



SITE

SPECIFIC



PROTECTING

YOUR

MICRO-ENVIRONMENT

**FUME CABINET  
FIRE PROTECTION SOLUTIONS**



**FIRETRACE**<sup>®</sup>  
AUTOMATIC FIRE SUPPRESSION SYSTEMS

## OVERVIEW

Working with volatile chemicals presents many challenges for scientists. First and foremost, the fumes that come from these chemicals can be incredibly dangerous. They present a potential hazard if inhaled by themselves or when they interact with other chemicals that may be in use. To help control the vapors, fume cabinets were created to control airflow and evacuate all of the ambient fumes from the chemicals. Large fans are used to “pull” air through the cabinet's baffles and eliminate the potential for the fumes to escape back into the room.

While these units are able to greatly reduce the risk of fume inhalation, an equally dangerous hazard exists in fume cabinets - fire. Typically labs have procedures in place to prevent fires; however, accidents happen and the potential presence of ignition sources such as burners and heat plates, along with the inherent volatility of the chemicals themselves, leads to a significant fire risk. Until now, effectively protecting a relatively small area such as fume cabinet has been difficult and cost prohibitive. Some systems use sprinkler heads to detect a fire, but are frequently rendered ineffective due to the air flow of the hood.

## THE FIRETRACE® SOLUTION

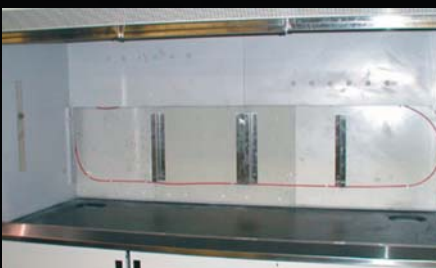
The Firetrace concept is simple: detect and suppress a small fire before it grows, consumes the hood, and requires extinguishment by the building's sprinkler system. Aside from increased damage caused by smoke and flames from a growing fire, a sprinkler system's activation leaves significant water damage. In fact, often times damage caused by the actual flames can pale in comparison to the collateral damage of smoke and water, which is why a Firetrace system provides the perfect “local” fire protection solution for fume cabinets.

Detecting a fire in its early stage is of paramount importance in reducing the risk of injury to personnel and/or the damage to equipment. Our proprietary Firetrace Detection Tubing (FDT) is the key for fast, accurate fire detection. This flexible, heat sensitive, polymer tubing is mounted behind the baffles of a fume cabinet. As a fire begins, the flames immediately follow the airflow into the cabinet's baffles. With the Firetrace tubing crisscrossing the baffles, quick detection is assured.

Once the FDT senses heat of approximately 212°F (100°C), it bursts and automatically triggers the fire suppression system. A Firetrace suppression system provides immediate fire protection. With nozzles placed strategically within the fume cabinet, the best suppression agent for the application, such as FM-200®, CO2 or dry powder, is administered directly on the fire — automatically. Plus, the Firetrace system requires no electricity and needs no personal activation to function.



Firetrace tubing “burst”

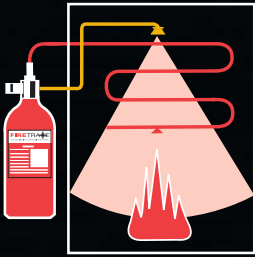


Firetrace detection tubing installed behind the fume cabinet's baffle



Firetrace detection tubing installed in front of the fume cabinet's exhaust

**INDIRECT DELIVERY**



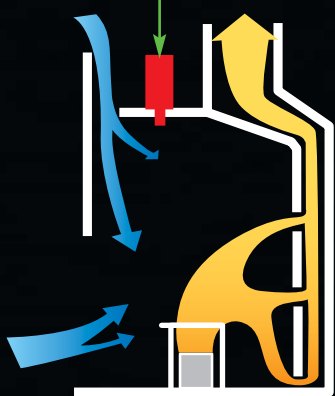
**FIRETRACE SYSTEM CONFIGURATION**

Firetrace recommends the use of a Firetrace Indirect Low Pressure (ILP) system to protect fume cabinets. In these applications Firetrace Detection Tubing is used as the fire detector behind each of the baffles. A piping network delivers the suppressing agent from the cylinder to the enclosure. The ILP system can be configured with a single or multiple nozzles to evenly distribute the cylinder's agent and

ensure that the entire enclosure is quickly and evenly filled. The nozzles' style will vary depending on the type of agent used and the size of the cabinet.

