

For **Manufacturing**

HIGH-TECH FIRE SAFETY TRAINING TOOLS

Extinguisher training can help manufacturing teams respond quickly and safely to fire emergencies.



LION



Introduction

Manufacturing plants are full of potential fire hazards. These include large electrical systems, flammable liquids and combustible debris—not to mention activities like welding and grinding that can quickly spark a fire. Add in human errors or failure to follow safety protocols, and it's a recipe for a fire emergency.

That's why fire extinguisher training is so important for people who work at or operate manufacturing facilities. Proper training helps them recognize different types of fires, choose the appropriate extinguisher and respond quickly under pressure. And it helps employers, building owners and facility managers protect their people, properties and equipment.

This paper explores fire extinguisher training for the manufacturing industry. It also addresses fire science basics and regulatory requirements—plus modern training tools that can help keep people safe.

A Widespread Problem

More than 36,000 fires occur on average each year at industrial and manufacturing facilities in the United States, according to the National Fire Protection Association (NFPA). These fires can cause significant property damage, project delays, injuries and even death.

The financial fallout of a manufacturing fire can spread far beyond the building itself. When plants close after a fire, crews are often out of a job—

which can be a devastating blow to workers. Large fires also can strain local economies if the flames damage nearby businesses. Finally, fires can expose employers and property owners to liability lawsuits.

Fire extinguishers serve as the first line of defense during the early stages of a fire. But for that defense system to work, employees need quality extinguisher training.

**Annual cost of
fires at manufacturing
facilities**

Source: NFPA

22
civilian deaths

211
civilian injuries

\$1.5 B
in property damage



The Future of Fire Safety Solutions

Traditional fire extinguisher training can be messy, costly and time-consuming. But as technology improves, companies are changing how they teach fire safety.

Digital training systems have become more popular in recent years, thanks to their combination of realism and safety. They're easy to set up and can be used in any location where fires can occur. And because they're fully digital, there's no need to clean up chemicals or water after a training session.

The two products below are at the forefront of the digital revolution.



LED simulators

These systems, which use laser-driven extinguishers and LED panels that mimic a real blaze, have helped train thousands of workers across the country. Sensors in the panel react to the extinguisher's laser, and the digital flames only go out if trainees use proper techniques.



Key benefits

- **Easy-to-use:** Most LED simulators can be plugged in and set up in a matter of minutes.
- **Responsive:** Trainees get immediate feedback and can adjust their technique on the fly.
- **Immersive:** Some simulators can be wirelessly paired with smoke machines and alarms.
- **Cost-effective:** These systems eliminate ongoing costs like fuel and new extinguishers.



VR training systems

Virtual reality systems are the latest advancement in fire safety training. They feature high-tech VR headsets and extinguisher props to let users battle virtual flames in immersive and realistic environments, often with interactive features like timed competitions and gamification.



Key benefits

- **Portable:** Most systems are lightweight and run on batteries, so they can be used anywhere.
- **Flexible:** Instructors can choose from a variety of fire types and workplace environments.
- **Shareable:** Training sessions can be recorded and watched in meetings or online events.
- **Enhanced engagement:** Some systems can cast the scene from inside the headset to a second screen to promote group participation.



The Importance of Hands-On Training

While theoretical knowledge is valuable, hands-on extinguisher training shows users how to respond safely to a real fire emergency. Training helps them:

- ✓ **Develop muscle memory:** Handling an extinguisher helps build confidence and familiarity, making it easier to act under pressure.
- ✓ **Memorize P.A.S.S.:** Training reinforces the P.A.S.S. method (Pull, Aim, Squeeze and Sweep) and helps instill proper techniques.
- ✓ **Understand fire situations:** Practice helps people know when a fire can be extinguished and when evacuation is the best option.
- ✓ **Enhance decisions:** When people train in simulated conditions, they're more likely to react correctly in real situations.



