Fire and Flames

Photo: Corbis

The mountainous area surrounding the tiny village of Monchique in a remote corner of Portugal's Algarve region is actually an idyllic piece of land. In theory, anyway. Now, blackened remains of trees poke up toward the sky where just two years ago healthy forests clung to the mountainsides. Broad expanses of land succumbed to the flames last year when devastating fires swept the region. But at least some fire sources could be corralled in time, thanks to a highly effective fire-extinguishing agent additive by Degussa.

Photo: Getty Images

Helped by the searing summer heat, the seemingly unstoppable flames tore through the forests of southern Portugal, blighting hundreds of square kilometers of the landscape. Villages had to be evacuated, and many people lost all of their belongings. Even with a major operation, the fire department initially could not gain the upper hand over the inferno. For days, more than 500 fire trucks and two dozen helicopters were unable to control the flames. Ultimately, the damage done to people and nature was so extensive that the European Commission was contacted for help.

Almost at the same time, Degussa's FIRESORB® specialists, alarmed by the shocking images from Portugal, contacted the Bundesgrenzschutz (Federal Border Guard) and the Portuguese Ministry of the Interior by way of the European Commission and offered to provide immediate assistance. The Portuguese Ministry of the Interior reacted quickly and directly.

RAPID ASSISTANCE

Just one day after offering to help, Degussa delivered 1.8 metric tons of FIRESORB® from a warehouse in Spain to southern Portugal. A four-person team from Krefeld also flew to the scene of the disaster to support the use of the extinguishing agent additive on site. "It was particularly helpful that FIRESORB® can be used with standard fire-fighting equipment. Technical refitting of the equipment was not necessary," said Ralf Röhlen, who is the Krefeld-based product manager for the fire-extinguishing agent additive. This helped the team gain valuable time. The fire trucks, mostly all-terrain Unimogs, immediately set off for their next mission in the nearly impassable mountainous terrain. They had FIRESORB® on board, which was mixed directly into the water in their tanks.

Victim of the flames: a hilly landscape in California after the devastating fires in summer 2003.

The first missions where they were used proved successful. The product's extinguishing capability impressed the fire-fighting experts on site. Röhlen was also very satisfied. "We were able to put out some fire sources with a concentration of only 1 to 1.5 percent FIRESORB® in water," he recalled his mission in the Portuguese mountains. How can the success of FIRESORB® be explained? How does this product work? FIRESORB® is a liquid polymer compound that can absorb many times its own weight in water, forming an adhesive gel that can block heat. Due to its viscosity, this gel drips off the burnt material very slowly, and therefore retains its fire-fighting properties longer. It acts as a liquid fire blanket over the burnt material, chokes off the fire by preventing the flow of air, and creates a cooling effect.

"We set up firebreaks using FIRESORB® gel in California. The flames were extinguished as soon as they reached the firebreaks."

Ralf Röhlen

PREVENTION

Another of FIRESORB®'s qualities ensured that the wildfires in southern Portugal were contained and ultimately extinguished using this product. FIRESORB® not only puts out fires, but is also highly effective in preventing them. According to Röhlen, "We set up firebreaks using FIRESORB® gel at the wildfires in Portugal. That worked extremely well. The flames were extinguished as soon as they reached the firebreaks." Firebreaks measuring just 3 meters across were enough to stop the flames in their tracks. Even sparks and extreme heat were unable to cause the firebreaks coated with FIRESORB® to ignite. In addition, the fire department sprayed many treetops with the gel, which provided additional assistance in preventing the fires from spreading.

This preventive effect has also saved the belongings of hundreds of people during major forest fires in California and Ontario, Canada. More than two hundred residences and restaurants, along with a church, were spared from destruction after they were sprayed with FIRESORB® gel. The product is mixed in a concentration of 1 to 1.5 percent for use in fire fighting, and in a concentration of 2 to 2.5 percent for preventive fire protection. ···›

FIRESORB® in use. The product is mixed with water using a water-driven dosing pump.

Ralf Röhlen (left) and Michael Nagels (second from left) explain how to use FIRESORB® to fire fighters of Viersen's fire department.

FIRESORB®

FIRESORB® is a fire-extinguishing agent additive that is mixed with water to create a fire-preventing and heat-absorbing gel.

Because it is a gel-like substance, **FIRESORB®** is very well suited to preventing fires.

FIRESORB® has been tested in accordance with Germany's strict fire-fighting and environmental regulations and approved as an extinguishing agent for Class A fires.

FIRESORB® is registered as a trademark in Australia, the European Union, Indonesia, Japan, South Africa, and Turkey and protected by international registration in China, Norway, the Russian Federation, Switzerland, and Belarus.

Composition: approx. 28 percent polymer, approx. 43 percent water, approx. 23 percent biodegradable ester oils, approx. 6 percent surfactants.

CREASORB

FIRESORB® is produced at Degussa's Krefeld site by the internal start-up company Creasorb, which is part of Creavis Technologies & Innovation. That is where development efforts began in the late 1990s after the fire-fighting industry discovered the water-absorbing and thickening properties of cross-linked polyacrylates, known as superabsorbents. Initially, there were problems when these granulated polymers were mixed with extinguishing water. As a result, experts began to develop special products (emulsion polymerizates), which fire departments could mix with water using standard dosing equipment available on the market. After the first products were finally available and protected by patent, marketing of FIRESORB® began in early 2000.

Considering the product's favorable properties, it is no surprise that demand for the extinguishing agent additive is growing. At the same time, launching the product is challenging, because practically every volunteer and professional fire department must be attracted as a customer. Sales employee Michael Nagels has been hot on the trail of new business, holding his FIRESORB®-covered finger in an open flame for several minutes to convince potential customers to buy the product.

In North America, the product is sold under the brand name THERMO-GEL® mainly to private fire-fighting services by Degussa partner Thermo Technologies Inc. In Europe, the team headed up by Röhlen is initially focusing on the Austrian market, in addition to Germany. They did more than just present the product at Austria's "retter 2004" fire-fighting trade show. During a discussion with customers at the Austrian sales partner fire KRAFT, the Creasorb team received an emergency call. Deutsche Montan Technologie (DMT), with which the team had already held several fire-fighting exercises, reported a fire in a silo complex in Germany's state of Thuringia. Nagels, who was in Austria, successfully coordinated the use of FIRESORB® by cell phone. "Within 24 hours, FIRESORB® partner H.T.S. Brandschutzservice Markus Kohten brought the fire in the feed silos under control. Prior to that, several days were spent unsuccessfully trying to extinguish the fire using water and foam," reports Nagels.

The mission in Thuringia again demonstrated something that Röhlen and his team have known for a long time. FIRESORB® can put out any fire. ●