FENIKS GLOBAL ENTERPRISE
FIRE SAND

FIRE FIGHTING SYSTEMS

At Feniks Global Enterprise, we have developed the worlds first Fire Sand that is particularly suited for Hydrocarbon Fires amongst other things. Our specifically developed Fire Sand is non-toxic, non-flammable, non-corrosive, environmentally friendly, derived from nature itself, is an actual natural fire retardant and to top it all off its FOOD GRADE.

With years of research and development, we turned to nature for answers and our inspiration came from the lotus flower itself. The lotus flower leaf does not get wet by changing its surface tension. Using this unique ability, Feniks Global Enterprise has created a unique process that we call HLL "Hydrophobic Lotus Lamination" giving us the ability to carefully change the surface tension of each and every Fire Sand granule, making our Fire Sand resistant to moisture, humidity and water BUT seeks out hydrocarbons. 2013 to 2014 Australia had over 100,000 fires with just over half being bushfires and the rest structural fires and water fires where hydrocarbons are floating on top of the water and have ignited. Hydrocarbons include petrol, diesel, crude oil, oil or any carbon or petroleum-based liquid.

Fires where hydrocarbons are involved are extremely difficult to extinguish. The main issue about these types of fires is the unique nature of the hydrocarbon itself and more so when the fire is on top of a body of water. All hydrocarbons are lighter than water, hence they all float on top of the water. This poses a very difficult task in extinguishing these type of fire and water alone cannot put these out. In fact using water on a hydrocarbon fire cause a great risk of flashing and can even spread the fire.

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In most cases specific fire fighting foam is injected onto the water hose branch. The aim is to fully blanket for fire and literally smother the fire with the foam. However, traditional foams and fire fighting products are plagued with toxic, corrosive and dangerous chemicals that have shown to cause major health issues and environmental contamination along with a myriad of other adverse effects. Blanketing the hydrocarbon fire takes time and if the foam breaks apart, due to the extreme heat trapped underneath the foam, the fire can easily reignite.

Using our Fire Sand, being moisture-resistant, sits on top of the ignited hydrocarbon and actually soaks up the ignited hydrocarbon into the Fire Sand. With the extra weight of the hydrocarbon now trapped inside the Fire Sand it becomes heavier than water and actually drags the ignited hydrocarbons below the waterline quickly extinguishing the flames with NO chance of reigniting. In the case of an oil spill, Fire Sand is able to soak up the oil and drop it below the waterline where we are able to recapture the soaked Fire Sand. Through a simple process and separation we have the ability to actually give the oil back!

In the case we showcase the 3 firefighting principals to extinguish a fire, Saturation (Fuel), Smothering (Oxygen) and Cooling (Temperature). Our Fire Sand performs all three of these principals in one step. We saturate the fire with Fire Sand. We smother the fire by removing the oxygen by the liberation of CO2 from the Fire Sand and we cool the temperature by dragging the **hydrocarbon** soaked Fire Sand below the waterline.

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To demonstrate the unique abilities of our Fire Sand, we put our Fire Sand to the test at the Tasmanian Fire Services in Cambridge Tasmania.

Using their hydrocarbon tank measuring 2.5m x 2.5m square, the demonstration was a massive success in a very dramatic way to the sceptical onlookers that included Fire Fighters, Engineers, Staff and others.

Before the demonstrations we noticed that the tank had a lot oil and waste hydrocarbon floating on top of the water. Another 10 litres of diesel and petrol was added to the tank. The petroleum for its low flashpoint and the diesel for a slow burn and to raise temperature.

The fire was ignited and left to burn for almost 12 minutes to bring the test temperature to almost 1200 degrees Celsius whilst bellowing out thick black smoke. In normal circumstances the fire fighter would have used their small cannon with the foam. The small cannon pumps out 5000 litres of water with the injection of the foam. With a fire of this size and up to 1200 degrees Celsius the small cannon with foam would take approximately 1 minute 30 seconds to 2 minutes to extinguish the fire however if the foam breaks at all then the fire would definitely reignite due to the heat trapped under the foam.

