



TRAINING

Use of fire extinguishers

Duration of validity: 3 years



After this course, you will be capable of:

- recognising a combustible and the various fire classes
- choosing the appropriate extinguisher for a given fire class
- handling a fire extinguisher properly and efficiently
- applying CERN's safety instructions



- Theory part: 30 minutes

- Regulatory context
- Causes and consequences of a fire
- The fire triangle
- The fire classes
- Fire extinguishers
- Safety instructions

- Practical part: 1 hour

- Hands-on experience of extinguishing various types of fire in the simulator (office fire, electrical cubicle fire, chemical fire)

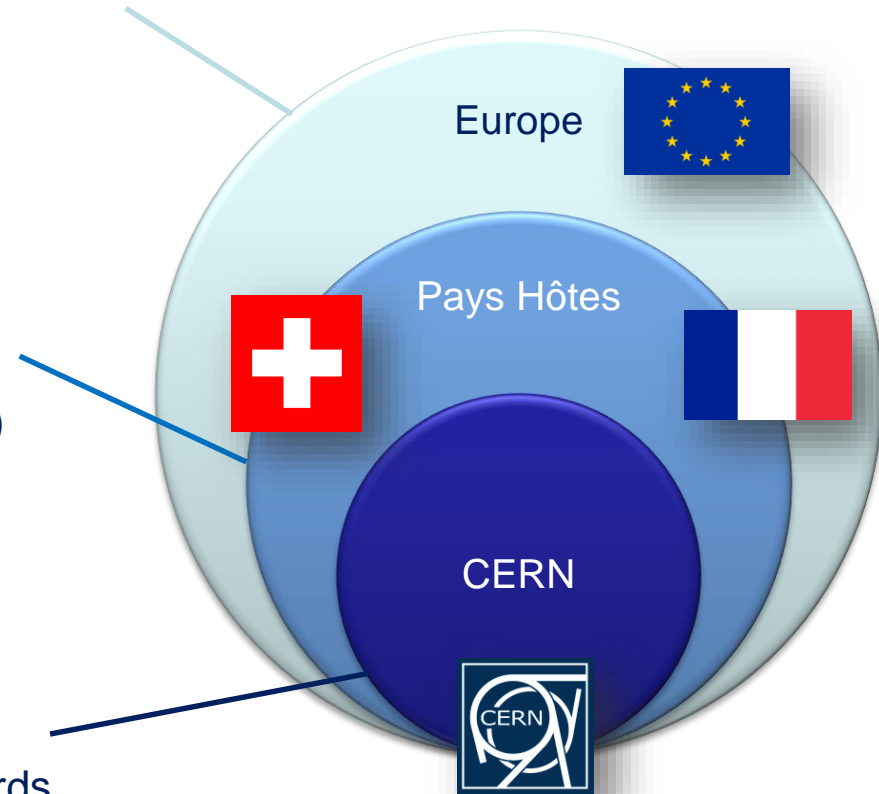


- **European Directive 89/391/CEE, Article 8**

- **French Labour Law**
- **Swiss Ordinance on the Prevention of Accidents (OPA)**
- **Application regulation (RPSSP) F 4 05.01 (Switzerland)**

