



# READY FOR CHANGE

A Guide for Meeting the NFPA 10-2010 Compliance Standard for Portable Fire Extinguishers



*A Tyco International Company*

# THE CHALLENGES

## A QUICK REVIEW

The NFPA 10 Standard contains many guidelines that may impact you if your facility uses, transports, stores, or handles flammable liquids or gases.

Fires involving flammable liquids and gases can be extremely dangerous to your employees and disastrous to your business. To quickly suppress these fires, specialized portable or wheeled fire extinguishers are required.



## THEN AND NOW

Prior to the 2007 Edition, the NFPA 10 Standards were not specific about the requirements for these specialized fire extinguishers. They merely stated that a manufacturer's recommendations should be followed. Tyco recommends the use of specialized ANSUL fire extinguishers, designed with high agent flow rates, to fight flammable liquid and gas fires. This comes from decades of proven research, testing, and live fire training at the ANSUL Fire Technology Center.

NFPA 10-2010 mandates the minimum size and flow rate that a portable fire extinguisher must meet for the protection of three specific Class B fire hazards: Pressure Fire Hazards, Three Dimensional Fire Hazards, and Obstacle Fire Hazards.

**HIGHLIGHTS OF NFPA 10-2010: MINIMUM SIZE AND FLOW RATE OF PORTABLE  
FIRE EXTINGUISHERS    ALL EMPLOYEES MUST BE TRAINED  
PHASE-OUT OBSOLETE EXTINGUISHERS IN ORDERLY AND PLANNED MANNER**

# PRESSURE FIRE HAZARDS

## WHICH OF THESE IS A GOOD EXAMPLE OF A PRESSURE FIRE HAZARD?

- A. Propane storage tanks
- B. Gasoline fuel pumps
- C. Paint spray booths and prep areas

### Answer: All

Pressure Fires involve a flammable liquid or gas that is being released, under pressure, from a hose, pipe, flange, fitting, valve, pump, cylinder, tank, or any other storage and transport devices.

Examples of Pressure Fire Hazards:

LPG tanks and transfer areas

Paint and solvent spray operations

Pumps and piping networks

Gasoline fuel pumps

Processing and distribution equipment

Compressed gas cylinders and manifolds

High-pressure hydraulic equipment

## WHAT ARE THE NFPA 10-2010 REQUIREMENTS?

5.5.1.1. Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires

5.5.1.1.1. Selection of fire extinguishers for this type of hazard shall be made on the basis of recommendations by manufacturers of this specialized equipment.

5.5.1.1.2. Large capacity dry chemical extinguishers of 10 lbs. (4.54 kg) or greater and a discharge rate of 1 lb./sec. (0.45 kg/sec.) or more shall be used to protect these hazards.

Caution: Attempting to extinguish this type of fire is undesirable unless there is reasonable assurance that the source of fuel can be promptly shut off.



# OBSTACLE FIRE HAZARDS

## WHICH OF THESE IS A GOOD EXAMPLE OF AN OBSTACLE FIRE HAZARD?

- A. Dip tank
- B. Solvent cleaning area
- C. Drum storage area

### Answer: All

Obstacle Type Fires involve flammable liquid on a horizontal surface where a solid object creates a barrier within the perimeter of the burning liquid. This can occur when a flammable liquid is spilled on the floor around a solid object. A solid object can also create a barrier within an open container of flammable liquid, such as a dip tank.

Examples of Obstacle Fire Hazards:

Drum storage areas

Dip tank process areas

Floor areas around machinery

Flammable liquid storage cabinets

Drums or other types of dispensing areas

Solvent cleaning operations or areas

## WHAT ARE THE NFPA 10-2010 REQUIREMENTS?

5.5.4. Obstacles Fires. When selecting a fire extinguisher for this type of hazard, selection shall be based on the following:

- (1) Extinguisher containing a vapor-suppressing foam agent
- (2) Multiple extinguishers containing non-vapor-suppressing Class B agents intended for simultaneous application
- (3) Large capacity extinguishers of 10 lbs. (4.54 kg) or greater and a minimum discharge rate of 1 lb./sec. (0.45 kg/sec.)



