



TECHNICAL BULLETIN
NEW PRODUCT RELEASE - SUPERAGENT

We are pleased to advise all ETI distributors that as part of our product development program, we are releasing a new Fire Fighting Agent that has major implications for the protection of Mobile Equipment to AS5062-2006.

OVERVIEW:

Because ETI has invested in continuous product development, we have developed a far superior agent for its fire suppression system. Pre-engineered systems use off the shelf technology. As a result, the industry has standardised on the use of six percent mix rate foams. In this regard, ETI has achieved benchmark performance with its standard agent used thus far. However, the ETI technical department is now challenging the industry benchmarks which were in fact set by the petrochemical industry. In protecting large fuel tank farms worldwide, fire protection called for systems that could produce massive amounts of produced foams for the extremely large fire risks. The resulting systems use large water pipe mains with foam induction systems. Six and three percent mix rate foams were developed resulting in the tradeoff between the practical cost and handling realities of the final foam; versus its effectiveness. Another factor also has been that many oil facilities are located next to ship loading terminals in river and port facilities so the environmental impact of agent finding its way into aquatic systems is of paramount concern.

In the case of mobile equipment, we have different parameters. We are protecting a very valuable piece of equipment with a very limited amount of fire fighting agent available. Mostly the restriction on available agent is simply the available space to store it, and to a lesser degree, the cost of extra hardware to set up larger systems on mobile equipment. In fact, study showed that the average fire system used in open cut mining stored approximately sixty litres of foam, but was protecting equipment in excess of one million U.S. dollars value.

As part of developing new agents for cold temperature use, ETI also discovered that this new agent had far superior fire suppression performance than the foams the industry was currently using. The agent was designed to be factory mixed at much higher concentrations, and delivered to the customer as a ready to use agent for filling the agent cylinder undiluted. Tests show that this agent can extinguish fires in less than forty five percent of the time that standard six percent foams take. The problem is that many customers look at the cost of this agent in isolation against the cost of mixing six percent foam. In that case the new super agent is many times more expensive. However one must look at "The Big picture" The cost impact on the fire system build was approximately five percent extra for the finished fire system, if the system is using super agent. That means a five percent increase in cost can bring about a performance increase of more than one hundred percent! ETI has a procedure for recovering Super agent during annual services while discharge testing is done with water. This saves the cost of discarding the agent annually and deals with any environmental concerns of unnecessary discharge into the environment.



Another implication of ETI Super Agent is its ability to get exceptional performance out of a small agent cylinder. One of the limitations of six percent foam systems is the size of cylinders required to store agent. Underground mining machines are particularly difficult to design for as the competing space available versus amount of agent ideally required, have difficulty it meeting an acceptable occurrence. To date, ETI has used its advanced risk management procedure to consider the risk of using a less than ideal design as a necessary compromise in those circumstances. ETI super agent now changes all that as much shorter discharge times allow those smaller quantities of agent to be stretched into much bigger systems.

The following information is provided as the technical data for ETI designers to use Super Agent. In training an ETI designer to design accordingly, the first aspect to understand is that there are no hardware changes whatsoever. This is an intentional requirement allowing any system in the field to be upgraded by simply amending the design paperwork, re-filling with the new agent and applying the correct labels.

The design parameters are provided in a separate chart to design for Super Agent.

COLD TEMPERATURE USE

ETI SUPERAGENT is approved for use in climates that have temperature minimums as low as minus forty degrees Celsius. Please contact ETI technical for advice on design in extreme low temperature climates.

The following part numbers allow the ordering of ETI SUPERAGENT!