- **CERN Safety Code E - Fire Protection**

- Staff information on fire hazards
- Staff training



FIRE



Fire in Building 2001



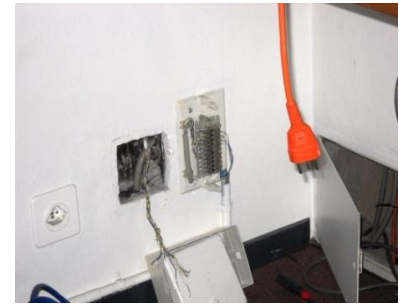
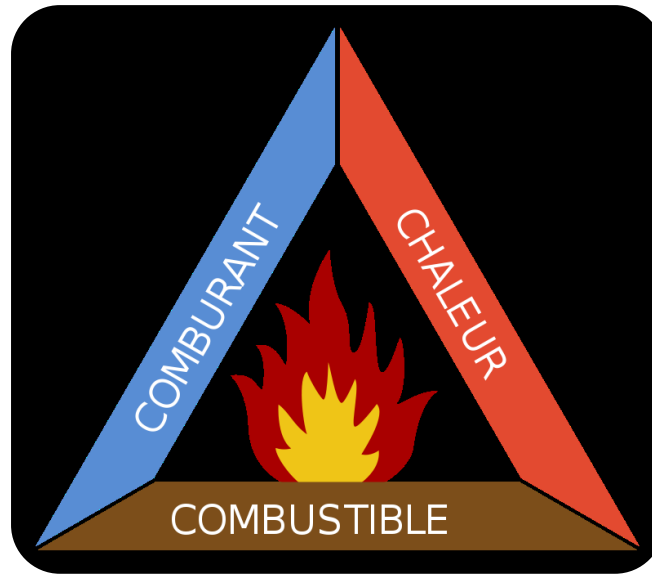
What are the causes and consequences of a fire?



