Study (Dr. Cobb)
	1b Provides firefighter control - Allows firefighter to get closer to the fire providing for more aggressive attack.	1b Common sense.
NFPA Approved	2a You have the confidence in having the product meet standards and test criteria set forth by the NFPA.	2a UL Listed
Multi-purpose agent	3a One agent does the job of three. Class A, Class B and spill control hazards are all threats that Fuel Buster F-500 can neutralize. This alone provides the department with streamlined training procedure.	3a UL Listed, Clemson University and Hands-on Demonstration.
Red in color	4a Improved dyeing agents allow firefighters to see that product is flowing and eductor is working properly. Fluorescent property of product allows for detection of product in water stream, even at night.	4a Visual inspection
Translucent buckets	5a Allows the pump operator or hose team to visually measure the amount of product in the bucket during eduction operations.	5a Visual inspection
Non-corrosive	6a Use of Fuel Buster F-500 does not create an environment for pump, plumbing and red deterioration. This saver maintenance and replacement costs associated with excessive corrosion.	6a Clemson Tests
Biodegradable/non-toxic	7a Less environmental damage and reduced risk to firefighters. Firefighters can focus on hazardous situations at hand rather than worrying about contamination to the environment and personal risk.	7a Clemson Tests and MSDS Comparisons
Vapor suppression capability	8a Reduces explosive vapors in confined space.	8a Clemson University / Study
	8b Eliminates risk of explosion by sparks from extraction equipment.	8b Common sense based on product performance.
	8c Creates a safe environment for firefighters to conduct fireground and rescue operations.	8c Common sense based on product performance.
Class B Hazard Neutralization	9a Elimination of flammability and prevention of vapor release.	9a Clemson University / Study
	9b Allows for rapid extinguishment of Class B fires and prevents reignition.	9b Clemson University / Study (Dr. Cobb)

## F- 500

### Customer Features & Benefits

	Feature		Benefit		Proof
	Reduces Surface Tension of Water	10a	Allows for rapid penetration in the Class A materials such as hay, cotton and wood. Allows for faster heat reduction in vapors and smoke.	10a	UL Listed
		10b	Faster knockdown creates a safer environment and reduces risk of fire injury. Elimination of fire reduces release of toxic vapors and smoke.	10b	Product Performance
	Rapid Tire & Rubber Extinguishment	11a	Faster coverage of rubber and tires/allows for rapid cooling and extinguishment. Faster extinguishment reduces fire damage. Environmental damage and contamination is significantly reduced.	11a	Clemson University (Reduction in Surface Tension)
		12a	Can be educted, pre-mixed in booster tanks, pre-mixed in extinguishers and educted into sprinkler systems. Can also be used in existing Foam delivery equipment or with no specialty equipment at all.	12a	In-house testing, UL Testing, customer case histories and physical demonstrations.
	Factory Training	13a	Hazard Control Technologies, Inc. personnel are dedicated to training your employees/firefighters at your facility in the safe effective application of F-500.	13a	Hazard Control technologies dedication to customer service.
			This provides you with a superior product better trained personnel and direct communication with the manufacturer.		
	Non Corrosive		Won't damage internal pump equipment		Clemson Report
	Non Corrosive		Won't corrode manufacturing or other business sensitive metal equipment		Clemson Report
	Rapid Heat reduction in confined spaces	1A	Keeps fire fighters from being exposed to steam burns during initial attack of a confined space		Burn building tests showing no spike of temperatures as F-500 solution is applied
		1B	Keeps victims trapped in a fire from being exposed to steam burns as fire dept. begins initial attack		None
	Can be pre-mixed in booster tanks	1A	Allows Engine company to pull more than one line without having to set up multiple eductor operations		Various Municipal Fire Depts.
		1B	F-500 doesn't rely on bubble structure for fire suppression, therefore bubbles don't overflow the top of your booster tank		Various Municipal Fire Depts.



## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
	1C Doesn't require a special set up when arriving at the fire scene	Various Municipal Fire Depts.
	1D Doesn't require additional personnel to monitor the eductor. Particularly useful for understaffed volunteer depts.	Various Municipal Fire Depts.
Not restricted to 200 ft maximum hose lay lengths beyond the eductor	1A Allows Engine company to "make foam" close to the engine. This allows the education operations to take place in a more secure environment. Additional personnel are not required inside the fire ground with SCBA's on	Confirmation tests need to be performed
	1B Allows Fire fighters more freedom to move hose as the situation requires. No need to worry about dragging buckets around behind you.	Various Municipal Fire Depts.
Addition of F-500 to fire water is visually apparent when solution is flowing	F-500 solution shows white in the fire water allowing fire fighters to see that they have product flowing	Various Municipal Fire Depts.
Addition of F-500 to fire water gives off a distinct smell	Gives fire fighters a quick check to see if product is flowing	Various Municipal Fire Depts.
Surface tension reduction allows for delivery of F-500 molecules to deep recesses of Class A materials	1A Quick knockdown on deep seated fires	Demo with mattresses or couches
	1B Long resistance to re-kindle	Demo with pallets that are tried to be relighted.
	1C Allows for more efficient use of water. More surface area is exposed to the fire and converted to steam. This absorbs more energy reducing the temperature of the fuel.	Ability to place your hand on demo materials immediately after extinguishment with F-500.
	1D May change the number of calories absorbed as water converts to steam	No proof to date
F-500 molecules interrupt the free radical chain reaction.	1A Prevents the free radicals from coming together to form soot	Evident in the color change of smoke. Black to white
	1B Aids in the removal of toxic materials from the smoke	Clemson Report
F-500 molecules form micelles around the vapors that exist above the surface of the fuel.	1A Aids in the removal of toxic materials from the smoke	Clemson Report

## F- 500

### Customer Features & Benefits

	Feature		Benefit		Proof
		1B	Removes the most unstable leg of the fire tetrahedron, allowing elimination of the combustion threat before ignition.		Pan lock up, followed by an LEL meter reading, and subsequently a fire test with a propane torch
		1C	Facilitates the removal of fine particulate matter. I.e. can remove the explosive threat of coal dust in coal fired generating plants.		spray a 3% solution of F-500 on a small coal dust fire with a low pressure applicator and observe no coal dust explosion
	F-500 molecules form micelles around the hydrocarbon portion of flammable liquids	1A	Renders flammable liquids non-flammable		Pan lock up, followed by an LEL meter reading, and subsequently a fire test with a propane torch
		1B	Aids in bio-degradation of the flammable liquid by naturally occurring micro-organisms		F-500 places hydrocarbons in a aqueous sphere allowing them to be attacked more easily via a larger amount of available surface area
		1C	Doesn't chemically alter the material that it is encapsulating. This allows for recovery of the spilled product, and therefore no lost revenues.		F-500/Gasoline mixture in a sealed environment will separate once the vapor pressures equalize.
	Micelle formation occurs in a stable and maintainable state	1A	Allows F-500 solution to maintain its vapor suppression and non-flammability characteristics much longer than any other product currently available in the market		F-500/Gasoline mixture in a open environment will evaporate at a rate so slow, that it will never again support combustion
		1B	Allows us to separate ourselves from an ordinary emulsion. Our difference is that we have form an emulsion that is stable in a hydrocarbon environment. After all isn't foam just a bunch of bubbles that remain stable in the presence of heat and fuel.		F-500/Gasoline mixture in a open environment will evaporate at a rate so slow, that it will never again support combustion
	HCT offers a SOP manual for F-500 implementation into department standards		Gives the fire department a reference base for many regularly occurring incidents.		SOP manual
	F-500 is a multi-use fire suppression agent	1A	Can be implemented for use as a replacement to Class A & Class B agents as well as used for HAZMAT incidents		Demo references for a wide variety of hazards
		1B	F-500 becomes the most economical choice for a fire department		Economic comparison presented by Jay D'Alba at the winter training meeting

## F- 500

### Customer Features & Benefits

Feature		Benefit	Proof
	1C	Eliminates confusion at the fire scene over which product to choose for a particular hazard.	Various Municipal Fire Depts.
	1D	Eliminates the need to duplicate inventories of agents for different hazard protection	Various Municipal Fire Depts.
F-500 is an effective agent of fighting rubber, and rubber tire fires.	1A	F-500 consistently out performs all other agents on tire fires. It gives fire departments a reliable tool in the protection of these hazards	F-500 Video
	1B	F-500 provides a new weapon for fixed systems that protect these kinds of hazards.	NFPA 231D testing (yet to be performed)
Fast Extinguishment		Save lives (victims and firefighters) Less property damage Reduce insurance claim amounts and premiums Less workmen's compensation Less worry from firefighter's family	Case Histories and Demonstrations
Quick Fire Knockdown		Gain control of fire and assess damage	Case Histories and Demonstrations
Reduced Surface Tension		Provides greater surface coverage and deeper penetration into pores of Class A materials Facilitates spreading of F-500 molecules in Class B materials	UL listed
Rapid Heat Reduction		Fast extinguishment of Class A and Class B fuels Firefighter can approach fire more safely Reduces threat of spontaneous reignition Reduces combustion threat of surrounding infrastructure	Clemson University Study Reno Study Visual Inspection
Enhanced Burnback Resistance		When F-500 and water are applied at the proper rates, firefighters can walk through fuel with no threat of reignition Penetration of F-500 into pores of Class A materials severely inhibits the fire from restarting	Clemson University Study Pan Lock-up Reno Study

## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
	Less Toxins in the air Increased Visibility	Clemson University Study
Increased Visibility	Better able to locate victims	Clemson University Study
Non-Corrosive	Less danger to firefighter (can see where going) Can pre-mix F-500 into booster tanks without worrying about corrosion of pumps or plumbing	Clemson University Study MSDS
Non-Hazardous	Reduced risk to emergency response personnel Reduced risk to the environment	Clemson University Study MSDS RCRA CFR261
Biodegradable	Reduced risk to the environment	Clemson University Study
Vapor Suppression (Reduces vapors below the Lower Explosive Limit)	Eliminates the risk of explosion by sparks from extrication equipment Safer highway fuel spills Reduces explosive vapors in confined space Faster Tank Degassing / Tank Turnaround	Macon-Bibb letter Clemson University Study Letter from Terminal Technologies and Charles Holston, Inc.
Bioremediation Aid	Speeds breakdown of hydrocarbons by increasing the surface area allowing naturally occurring microorganisms to digest the hydrocarbons Reduces toxicity level of hydrocarbons	Clemson University Study
ISO 9001 Accredited	Assures the customer and end users consistent, reproducible, traceable quality, and reliability of the design and manufacturing process	Registration # 97081.1
Dispersant	May be authorized for use on oil discharges in accordance with the procedures set forth in 40 CFR Subpart J Section 300.910	EPA's NCP Product Schedule

## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
Multi-Purpose Agent	Class A fire extinguishing agent Class B fire extinguishing agent HazMat vapor suppression agent	UL listed UL listed University of Clemson Study
15 year shelf life	Reduces concern about expiration of F-500	In-house tests
Applied with standard foam equip. (Nozzles, Eductors, Proportioners, PW Extinguishers, CAFS, PRO/pak)	No purchase of special equipment needed	UL Testing Case Histories In-house testing
No Foam Blanket	No Blanket to break to release vapors: No Blanket for the Wind to remove No Blanket for Rain to dissipate	Visual Inspection
Favorable BOD and COD	Can outfall into streams, tributaries, navigable waterways, etc. with limited impact	EFEH & Associates Analytical Services, Inc. Clemson University Study
Can be used in combination with Dry Chemical, Dry Powder, Carbon Dioxide and Halon	No need to dispose of existing agents in stock	None????
100% Miscible in water	F-500 will not separate if premixed in a tank	MSDS
Mild, Pleasant Odor	Sense of smell does not rebel	MSDS
Can be successfully treated in biological wastewater treatment systems	Reduce fear of killing microorganisms in plant	Georgia WWTP incident
Low in Toxicity to tested aquatic organisms	Reduced risk to the environment	MSDS Product Environmental Data Sheets EFEH & Associates
Proportions readily	Can be used with a wide variety of proportioning	Hale Pump Listing

## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
Extinguishes a 3-Dimensional Fuel Fire	equipment (fixed, on board, around the pump) Multi-use product	Case Histories and Demonstrations
Extinguishes a Running Fuel Fire	Multi-use product	Macon-Bibb Letter Case Histories and Demonstrations
Quick Extinguishment Time	Enhances Firefighter Safety/Less time in the fire bldg.	Live Fire Training & Actual Incidents
Heat Reduction on all burning surfaces	Quicker knock down/FF Safety/Enhances Burn Back Res.	Live Fire Training & Actual Incidents
Smoke reduction	FF Safety/ Increased visibility for interior rescue.	Live Fire Training & Actual Incidents
Less product needed to extinguish Class A & B type fires	Cost effectiveness to the Fire Dept.//	Live Fire Training & Actual Incidents
Provides a high level of burn back resistance on all Class A type fires	Less chance for re-ignite and losing the structure after the FD leaves the scene. Less damage to mat's.	Live Fire Training & Actual Incidents
Quick Extinguishment Time	Less fatigue and stress on the firefighters. They are able to get in and out quicker with quick exting.	Live Fire Training & Actual Incidents
Quick Extinguishment Time	Reduces Worker compensation injuries because the risk of injury is less because of less time spent in fire	Live Fire Training & Actual Incidents
Firefighter Friendly-Easy to use - use conventional FF nozzles & hoses to apply	Happy Firefighters- one less thing they have to worry about if they don't have to change out hardware	Live Fire Training & Actual Incidents
Non-toxic, non-corrosive, 100% biodegradable, non-hazardous	Puts FF & others at ease knowing they won't get hurt while using F-500- Safer for the environment.	Live Fire Training & Actual Incidents
ISO 9001 Registered	Assures the end users that we are dedicated and professional for providing a consistently effective prod.	Live Fire Training & Actual Incidents
Reduces thermo current when fighting A & B fires-	Allows for quicker Exting. because FF can get to the burning materials quicker and do it safely	Live Fire Training & Actual Incidents
Cools metals very quickly without violent reactions. Class D Fires	Enables FF to extinguish many class of materials burning in structures etc. without changing agents.	Live Fire Training & Actual Incidents
Neutralizes hydrocarbon fuels by the introduction of micelles.	no chance of ignition and burning of the Class B material once it is neutralized/FF safety/Victim Safety	Live Fire Training & Actual Incidents
Fire retardant capabilities on Class A & D materials	Less chance for burnback - actually provides a level of retardancy when materials are pre-treated.	Live Fire Training & Actual Incidents
Cools materials as part of the manufacturing process.	Cost savings to manufacturing companies due to time saved in production and processing.	As stated by some manufacturing groups

## F- 500

### Customer Features & Benefits

Feature	Benefit	Proof
Can act as a fire prevention material when applied in a cooling format/Nuclear Plants/Gs	Personnel Safety/ prevent catastrophic failure to the plant/ keeps employees at work/prevents litigation	As discussed by companies wanting to use the F-500 in this capacity
Can be used to mitigate all polar & non-polar spills and clean all petrochemical surfaces	Enhances the safety of all working in that atmosphere, & removes the potential of slipping injury	Actual use of the product in the field and in controlled environments
Introduced in fixed systems to ext. and prevent fires through deluge & sprinklers	Prevents damage and injury by fire. People keep their jobs, co. owners keep making money.	In Field Usage and Planning of Systems
Used on burning materials that cannot be extinguished with conventional materials.	Protects the employee and prevents damage and loss of product in the manufacturing facility.	Nu Foam Co. in Chattanooga TN. Demo proved to ext. polystyrene foam blocks
Can be used in extinguishers.	Easy application to spilled polar & non-polar liquids. Places the F-500 over the area effected.	Used on actual spills in an emergency mode.
Used in handheld extinguishers to extinguish small Class A & B fires	Quick knockdown and provides for burnback resistance on class A materials.	Used in the field with positive results.
Creates and maintains the Micelle Blanket on Class B materials	Quick extinguishment-provides for burnback resistance. Stages the neutralization of B materials	Demo's and Live incidents.
Rapid Cool down on metals such as high pressure gasoline manifold fires.	Protects exposed plant structures from excessive heat and minimizes damage to the facility.	Demo at Shell Refinery in Houston
Used as a replacement for highly toxic and flammable cleaning solvents.	Less chance of fire and injury to workers when cleaning tools & equipment from grease and oils, etc.	Used in the field and at home.
Can be used as a disperssant when hydrocarbons enter the waterway.	Neutralizes the fuel, removes flammability, protects fish and sealife from danger destruction.	Testing and use.. Being evaluated for the NCP Schedule.
Safe and effective product to clean apparatus bay floors to remove oil/grease/antifreeze .	Cost effective and safer for the end user and the environment.	In Field Use
Excellent Penetrating capabilities on Class A & D materials	Extinguishes deep seated type fires that normally take time and large amounts of water	In Field Use
Meets NFPA 18 wetting agent criteria	Globally Recognized as a superior Standards and Recommendations Association with Fire Service	As described and supported in the field.
UL Listed Wetting Agent and single use product good for Class A & B fires	UL is a highly recognized 3rd party independent testing facility	As described and supported in the field.
Vapor mitigation and spill control agent	1 product with multi use capabilities. Cost effective for fire departments. no need for 3 or 4 products	As used in the field.
Interrupts the free radical chain reaction	removes the toxicity of the free radicals, and increases visibility.	Live Burns and Demo's

**F- 500**  
**Customer Features & Benefits**

	<b>Feature</b>	<b>Benefit</b>	<b>Proof</b>
	Fuel neutralization - by way of micelle formation-encapsulates the hydroc. molecule	Allows for complete fuel lockup and neutralization which provides higher levels of safety to FF's.	In Field Use on emergency incidents