PART	DESCRIPTION	UNIT SUPPLY	COMMENT
CAGENTSUP/CLD200	AGENT CONCENTRATE 200 LITRES	1	BULK CONTAINER 200 LITRE PLASTIC DRUM
CAGENTSUP/CLD20	AGENT CONCENTRATE 20 LITRES	1	BULK CONTAINER 20 LITRE PLASTIC DRUM
LABELSUPER	SUPERAGENT NOTICE LABEL	1	APPLY TO MAIN AGENT CYLINDER AS MINIMUM



NOTES FOR DESIGNERS

- 1) You should keep a copy of this technical bulletin to supplement the current release 7 version of the ETI TECHNICAL MANUAL. Subsequent releases will include this material.
- 2) This product is listed for compliance to AS5062-2006 and will be posted on the ISB website by reference to this technical bulletin.
- 3) There are no hardware changes to the ETI fire system other than, smaller agent cylinders may be used within the SUPERAGENT design rules.
- 4) Foam application! SUPERAGENT effectively allows you to reduce the amount of agent used or up-rate the performance, or deal with a cold climate application. Given the cost impacts as previously described being relatively low when considered in a risk managed environment, we recommend its use to generally further up-rate performance and only use it to down-size containers where physical circumstance requires that.
The Nozzle performance chart that follows details the design limitations based on ETI fire testing.
- 5) **DOCUMENTATION.** If any immediate designs are required simply notate this technical bulletin into the documentation from your version 12.2 design program and design accordingly. Documentation must make it clear to Installers, maintenance staff and users that the system is designed for SUPERAGENT. As detailed above a label is available that must be applied to the main agent cylinder as a minimum, to clearly indicate that the system uses SUPERAGENT. ETI will release program 12.3 in the near future which will incorporate the changes brought about by this new product so that design rules and documentation are produced directly.
- 6) Remember that designing to minimums is not ideal. If anticipated delays of more than 6 seconds are anticipated for engine shutdown, then this should be added on to the minimum discharge allowance.
- 7) The ETI Fire School will include training for this product in all future curriculums.
- 8) MSDS enclosed for this product.
- 9) Please contact ETI technical for any support you may require in the use of this product.



SERVICE & WARRANTY

1) ETI warrants all products for three years and the agent will have a guaranteed life of a minimum of three years providing it is uncontaminated. If you have a customer with a sizeable fleet investment in this agent, and they want to extend life of the agent, we would put our lab and test facility behind the customer at no charge to extend it. We would simply require a sample of the product in use for testing to verify no degradation. That being the case we could extend it a further three years.

2) For annual testing, procedures require a discharge test. In that instance, a trained maintenance person could de-pressurise the cylinder, and decant the contents into a clean container. The agent cylinder can be replaced temporarily with potable water and the discharge test done accordingly. After completion, the original contents are returned and the system reinstated. I estimate this would add an additional hour to the service procedure, but the benefits are well worth it.

3) Our warranty applies for three years when commissioned into service. If a customer was warehousing for a significant period before use, ETI would acknowledge the period that the stock is held in the warehouse as not affecting the warranty when it goes into use, provided it is stored normally as per the MSDS advice.

Yours sincerely

LEIGH WALDON
Technical Director

Encl:

- SUPERAGENT NOZZLE PERFORMANCE CHART P 4 of this document.
- MSDS 005 Attached (4 pages)

P.S. Original issue 30 September. Re-issued 18 October with Servicing and Warranty notes added.



ETI FIRE SYSTEMS
NOZZLE PERFORMANCE CHART - SUPER AGENT

This chart is for use by accredited designers of the ETI fire system when using "SUPER AGENT". It is used to estimate minimum fire agent quantity and minimum nozzles required to protect a given area. Numbers in the cells indicate the estimated discharge time while color indicates the risk reduction performance in line with the "WRAC" risk reduction process. The design procedure still requires calculation performed by the ETI design program.