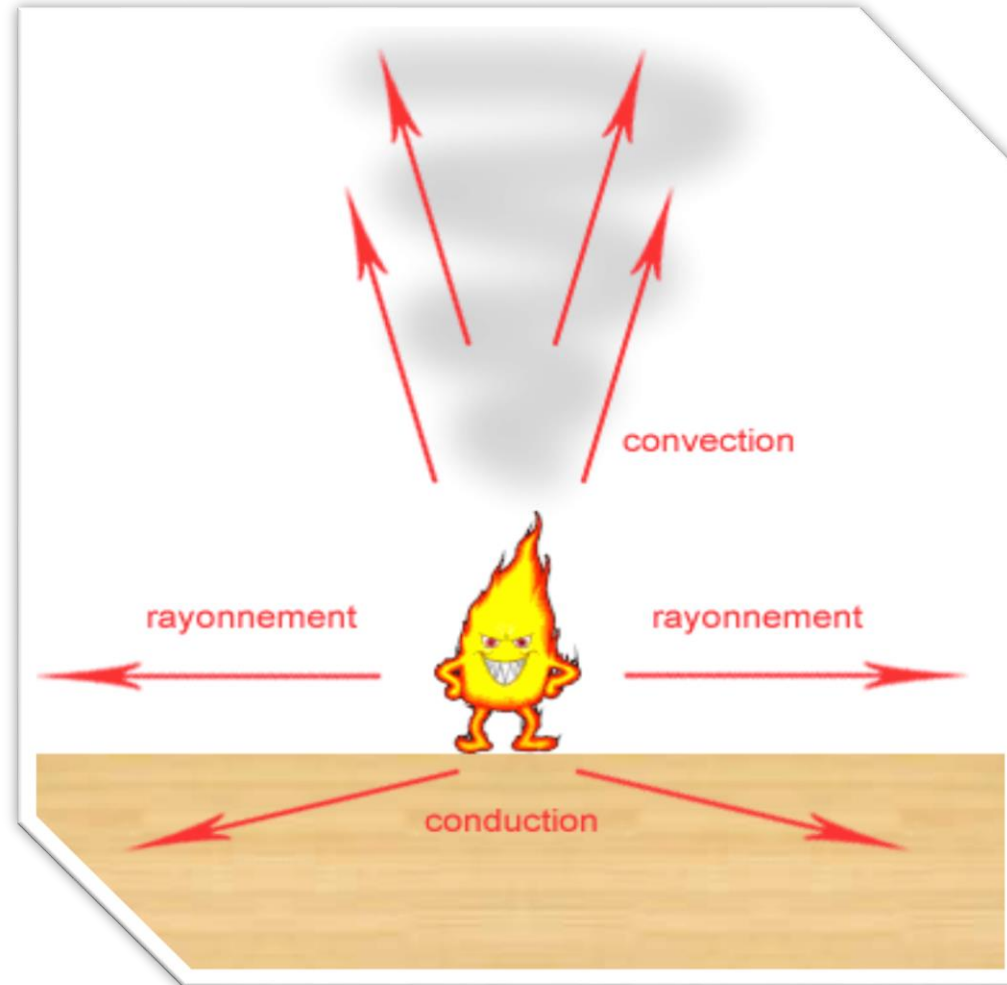
THE FIRE TRIANGLE



Oxygen

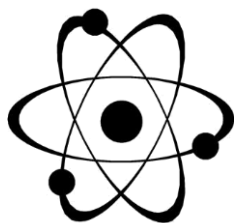
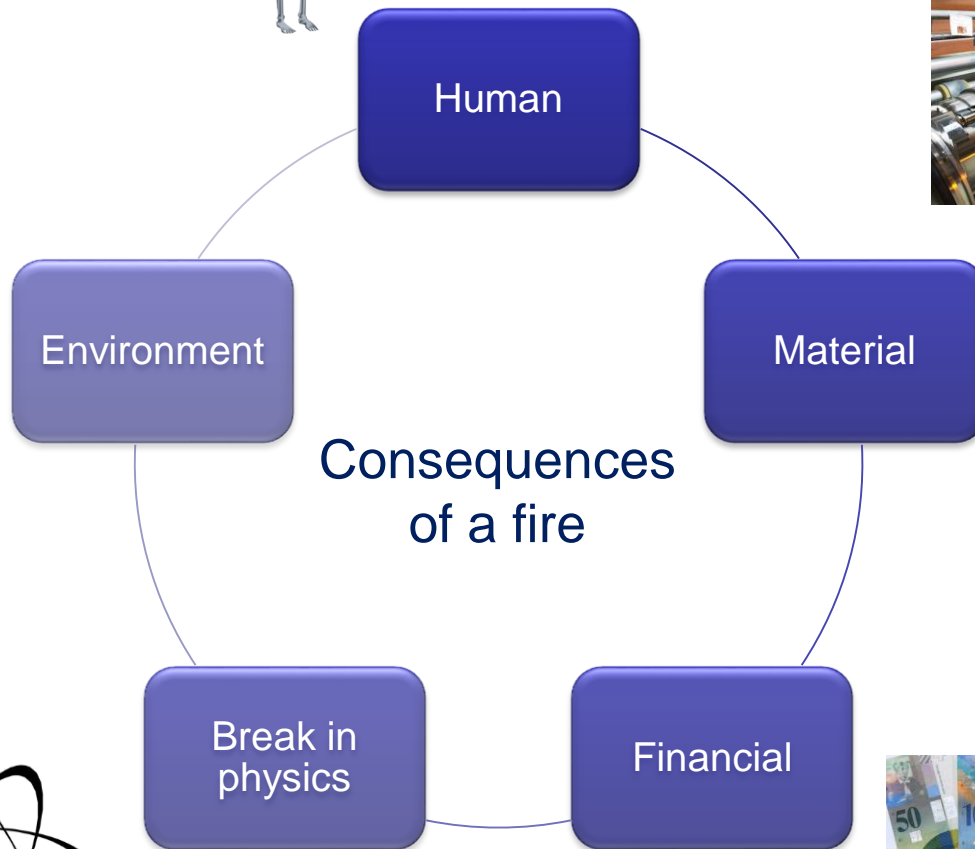


Fire propagation



Fire spreads rapidly...







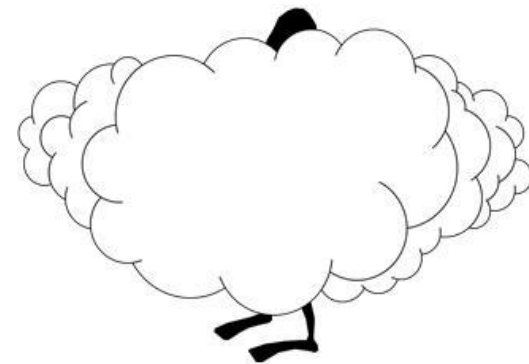
Causes of death in the event of a fire?

