Fire Extinguisher – Stats and Facts

DID YOU KNOW?

The first fire extinguisher ever produced was patented by Ambrose Godfrey in England in 1723. It contained a liquid which could extinguish a fire, along with a pewter chamber which contained gunpowder to use as an accelerant.

What we think of as a modern fire extinguisher was first developed in 1818 by Captain George William Manby. It contained 3 gallons of potassium carbonate solution within compressed air. Over the next century, fire extinguishers based on chemical foam, soda acid, and water-based solutions would also be developed.

There are several different types of fire extinguishers which are sold by the industry today. The three primary extinguishes that the average home or business uses are Class A, Class B, and Class C extinguishers. These fire extinguishers can be purchased independently, by class, or they can be purchased as a combined Class ABC-type fire extinguisher.

Important Fire Extinguisher Industry Statistics

- #1. The fire extinguisher manufacturing sector in the United States is a small, valuable component of the economy. Just 23 firms are currently active in the manufacturing process, employing about 1,300 people. In total, however, these firms produce about $1 billion in annual revenues. (IBIS World)
- #2. For the 5-year period which ended in 2017, revenues were mostly stable for the fire extinguisher industry in the United States, achieving annualized growth of 0.2%. (IBIS World)
- #3. From 2011-2015, fire departments in the United States

responded to about 38,000 fires at manufacturing or industrial properties each year. The annual losses from those fires included more than 270 injuries and $1.2 billion in direct property damage. (National Fire Protection Association)

- #4. Structure fires account for 20% of municipal fire department calls and are responsible for 49% of deaths that are associated with fires. (National Fire Protection Association)
- #5. The most popular type of fire extinguisher sold by the industry today is the Class A extinguisher, which accounts for 41.8% of total sales. In total volume, more than 18.8 million Class A fire extinguishers are sold globally each year. (Future Insight Markets)
- #6. For the 10-year period ending in 2027, the CAGR of the Class A fire extinguisher segment is expected to grow by 5.7% in volume. If achieved, that would allow the industry to sell over 34.7 million units. (Future Insight Markets
- #7. Fire protection systems are one of the most valuable segments of the overall fire control industry. In 2016, the global market for fire protection systems was valued at $52.19 billion. (Markets and Markets)
- #8. In 2015, there were 1.34 million fires reported in the United States. That meant a fire department responded to a call once every 23 seconds, on average. Almost half of these fires were classified as an outdoor fire. (Harrington Group)
- #9. Fire extinguishers can effectively put out 80% of all fires, even if the extinguisher is classified as a portable unit. When a fire extinguisher is used on a fire in the United States, 75% of the time, the fire department is not required to attend the incident. (EnGauge Inc.)
- #10. Data in Europe on fire extinguisher use is similar to data generated in the United States. In 2,600 tracked incidents, 81.5% of incidents with a portable fire extinguisher resulted in a fire being extinguished. In 74.6% of the incidents, the fire department was not required. (EnGauge Inc.)
- #11. In 60% of all fire incidents which occur, the fire

department is never notified if a fire extinguisher is present and accessible. Almost 2 million fires are handled entirely by a fire extinguisher in the U.S. every year. (EnGauge Inc.)

- #12. Another 147,000 fires within commercial structures are handled through the use of a fire extinguisher annually without the fire department being notified. (EnGauge Inc.)
- #13. The amount of estimated savings that the fire extinguisher industry is able to achieve in the United States from structure fire incidents is about $5 billion. In total, more than 5.3 million fires occurred where a fire extinguisher was the only needed form of suppression. (EnGauge Inc.)
- #14. The number of fires reported in the U.S. in 2015 is down 19.1% from the number of fires reported in 2006. (United States Fire Administration)
- #15. The number of deaths reported because of a fire are down 3% in 2015 from figures reported in 2006. (United States Fire Administration)
- #16. Total losses from fire-related incidents in the U.S. totaled $14.3 billion in 2015. That figure is down more than 20% from figures released in 2006. United States Fire Administration)
- #17. More than half of all residential building fires, over 380,000 in the U.S., are attributed to cooking. About 11% are attributed to heating, while another 6.4% are attributed to an electrical device malfunctioning. (United States Fire Administration)
- #18. Cooking is also the primary cause of non-residential building fires, accounting for 29.5% of tracked incidents. (United States Fire Administration)
- #19. 41% of the fires which are reported in the United States are classified as an outdoor fire. 30.4% of reported incidents involve a residential property. 14.5% of fire incidents are related to issues that involve a vehicle. (United States Fire Administration)
- #20. About 40% of people in the 85+ age demographic are killed when caught in a fire, which is 4x higher than the

national fire death rate in the United States. (United States Fire Administration)

- #21. About 1.1 million firefighters are currently active in the United States, with 67% of fire departments operating on an all-volunteer basis. (United States Fire Administration)

Fire Extinguisher Industry Trends and Analysis

As long as there are structures, there will be a risk of fire. To mitigate that risk, the production of fire extinguishers will be necessary. That means there will be a consistent place for this industry in the developed world.