GP NOZZLE 4.1 litres/sq mtr minute each	PERFORMANCE CHART FOR ETI NOZZLE DESIGN PART NOZCAPBR																													
	RELATES FOAM AND NOZZLE SELECTION TO AREA AND DISCHARGE TIME (SECONDS).																													
NO OF NOZZLES >>>	2	3	4	5	6	7	8	10	12	14	18	25	30	40	50	60	70	80	90	100	110	120								
MAX AREA >>>	1.5	2.3	3.0	3.8	4.5	5.3	6.0	7.5	9.0	11	14	19	23	30	38	45	53	60	68	75	83	90								
C S Y E L L I E N C D T E I R O N	1 X 14 L = 11.5 L FOAM	112	75	56	45	38	32	28	23	19	16	13	9	8	6	5	4	NUMBERS SHOWN IN COLORED CELLS ARE APPROXIMATE DISCHARGE TIME IN SECONDS.												
	1 X 30 L = 24 L FOAM			117	94	78	67	59	47	39	34	26	19	16	12	10	8													
	1 X 45 L 30 L FOAM			146	117	97	84	73	59	49	42	33	24	20	15	12	10													
	1 X 65 L = 50 L FOAM						139	122	97	81	70	54	39	33	25	20	17							14	13	11	10	9	9	
	1 X 106 L = 85 L FOAM									138	118	92	66	55	42	33	28							24	21	19	17	15	14	
	2 X 65 L = 100 L FOAM											139	108	78	65	49	39							33	28	25	22	20	18	17
	2 X 106 L = 170 L FOAM												132	110	83	66	55							48	42	37	33	30	28	
RISK SCORE Based on direct application.	VERY LOW > 50 SECONDS						LOW 25 - 50 SECONDS						MODERATE 15- 24 SECONDS						HIGH < 15 SECONDS											

This chart is based on demonstrated performance of ETI super agent in its listed fire test apparatus. It is based on direct and indirect fire extinguishment. Caution should be exercised when designing near minimum performance times. The suppression performances indicated are allowed for after engine shutdown. If shutdown times greater than 6 seconds are anticipated, then the extra time should be allowed for, in consideration of reduced performance of the system while the engine is still running.

SUMMARY OF MINIMUM DISCHARGE TIMES TO ETI LISTED RULES		
FOAM APPLICATION	ENGINE SHUTDOWN AUTOMATIC	MINIMUM DISCHARGE TIME
DIRECT ONLY	Six(6) Seconds-Automatic	Twenty Six (26) Seconds
DIRECT ONLY	Twelve(12) seconds-Automatic	Thirty Two (32) Seconds
DIRECT ONLY	Twenty Four(24) seconds-Automatic	Fourty Four (44) Seconds
DIRECT ONLY	NO Automatic Shutdown	Fifty (50) Seconds
DIRECT AND INDIRECT	Regardless of Engine shutdown	Fifty (50) Seconds



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C S Y E L L I E N T R O N	1 X 14 L = 11.5 L FOAM	112	75	56	45	38	32	28	23	19	16	13	9	8	6	5	4	NUMBERS SHOWN IN COLORED CELLS ARE APPROXIMATE DISCHARGE TIME IN SECONDS.												
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DIRECT AND INDIRECT	Regardless of Engine shutdown	Fifty (50) Seconds



PT ETI FIRE SYSTEMS
Jl Magelang – Kopeng, KM 11
Tegalrejo, Magelang 56192
Central Java - Indonesia.

MATERIALS SAFETY DATA SHEET
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AMENDMENTS:
DOCUMENT: MSDS 005

**Document Format to Australian National Occupational Health
and Safety Commission Code of practice – 2nd Edition NOHSC 2010 (2003).**

SECTION 1 IDENTIFICATION

SUPPLIER

PT ETI FIRE SYSTEMS, Jl Kopeng Km 11 Tegalrejo, Magelang 56192,
Central Java – Indonesia.
Emergency phone contact no +622933148990
Website www.etifiresystems.com
Email Info@etifiresystems.com

MATERIAL

COMMON NAME: ETI SUPER AND ANTIFREEZE AGENT -40C
CAS No: N/A
APPLICABLE PART NUMBERS:

CAGENTSUP/CLD020 FIRE FIGHTING AGENT – COLD TEMPERATURE – 20 LITRES
CAGENTSUP/CLD200 FIRE FIGHTING AGENT – COLD TEMPERATURE – 200 LITRES

USE: ETI SUPER FIRE FIGHTING AGENT IS A FACTORY PREPARED PRE MIXED AGENT TO PROVIDE AN EFFECTIVE FIRE FIGHTING AGENT FOR ETI FIRE SUPPRESSION SYSTEMS FOR USE AT AMBIENT TEMPERATURES OF 49 DEGREES CELSIUS TO MINUS 40 DEGREES CELSIUS.