# THREE-DIMENSIONAL FIRE HAZARDS

## WHICH OF THESE IS A GOOD EXAMPLE OF A THREE-DIMENSIONAL FIRE HAZARD?

- A. Vehicle fueling island
- B. Flammable liquid storage area
- C. Spray line conveyor system

### Answer: All

Three-Dimensional Fires involve flammable liquid in motion and usually include both horizontal and vertical surfaces. Often, flammable liquid leaks down a vertical surface, pooling on a horizontal surface below.

Examples of Three-Dimensional Fire Hazards:

- |                                   |  |
|-----------------------------------|--|
| Pumps and transfer equipment      | Walls or structures that support pipes |
| Flammable liquid storage cabinets | Tanker loading racks (highway or rail) |
| Electric power transformers       | Storage tanks and drum storage racks   |
| Machinery and process equipment   | Tank trucks and off-loading points     |
| Coating operations and conveyors  | Vehicle fueling areas                  |

## WHAT ARE THE NFPA 10-2010 REQUIREMENTS?

5.5.2. Three-Dimensional Fires. Large capacity dry chemical extinguishers of 10 lbs. (4.54 kg) or greater and having a discharge rate of 1 lb./sec. (0.45 kg/sec.) or more shall be used to protect these hazards.



# FIRE EXTINGUISHERS MANUFACTURED PRIOR TO OCTOBER 1984

## WHAT TYPES OF FIRE EXTINGUISHERS (MANUFACTURED PRIOR TO OCTOBER 1984) NEED TO BE REPLACED?

- A. Cartridge-operated
- B. Carbon dioxide
- C. Stored pressure, dry chemical

### Answer: C

In section 4.4.1., NFPA 10-2010 mandates the removal and replacement of dry chemical stored pressure fire extinguishers at their next 6-year maintenance or next hydrostatic test interval, whichever comes first. Many times, not all of the affected extinguishers in a facility have the same date of manufacture. Therefore, a phase-out schedule can be developed to comply with this standard.

## MANDATED EMPLOYEE TRAINING

### WHO MANDATES EMPLOYEE TRAINING?

- A. OSHA
- B. Insurance companies
- C. Fire marshals

### Answer: All

The training of employees in the proper use of all portable fire extinguishers is a federally mandated requirement that is found in the CFR29 (OSHA Regulations). Employees must be trained upon initial employment and annually thereafter.

To comply with this OSHA requirement, many employers send their employees to the world renowned ANSUL Fire School in Marinette, Wisconsin, for three days of training that includes:

- |  |                    |
|--|--------------------|
| Classifications of fire and hazards      | Basic fire science |
| Training manuals and materials           | Classroom training |
| 25 hands-on, live fire training sessions |                    |

Many Authorized ANSUL Distributors can also provide on-site customer training.

### ANSUL IS THE SOURCE FOR TRAINING

**ANSUL FIRE SCHOOL**

**ON-SITE FIRE TRAINING CLASSES**

**DVD—USING A PORTABLE FIRE EXTINGUISHER**

**RECHARGING AGENTS, CARTRIDGES, AND SERVICES**

**WORLDWIDE DISTRIBUTOR NETWORK**

# ANSUL SOLUTIONS

ANSUL fire protection products have been protecting people and facilities since 1939 representing decades of leadership and experience in developing and manufacturing “special hazard” solutions. So what do our experts recommend for the protection of the hazards outlined in NFPA 10-2010?