While Firetrace is designed to be fully automatic, a manual release is also provided as an activation option. Additional features include the option for multiple pressure switches which can perform functions such as activating local or building alarms, or shut off fuel valves and electrical devices that might be located in or near the fume cabinet.

**Sprinkler-head Detection**

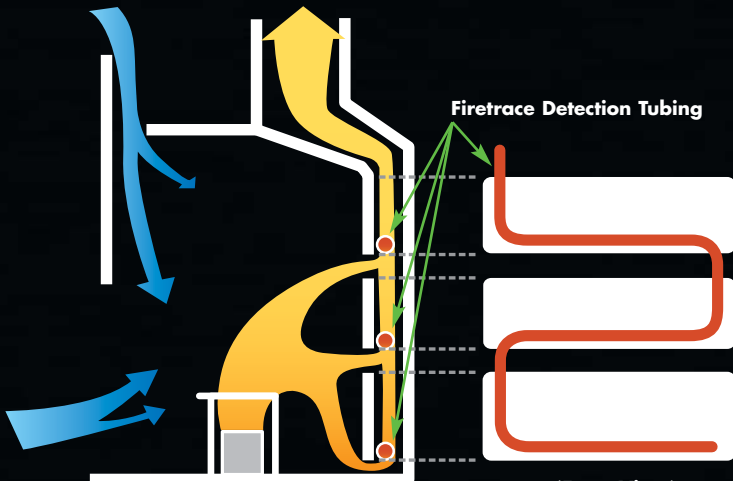


**Traditional Fire Detection and Suppression**

**Ineffective Fire Suppression**

Fresh airflow (blue arrows), combined with the outflow through the baffles can direct flames and heat (red arrows) in multiple directions based on the location of the source of the fire. This increases the probability that the heat and flames required to activate the system may never reach the sprinkler-head type detection device on the cylinder. By the time the fire would be large enough to overcome the airflow and activate the system, the amount of damage could be staggering.

To effectively protect the hood, detection must be available in any path the flame and heat might follow.



**Firetrace Fire Detection and Suppression**

**(Front View)**

**Effective Fire Suppression**

What makes Firetrace the ideal fire-suppression system for fume hoods is the Firetrace Detection Tubing that is fitted behind the baffles and across the exhaust duct openings.

These areas, by the design of the fume hood, are exactly where the heat and flames are drawn. Placing detection in each likely path of the heat and flame results in a quick detection and suppression of the fire (over 10 times faster than traditional systems), minimizing fire damage to the hood and lab.



## Fume Cabinets and the Firetrace Technology

Firetrace is in use protecting over 9,500 fume cabinets worldwide. Firetrace has its origins in the late 1980's in the United Kingdom as a special hazard fire suppression system. Through the 1990's applications expanded to include enclosures such as fume hoods and electrical cabinets as distribution increased in Europe.

In 2001, the worldwide rights to Firetrace were purchased by Firetrace International, a group of fire suppression industry veterans who could see the value in creating fire suppression systems for "micro-environments". This concept is simply providing supplemental protection that suppresses fire quickly within a smaller protected space before larger room or building systems would activate. As a result of this supplemental protection, fire damage, both direct and collateral, and costs associated with cleanup and downtime are significantly reduced or eliminated. Available in multiple system sizes (ranging from 1 lb. systems to 50 lb. systems) utilizing a variety of fire suppressing agent options, Firetrace is now the leading fire suppression system for virtually any enclosed application.

Firetrace Systems are currently in use by companies such as:

- British Nuclear Fuels
- Caterpillar
- Chevron
- Conoco
- Glaxo-Wellcome
- ICI
- Kimberly Clarke
- Pfizer
- Shell
- Smith, Kline and Beecham
- United States Army Research Labs
- United States Air Force Labs

**FIRETRACE**<sup>®</sup>  
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Distributor:

Firetrace is available exclusively through our worldwide distributors, each of which has been properly trained in the installation and maintenance of Firetrace systems. To locate the Firetrace distributor nearest you please contact us at:

### Firetrace International

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Scottsdale, AZ 85260 USA

1-866-607-1218 (US and Canada)

1-480-607-1218 (Elsewhere)

1-480-315-1316 (Fax)

Firetrace@firetrace.com

[www.firetrace.com](http://www.firetrace.com)

Firetrace has more than 20 international approvals and listings including:



Approvals and listings vary by system type and agent.