



Simplifying Water Treatment

**FIRE EXTINGUISHING
SUPPRESS SMOKE AND GASES**

MARINE 3 FIRE

TECHNOLOGY

Marine 3 Technologies (M3T) offers a groundbreaking patented anionic surfactant that has been extensively researched and developed from sea water over a period of 11 years. M3T is primarily used in the pre-treatment of water. The quality of water and its properties are manipulated in an entirely natural way. This product neutralises the magnetic charges of particles in water thus reducing surface and interfacial tension

Benefits of reduced surface and interfacial tension:

- Increased adhesion of the liquid to a solid particle thus resulting in a powerful **wetting** agent.
- Allows for water and oil-based droplets to break down into finer globules and to stay in suspension for longer, resulting in powerful **emulsification**.
- Prevention of particles to cluster or agglomerate together, thus resulting in powerful **de-agglomeration**.

FIRE EXTINGUISHING ADDITIVE

FIRE FIGHTING

Due to the lack of wetting and emulsification properties, water is not optimally suited for fire fighting:

- Fine dust, carbon and oil based materials float on the water surface.
- Addition of more water will just sink to the bottom and materials will continue to float on the water surface.
- The water surface tension prevents and limits the integration of oil-based material and dusts into water.
- On combustion, the materials will continue to burn whilst floating, even when more water is added.
- When material is burning, a carbon surface is formed and this layer reduces water penetration to allow for re-combustion.



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CASE STUDY / ETHEKWINI FIRE DEPARTMENT

Test	Without M3T	With M3T
Water used	3000 L	250 L
M3T Dosage	0	585 ml
Time	10 min	28 sec

Two tests were done on extinguishing tyre fires; one with water only and one with M3T added to the water. In the test with untreated water it took approximately 3000 liters of water and nearly 10 minutes to extinguish the fire.

With a similar fire 1.5 liters of M3T was added to the 3000 liter tank. This time the fire was extinguished using only 250 liters of water within 28 seconds.



BENEFITS

Product bearing water will:

- Emulsify burning oil based materials with Fire Fighting water.
- Wet carbon surface which forms on the burning matter surface.
- Provides cooling.
- Reduce water requirement.
- Suppress smoke and gases in fire.
- Prevent re-combustion.
- Reduced time to extinguish fire.
- Bio-degradable and environmentally friendly.
- Small dosages required.

OTHER TESTS - PHOTO GALLERY

Tyres:



The efficiency of M3T in extinguishing tyre fires was demonstrated in the Ethekewini case study (refer to table at the top left of this brochure).

The above photo's further demonstrates M3T's effect on tyre smoke. Notice how the dense black smoke changes to white, increasing visibility thus allowing fire fighters to get much closer to the fire.

Extinguishing:



1. After 20 minutes the grass bale, treated with water only, could not be extinguished. It was still smouldering and reignited.
2. 20 minutes after the grass bale was extinguished with Hydrex and water, it started smouldering and reignited.
3. 20 minutes after the grass bale was extinguished with M3T (0.05% to vol) and water, it was completely extinguished, i.e. no smoke and did not reignite.



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