Dry chemical extinguishing agents are excellent choices for flammable liquid and gas fires. Further, dry chemical is one of the only agents effective on Pressure Fires and Three-Dimensional Fires. The preferred dry chemical agents are:

**ANSUL Purple-K Dry Chemical** — Made of potassium bicarbonate, Purple-K is the most effective chemical agent for Class B fires, especially Pressure Fires and Three-Dimensional Fires. Purple-K is not listed for fires that involve Class A (ordinary combustible) materials.

**ANSUL FORAY Dry Chemical** — Made of monoammonium phosphate, FORAY agent is an “ABC” dry chemical with excellent Class B fire extinguishing capabilities. It is also the only ANSUL dry chemical agent that is listed for Class A fires.

<b>Part No.</b>	<b>Model</b>	<b>Capacity</b>	<b>Dry Chemical Agent Type</b>	<b>Agent Flow Rate</b>
435148	HF-I-A-20-G-1	17 lb. (7.7 kg)	FORAY	1.60 lb./sec. (0.73 kg/sec.)
418467	HF-I-K-20-G	18 lb. (8.2 kg)	Purple-K	1.55 lb./sec. (0.70 kg/sec.)
435175	HF-I-A-30-G-1	25 lb. (11.3 kg)	FORAY	2.25 lb./sec. (1.02 kg/sec.)
418280	HF-I-K-30-G	27 lb. (12.3 kg)	Purple-K	2.35 lb./sec. (1.07 kg/sec.)
418273	CR-HF-I-K-30-G	27 lb. (12.3 kg)	Purple-K	2.35 lb./sec. (1.07 kg/sec.)
435040	CR-I-A-150-C-1	125 lb. (56.7 kg)	FORAY	3.51 lb./sec. (1.59 kg/sec.)
31500	CR-I-K-150-C	125 lb. (56.7 kg)	Purple-K	2.1 lb./sec. (0.95 kg/sec.)
22520	CR-LR-I-K-150-C*	125 lb. (56.7 kg)	Purple-K	4.4 lb./sec. (2.00 kg/sec.)
31007	CR-I-150-C	150 lb. (68 kg)	PLUS-FIFTY C	3.5 lb./sec. (1.58 kg/sec.)
435050	CR-I-A-150-D-1	125 lb. (56.7 kg)	FORAY	2.7 lb./sec. (1.22 kg/sec.)
53874	CR-I-K-150-D	125 lb. (56.7 kg)	Purple-K	2.6 lb./sec. (1.17 kg/sec.)
55357	CR-LR-I-K-150-D*	125 lb. (56.7 kg)	Purple-K	3.96 lb./sec. (1.80 kg/sec.)
53868	CR-I-150-D	150 lb. (68 kg)	PLUS-FIFTY C	2.9 lb./sec. (1.31 kg/sec.)
55355	CR-LR-I-150-D*	150 lb. (68 kg)	PLUS-FIFTY C	4.1 lb./sec. (1.86 kg/sec.)
435056	CR-I-A-350-D-1	300 lb. (136.4 kg)	FORAY	5.7 lb./sec. (2.58 kg/sec.)
53887	CR-I-K-350-D-1	300 lb. (136.4 kg)	Purple-K	3.8 lb./sec. (1.72 kg/sec.)
54134	CR-LR-I-K-350-D*	300 lb. (136.4 kg)	Purple-K	8 lb./sec. (3.64 kg/sec.)
53879	CR-I-350-D	350 lb. (159 kg)	PLUS-FIFTY C	6 lb./sec. (2.72 kg/sec.)
54133	CR-LR-I-350-D*	350 lb. (159 kg)	PLUS-FIFTY C	8 lb./sec. (3.64 kg/sec.)
435048	CR-I-A-350-C-1	300 lb. (136.4 kg)	FORAY	6.58 lb./sec. (2.98 kg/sec.)

An Authorized ANSUL Distributor can help you evaluate your unique hazards and determine the proper RED LINE hand portable or wheeled fire extinguisher for your unique fire hazards.

\*NOTE: Long range nozzles are specifically designed to fight pressure fires (flammable liquids or gases under pressure).



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