SECTION 2 HAZARDS IDENTIFICATION

ETI FIRE FIGHTING AGENT COLD TEMPERATURE AGENT IS:

HAZARD CLASSIFICATION: Not classified as Dangerous or Hazardous for transport under UN,IMO,ADR/RID and IATA/ICAO

SAFETY PHRASES: NONE

RISK PHRASES: NONE

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

ETI FIRE FIGHTING AGENT CONCENTRATE IS A PROPRIETRY MIXTURE

INGREDIENT	%	CAS NO
DIETHYLENE GLYCOL MONOBUTYL ETHER	< 5	112-34-5
SALT OF ORGANIC ACIDS	<30	127-08-2
FLUORO SURFACTANT MIXTURE	< 8	-
MIXTURE OF HYDROCARBON SURFACTANTS	<10	-
WATER	BALANCE	7732-18-5

SECTION 4 FIRST AID MEASURES

EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER.

SKIN CONTACT: WASH WITH SOAP AND WATER.

INHALATION: NOT CONSIDERED A LIKELY ROUTE OF ENTRY.

INGESTION: MAY CAUSE NAUSEA. DO NOT INDUCE VOMITING. SEND IMMEDIATELY FOR MEDICAL ATTENTION.

CONSULT A DOCTOR IF ANY RESIDUAL COMPLAINTS ARE NOT ADEQUATELY RELIEVED BY ABOVE MEASURES.

ADVICE TO DOCTOR: AS ABOVE.



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SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA – NOT APPLICABLE – THIS IS A FIRE FIGHTING AGENT.

HAZARDS FROM COMBUSTION - NONE KNOWN. HOWEVER PRODUCTS OF COMBUSTION SHOULD ALWAYS BE PRESUMED HAZARDOUS IF PRODUCED FROM FIRE. CONTAINERS/DRUMS OF THE PRODUCT ARE MADE FROM HIGH DENSITY POLYETHYLENE AND WILL BURN. IF EXPOSED TO FIRE; THERMAL DECOMPOSITION OF CONTAINERS AND/OR PRODUCT MAY GENERATE ACID SMOKE, FUMES AND TRACES OF NA₂O, CL⁻, SOX, NOX & HF.

PRECAUTIONS – NO SPECIAL INSTRUCTIONS. NON HAZARDOUS MATERIAL

SECTION 6 ACCIDENTAL RELEASE MEASURES

SPILLAGE IF THIS AGENT IS SPILLED, CLEANUP MAY BE UNDERTAKEN USING PROCEDURES ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION. CHECK WITH THIS AUTHORITY BEFORE USING SEWERS FOR DISPOSAL WHICH MAY OR MAY NOT BE ACCEPTABLE. DO NOT RINSE SPILLED AGENT INTO THE ENVIRONMENT OR STORM WATER DRAINS AS THIS WILL HAVE A CONTAMINATING EFFECT ON THE ENVIRONMENT.

THE MATERIAL IS NON HAZARDOUS; HOWEVER NORMAL PPE IS RECOMMENDED INCLUDING RUBBER GLOVES AND SAFETY GLASSES AS A MINIMUM WHEN IMPLEMENTING CLEANUP.

SECTION 7 HANDLING AND STORAGE

STORAGE: RECOMMENDED STORAGE ENVIRONMENT IS LESS THAN MINUS 40 DEGREES CELSIUS TO 49 DEGREES CELSIUS, IN A CLEAN DRY ENVIRONMENT. HOWEVER THE PRODUCT MAY BE STORED UP TO MINUS 50 DEGREES CELSIUS IN A PROTECTED AREA. STORE THE PRODUCT IN ORIGINAL CONTAINERS AWAY FROM DIRECT SUNLIGHT AND HEAT.

HANDLING: USE OF APPROVED SAFE WORK PRACTICES ARE NECESSARY TO AVOID ACCIDENTS THAT MAY CAUSE INJURY OR CONTAINER DAMAGE CAUSING SPILLS. DO NOT DRAG, DROP, SLIDE OR ROLL CONTAINERS OR DRUMS.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: NOT REQUIRED.