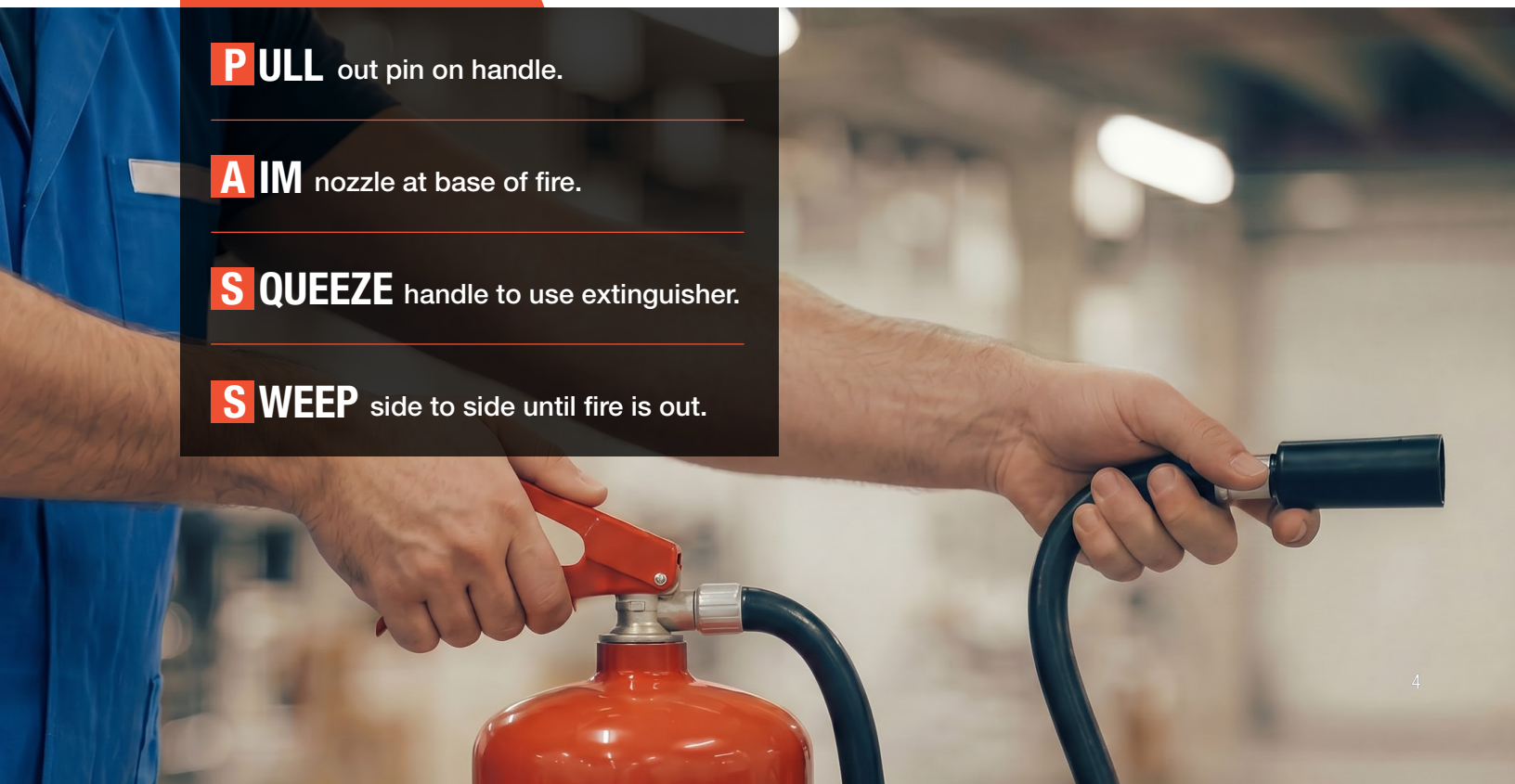
THE P.A.S.S. METHOD

PULL out pin on handle.

AIM nozzle at base of fire.

SQUEEZE handle to use extinguisher.