Using our FENIKS 50 Fire Fighting Machine pumping out our Fire Sand we were able to completely extinguish the blaze in just under 15 seconds. The crowd was amazed. To make sure that the fire could not reignite, 6 attempts were made to reignite the fire with no success at all.

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The firefighters watching could see the Fire Sand soaking up the oil, petrol and diesel mix and watched it drag the ignited hydrocarbons under the water. This was done with no toxic or corrosive chemicals. Fire Sand is non-toxic, non-flammable, non-corrosive,environmentally friendly, derived from nature itself, is an actual natural fire retardant and to top it all off its FOOD GRADE.

With the development of our Fire Sand, Feniks Global Enterprise is able to offer specialised Industries a multi-level approach to suit many applications and safety benefits that are currently unavailable worldwide.

Please see details below:

1. **MANUAL SCALE:** This would involve the manual use of our Fire Sand in a bag or bucket for certain specialised applications such as car accidents. It was mentioned on the day of our demonstration, that every fire truck should carry up to 10 x 20Kg bags on board for the use of small spills. This would be useful when attending to a car accident and fuels and oils are flowing out. Not only would Fire Sand contain the hydrocarbons in its tracks, it would also act as a fire barrier. If a fire was to occur the release of CO2 from the Fire Sand would aid in suppressing the fire. This manual scale would only be useful for the spreading of our Fire Sand by hand on any hydrocarbon spill.

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2. **SMALL SCALE:** This would involve the use of our newly developed Stainless Steel, refillable, portable, fire extinguisher style backpack unit that has the ability to run off the fire truck compressors and would have a range of about 5 meters. This would also bring to life our FENIKS 5 machine being the worlds first refillable fire extinguisher style that runs off compressed air opening up huge benefits and applications around the world for Fire Safety.

3. **MEDIUM SCALE:** This would involve the use of our FENIKS 20 or FENIKS 50 Machines with our new C3 (Containment, Cooling and Collection) Package attached for the aid in firefighting, spills, containment and many other potential applications worldwide. These machines have the potential range of about 20 meters.

4. **LARGE SCALE:** This would involve the introduction of our Fire Sand to be injected into your existing water hoses through your current branches. This would give you the capability of introducing a Fire Sand into a fire 70 meters away. As our Fire Sand is water-resistant, it would enter the fire in a dry state and float on top of the water inside the fire. If any hydrocarbon fires have ignited, they would also float on top of the water and float and spread to the lowest point creating an intense hydrocarbon fire. Our Fire Sand would actually seek out the hydrocarbon fire floating on top of the water, soak up the hydrocarbon and drag it below the water.

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5. **FIRE BREAK:** There is a great potential of using our Fire Sand as a fire break during bush fire season or other class A fires. This would involve the thick layering of our Fire Sand to create a fire break. As the fire approaches the Fire Sand, above 70 degrees it liberates CO2 and potentially starves the fire of oxygen or slows it down. Again as our Fire Sand is water-resistant, it would stay intact during dewy conditions or even freezing conditions and would not be affected almost all year round. Furthermore, as our Fire Sand is a food-grade, non-toxic, non-hazardous, 100% safe and biodegradable it would not affect animals wildlife or curious bushwalkers.

6. **REMOTE STATION:** As our FENIKS Range of machines are designed and manufactured in high grade Stainless Steel, they would be perfect for remote stations waiting for the need for a fire fighting application. To add to this our Fire Sand is water-resistant and would not be affected by moisture in the air or freezing conditions. This would allow fire fighters to be ready and waiting fully prepared for future fires.

As you can see, the applications are endless and the potential safety benefits and life saving potentials are even more. Feniks Global Enterprise sees further potential multiple markets with great potential using both the Fire Sand and the FENIKS range of machines such as large oil spills, simple house hold equipment, high rise building applications, aviation, mining, Oil Refineries, tankers, Petrol Stations and the list goes on.

Feniks Global Enterprise is committed to Fire Safety, wildlife preservation and to save lives. With Fire Sand and FENIKS Machines we are able to achieve this at a global level. Contact Feniks Global Enterprise to find out more.

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