



## TESTIMONIAL

### Test methods:

Xpyro's Long Term Fire Retardant (LTR) *PREFIREX* was tested in the Wind Tunnel of the Forest Fire Laboratory of the Mediterranean Agronomic Institute of Chania (MAICH), Greece.

The testing surface was organized as shown in the image above: **Non treated bed (90 cm)** - **Treated bed with *PREFIREX* (60 cm)** - **Non treated bed (control - 30 cm)** - **Empty bed (30 cm)**. The fuel was a homogeneously spread layer of dead pine needles (7cm depth) at a load of 13.6 t/ha. Five thermocouple sensors were placed over the needles at 30 cm from each other along the fuel bed for collecting temperature data every 0.5 sec (blue dots in the above image). The wind speed was set at 1.3-1.4 m/s, at 0.4 m above the bed surface.

*PREFIREX* was sprayed on the treated fuel bed at a dosage of 1.5 l/m<sup>2</sup>. Tests were carried out in one hour and 24 hours after *PREFIREX* application.

### Test results:

With a delay of one hour after *PREFIREX* application, when the main fire reached the treated bed with a Rate of Spread (ROS) of 120 m/h, the ROS was reduced dramatically and finally the fire stopped, burning about 10% of the treated bed (**Figure 1**). In the test with a delay of 1 day after *PREFIREX* application, the main fire reached the treated bed with a Rate of Spread (ROS) of 127 m/h, the ROS was reduced also dramatically and finally the fire stopped, burning about 40% of the treated bed (**Figure 2**).

The Fuel Moisture Content (FMC) of the treated bed, one hour after *PREFIREX* spraying, was 69.33%, while after 24 hours dropped to 57.25%. This may be an indication that the retardant covering the fuels may also be affecting their drying rate, i.e. as the *PREFIREX* covers the surface of the pine needles it seals the moisture inside the needles.

The observed fire Rate of Spread reduction is obviously the result of high fuel moisture content and the effect of the retardant. The observed delay of the drying of the treated needles after *PREFIREX* application, indicates an additional positive influence of the specific retardant.

### Conclusion:

The tests provide a clear indication that the *PREFIREX* offers a strong fire retarding capacity when applied on fuels immediately before fire arrival and maintains this capacity sufficiently 24 hours after application. In both cases, 1.5 l/m<sup>2</sup> of *PREFIREX* offered a significant reduction in ROS, in flame length and in fire intensity, resulting to fire extinguishment.

George Kazakis  
Mediterranean Agronomic Institute of Chania, Greece  
Forest Fire Laboratory  
<https://www.iamc.ciheam.org/>



Figure 1. Fire stopped using 1.5 l/m<sup>2</sup> of *PREFIREX*, one hour after the treatment.



Figure 2. Fire stopped, using of 1.5 l/m<sup>2</sup> of *PREFIREX*, 24 hours after the treatment.