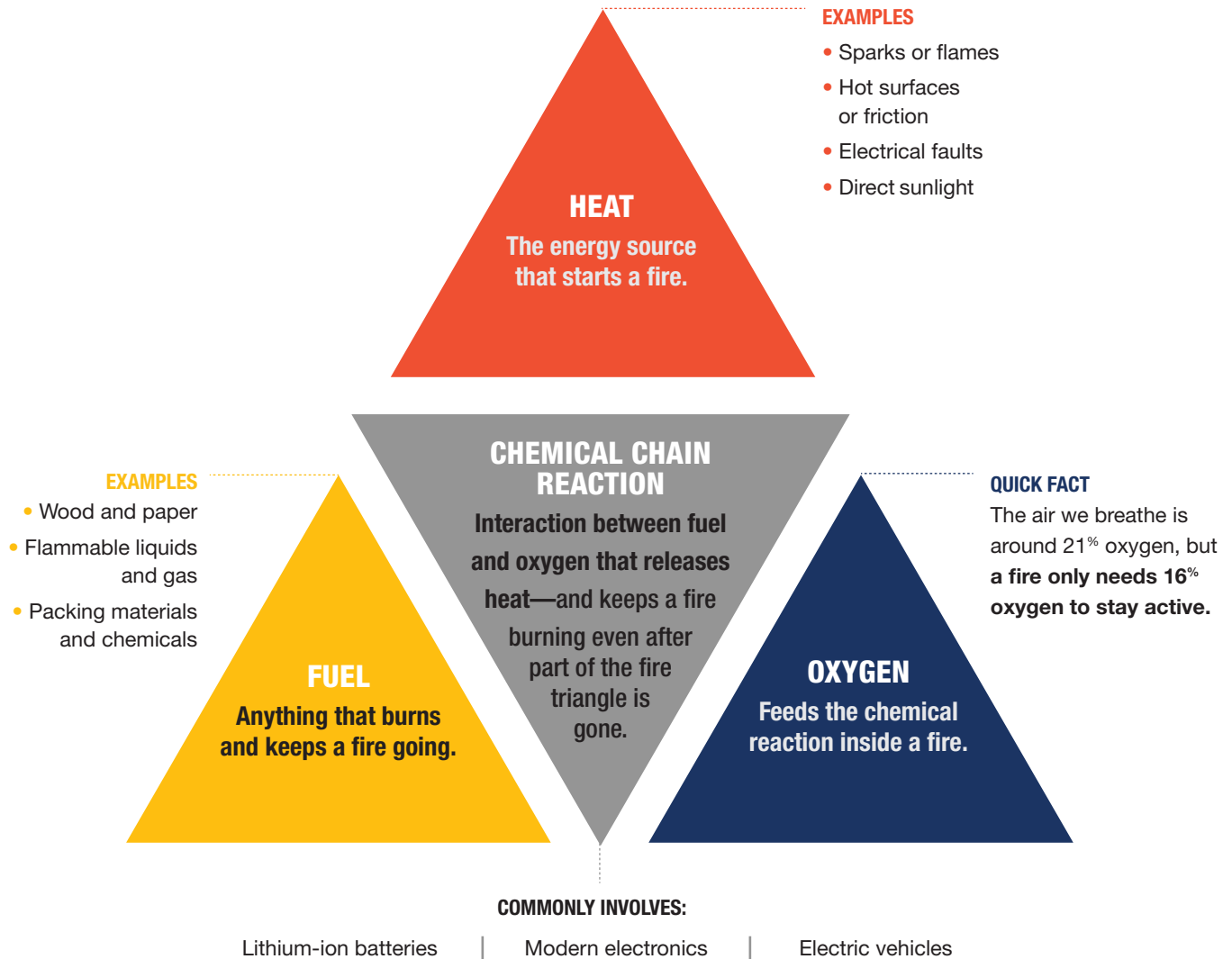
SWEEP side to side until fire is out.





Inside the Fire Tetrahedron

To understand how extinguishers work, you first need to understand the science behind fires. For decades, the fire triangle was the building block of fire safety training. It consisted of heat, fuel and oxygen. But modern science has introduced a fourth element—the chemical chain reaction—to create the fire tetrahedron.



PUTTING OUT THE FLAMES

To extinguish a fire, you need to do at least one of the following:

- Cool the fire to remove heat
- Remove or isolate the fuel to stop combustion
- Smother the fire to deplete oxygen
- Interrupt the chemical reaction to end self-sustaining flames



Workplaces must adhere to several regulations for extinguisher placement and training.

OSHA & NFPA Requirements

Workplaces must adhere to OSHA 1910.157 regulations for extinguisher placement and training.

Among the requirements for employers:

- **Install portable fire extinguishers** where fire hazards exist
- **Provide hands-on extinguisher training** to employees at least once a year

NFPA 10: Standard for Portable Fire Extinguishers also provides comprehensive requirements for workplaces.

These include:

- **Proper extinguisher selection and installation**
- **Inspection frequency and maintenance**

Monthly Inspections

- Confirm extinguishers are in designated locations
- Verify pressure gauges are within operational range
- Check for physical damage or corrosion
- Ensure access is unobstructed

Annual Servicing

- Conducted by certified professionals
- Includes internal inspection and servicing
- Extinguishers recharged or replaced as needed

Conclusion

Be Proactive, Not Reactive

Fire extinguisher training is an essential part of workplace safety. It's not a "nice to have" offering for the manufacturing industry.

It's required.

Effective training programs reduce risks, protect properties and save lives. With quality hands-on training, you can prepare your workers to respond quickly and safely in an actual emergency.

And while the best training may not be the cheapest option, the best solutions help pay for themselves. They're repeatable and scalable, which helps you stay on budget.

Put simply, an investment in fire extinguisher training is an investment in your organization's overall safety and well-being.



We've been in business for more than 125 years, and we're a global leader in fire safety. We provide cutting-edge fire extinguisher training products to workforces in all industries. No matter your training needs, our team can help prepare you for whatever comes next.

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