Fire extinguishers are a stable industry because the extinguishers are given expiration dates. Every year, there is a certain number of fire extinguishers which must be replaced because of local, national, or international building codes, laws, and regulations. That provides enough foundation for work that keeps the current industry active, though it does prohibit expansion on any type of scale.

Additional opportunities for the industry, through fire suppression systems and other types of proactive fire management, do offer the potential for industry growth. When combined with the extinguisher segment, there will continue to be opportunities for this industry for some time to come.

KEEP IN MIND

The federal portable fire extinguisher rule applies to the placement, use, maintenance, and testing of portable fire extinguishers provided for the use of employees. Employers are generally required to provide portable fire extinguishing equipment in the workplace for use in fighting incipient-stage fires. An “incipient-stage fire” means initial or beginning stage that can be controlled or extinguished by portable fire extinguishers.

A **fire extinguisher** is an active fire protection device used to

extinguish or control small fires, often in emergency situations. It is not intended for use on an out-of-control fire, such as one which has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard, etc.), or otherwise requires the expertise of a fire brigade. Typically, a fire extinguisher consists of a hand-held cylindrical pressure vessel containing an agent that can be discharged to extinguish a fire. Fire extinguishers manufactured with non-cylindrical pressure vessels also exist but are less common.

Safety tips

- Use a portable fire extinguisher when the fire is confined to a small area, such as a wastebasket, and is not growing; everyone has exited the building; the fire department has been called or is being called; and the room is not filled with smoke.
- To operate a fire extinguisher, remember the word **PASS**:
- **P**ull the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
- **A**im low. Point the extinguisher at the base of the fire.
- **S**queeze the lever slowly and evenly.
- **S**weep the nozzle from side-to-side.

For the home, select a multi-purpose extinguisher (can be used on all types of home fires) that is large enough to put out a small fire, but not so heavy as to be difficult to handle.

Choose a fire extinguisher that carries the label of an independent testing laboratory.

Read the instructions that come with the fire extinguisher and become familiar with its parts and operation before a fire breaks out. Local fire departments or fire equipment distributors often offer hands-on fire extinguisher trainings.

Install fire extinguishers close to an exit and keep your back to a clear exit when you use the device so you can make an easy escape if the fire cannot be controlled. If the room fills with smoke, leave immediately.

Know when to go. Fire extinguishers are one element of a fire response plan, but the primary element is safe escape. Every household should have a home fire escape plan and working smoke alarms.

Portable Fire Extinguishers and Children

NFPA believes that children should not be trained how to operate portable fire extinguishers. Teaching children to use portable fire extinguishers runs counter to NFPA messaging to get out and stay out if there is a fire. Furthermore, children may not have the maturity to operate a portable fire extinguisher properly or decide whether or not a fire is small enough to be put out by the extinguisher. They may not have the physical ability to handle the extinguisher or dexterity to perform the complex actions required to put out a fire. In the process of extinguishing flames, children may not know how to respond if the fire spreads. NFPA continues to believe that only adults who know how to operate portable fire extinguishers should use them.

Catastrophic fires can rip through an office building in no time, leaving you completely exposed, vulnerable, and left to pick up the pieces. Being thoroughly prepared for an office fire will not only ensure that you comply with OSHA regulations in terms of the placement, maintenance, and accessibility of your building’s fire extinguishers, but it’ll offer peace of mind to you and your employees.

Portable fire extinguishers are specifically designed to fight different types of fires. The most common fire extinguisher classifications are as follows:

- **Class A**– Solid combustibles excl. wood, metal, cloth, paper, plastics, and rubber
- **Class B**– Flammable liquids incl. oil, gasoline, paint, and grease
- **Class C**– Energized electrical fire (Class C fire becomes null and void if electrical source is removed)
- **Class D**– Electrical equipment incl. outlets and appliances
- **Class K**– Cooking oil, animal and vegetable fats, and grease

It’s important to keep the following portable fire extinguishers in and around your workplace to ensure the safety of your employees and office building.