VENTILATION: NOT REQUIRED.

OTHER: EYE WASH AND SAFETY SHOWERS ARE EFFECTIVE FOR EMERGENCY RESPONSE TO PERSONEL EXPOSED TO THIS AGENT. OCCUPATIONAL EXPOSURE LIMITS EH40/96

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: CLEAR, AMBER COLOURED LIQUID.

BOILING POINT: 100 DEG CELSIUS (760MM Hg)

FREEZING POINT: -40 DEG CELSIUS (760MM Hg)

SPECIFIC GRAVITY: 1.01 (H₂O = 1) TO 1.25

VISCOSITY: <10 CENTIPOISE AT 20 DEGREES CELSIUS

VAPOR PRESSURE: NOT DETERMINED

VAPOUR DENSITY: =1

SOLUBILITY IN WATER: 100%

FLASH POINT: N/A

AUTO-IGNITION: N/A

PH: 6.6 – 8.5



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SECTION 10 STABILITY AND REACTIVITY

CHEMICAL STABILITY: STABLE UNDER RECOMMENDED CONDITIONS OF STORAGE

CONDITIONS TO AVOID: AVOID SHOCK, FRICTION, HEAVY IMPACT, HEAT, SPARKS,
OPEN FLAMES AND OTHER HEAT SOURCES.

INCOMPATIBLE MATERIALS: EXPOSURE TO METALS MAY CAUSE CORROSION CONSISTENT
WITH EXPOSURE TO WATER. AVOID ELECTRICALLY ENERGISED EQUIPMENT.

SECTION 11 TOXICOLOGICAL INFORMATION

HEALTH EFFECTS:

EYE CONTACT: MAY CAUSE MILD TO MODERATE TRANSIENT IRRITATION.

SKIN CONTACT: MAY CAUSE MILD TRANSIENT IRRITATION AND/OR DERMATITIS.

INHALATION: NOT AN EXPECTED ROUTE OF ENTRY.

INGESTION: IRRITATING TO MUCOUS MEMBRANES. A LARGE INGESTION COULD
PRODUCE NARCOSIS.

SECTION 12 ECOLOGICAL INFORMATION

PERSISTENCE/DEGRADABILITY: BIODEGRADABLE

BIOACCUMULATION: IS UNLIKELY TO OCCUR DUE TO METABOLISM AND
EXCRETION

SECTION 13 DISPOSAL CONSIDERATIONS

DISPOSAL: THE PRODUCT CAN BE SUCCESSFULLY TREATED IN BIOLOGICAL WASTE WATER
SYSTEM WITH PROPER DILUTION. CHECK WITH THE LOCAL AUTHORITY HAVING JURISDICTION
BEFORE USING SEWERS FOR DISPOSAL WHICH MAY OR MAY NOT BE ACCEPTABLE. DO NOT
RINSE SPILLED AGENT INTO THE ENVIRONMENT OR STORM WATER DRAINS AS THIS WILL
HAVE A CONTAMINATING EFFECT ON THE ENVIRONMENT.

SECTION 14 TRANSPORT INFORMATION

PROPER SHIPPING NAME: ETI FIRE FIGHTING AGENT CONCENTRATE.

HAZARD CLASS: NONE – NOT A DANGEROUS GOOD.

UN NUMBER: NONE



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SECTION 15 REGULATORY INFORMATION

EC DIRECTIVES: Substances Directive 67/548/EEC as amended by 69/81/EEC, 70/189/EEC, 73/146/EEC, 75/409/EEC, 79/831/EEC, General Preparations Directive 88379/EEC

SECTION 16 OTHER INFORMATION

Disclaimer:

This document has been compiled by ETI to serve as the manufacturers Material Safety Data Sheet ('MSDS'). It is based on information concerning the product which has been provided to ETI by other manufacturers or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. While ETI has taken all due care to include accurate and up-to-date information in this MSDS, ETI in no manner whatsoever, expressly or implied, warrants this information to be accurate and disclaims all liability for its use. Any person utilising this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.