1. Air-pressurized Water Fire Extinguisher (APW)

As one of the most commonly used fire extinguishers for solid combustibles, water extinguishers cool the surface of the fuel to remove the heat source. Avoid using an APW on class B or C fires as it could cause the fire to spread or result in an electrical shock.

Usage: Class A fires

2. Carbon Dioxide Fire Extinguisher

Filled with Carbon Dioxide (CO_2) which is a non-flammable gas under extreme pressure, this particular fire extinguisher is effective in displacing oxygen or by completely removing the oxygen element. Carbon Dioxide Extinguishers shoot dry pieces of ice from the horn in order to cool the fire.

Usage: Class B and C fires

3. Dry Chemical Fire Extinguisher

This type of fire extinguisher is highly effective in separating the fuel from the oxygen source by applying a thin layer of fire-retardant powder on the fuel, interrupting the chemical reaction.

Usage: Class A, B, and C fires

4. Foam Fire Extinguishers

Foam extinguishers are ideal for creating a barrier between the liquid and the flame, preventing the vapor from being released into the air which results in fuel for the fire. As one of the more commonly used fire extinguishers, they are a must-have for any office building.

Usage: Class B fires, but can be used on paper and wood as well.

Being fully prepared to fight any type of fire can prevent you from suffering major losses down the line. Keep your employees safe and your office building standing with the correct portable fire extinguishers at hand.

Do You Know What Kind of Fire Extinguisher Your Office Has?

Here in the United States, we have a proud tradition of setting things on fire. Starting with the Revolutionary War—up through the most recent *Transformers* movie—our nation has continually expressed a unique love of infernos, gunfire, rockets, and explosions. Where else can you chomp down on a chargrilled burger while waving a sparkler in the air and watching a monster truck blow flames out of its exhaust?

Yes, there's truly no country like the US. But the freedom to play with fire comes at a cost: the risk of injury, loss of life, lawsuits, fines, or regulatory action that follows fire-related accidents.

With the 4th of July happening next week, we've been thinking a lot about environmental health and safety. (We're a compliance company—what do you expect?) Namely, we've been contrasting intentional and unintentional fireworks: what should and shouldn't go up in flames, and what to do in the event of a dangerous fire.

General Requirements

Employers must…

- Provide portable fire extinguishers and mount, locate, and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.
- Use only approved portable fire extinguishers.
- Not use portable fire extinguishers that use carbon

tetrachloride or chlorobromomethane extinguishing agents
- Assure that portable fire extinguishers are maintained, fully charged, operating properly, and kept in designated places at all times except during use.
- Remove from service all soldered or riveted shell self-generating soda acid or self-generating foam or gas cartridge water type portable fire extinguishers that are operated by inverting the extinguisher to rupture the cartridge or to initiate an uncontrollable pressure generating chemical reaction to expel the agent.

Training And Education

Employers must…

- Provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.
    - Provide this education when employees are first hired and once a year thereafter.
- Train employees (who have been designated to use fire fighting equipment in the emergency action plan) in the use of the equipment.
    - Provide this training when employees are first given this assignment and once a year thereafter.

Inspection, Maintenance, And Testing

Employers must…

- Inspect, maintain, and test all portable fire extinguishers in the workplace.
- Visually inspect portable extinguishers or hoses monthly.
- Perform an annual maintenance check on portable fire extinguishers. Stored pressure extinguishers do not require an internal examination.
    - Record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less.
    - Make the record available to the Assistant Secretary

upon request.

- Empty and maintain dry chemical extinguishers (that require a 12-year hydrostatic test) every six years. Dry chemical extinguishers that have non-refillable disposable containers are exempt from this requirement. When recharging or hydrostatic testing is performed, the six-year requirement begins from that date.
- Provide alternate equivalent protection when portable fire extinguishers are removed from service for maintenance and recharging.

Take Care of Accidents Waiting to Happen

Aside from following the relevant laws and regulations around fire safety, organizations of all kinds can take steps to reduce their chances of a fire-related accident:

- Limit access to flammable or combustible materials, and store them in a cool, dry place—away from other materials or devices that could catch on fire.
- Inspect electronic devices, as well as flammable and combustible materials, for damage and degradation. If something is broken or has expired, get rid of it.
- Plan ahead. Use flammable or combustible materials in a safe, open space, and wear proper protective materials. Create an emergency action plan, and train and periodically remind employees what to do in the event of a fire.
- Practice common-sense safety. Don’t light fireworks indoors, in crowded spaces, or during a windy day. Follow the instructions for using flammable or combustible materials. Don’t mix fire and alcohol.