Fumes Gas

- Asphyxia
- Toxicity of the products of combustion

Heat Flames

- Burns
- Risk to the eyes



THE FIRE CLASSES

The various fire classes...

The three main categories

Class A



solid materials

Class B



liquids

Class C



gases

THE FIRE CLASSES



Class A fires

Type

- Ordinary combustible materials
- cellulose-based
- E.g. wood, clothes, paper

Class A



THE FIRE CLASSES

Extinguishing agents

- Water with or without additives

Class A



THE FIRE CLASSES



Class B fires

Type

- Flammable liquids
- Crude oil derivatives
- Oils
- Grease

Class B



THE FIRE CLASSES

Extinguishing agents

- Polyvalent powders

Class B



THE FIRE CLASSES



Class C fires

Type

- Gases
(methane, propane, butane, town gas, etc.)
- Electrical origin

Class C



THE FIRE CLASSES

Extinguishing agents

- In general, substances which efficiently extinguish Class B fires are also effective against Class C fires.
- Fires of electrical origin
 - . Carbon dioxide CO₂ (no damage)

Class C



Different types of extinguisher and their uses

Water with
additive



Powder



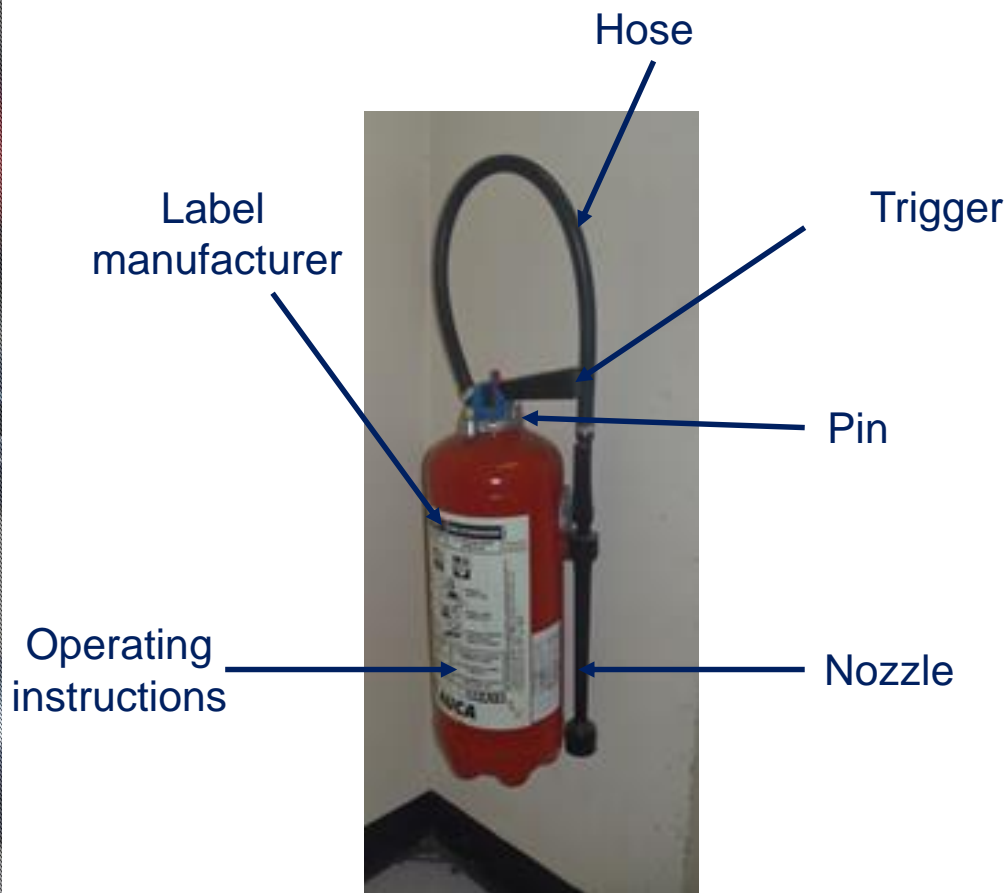
CO2



FIRE EXTINGUISHERS

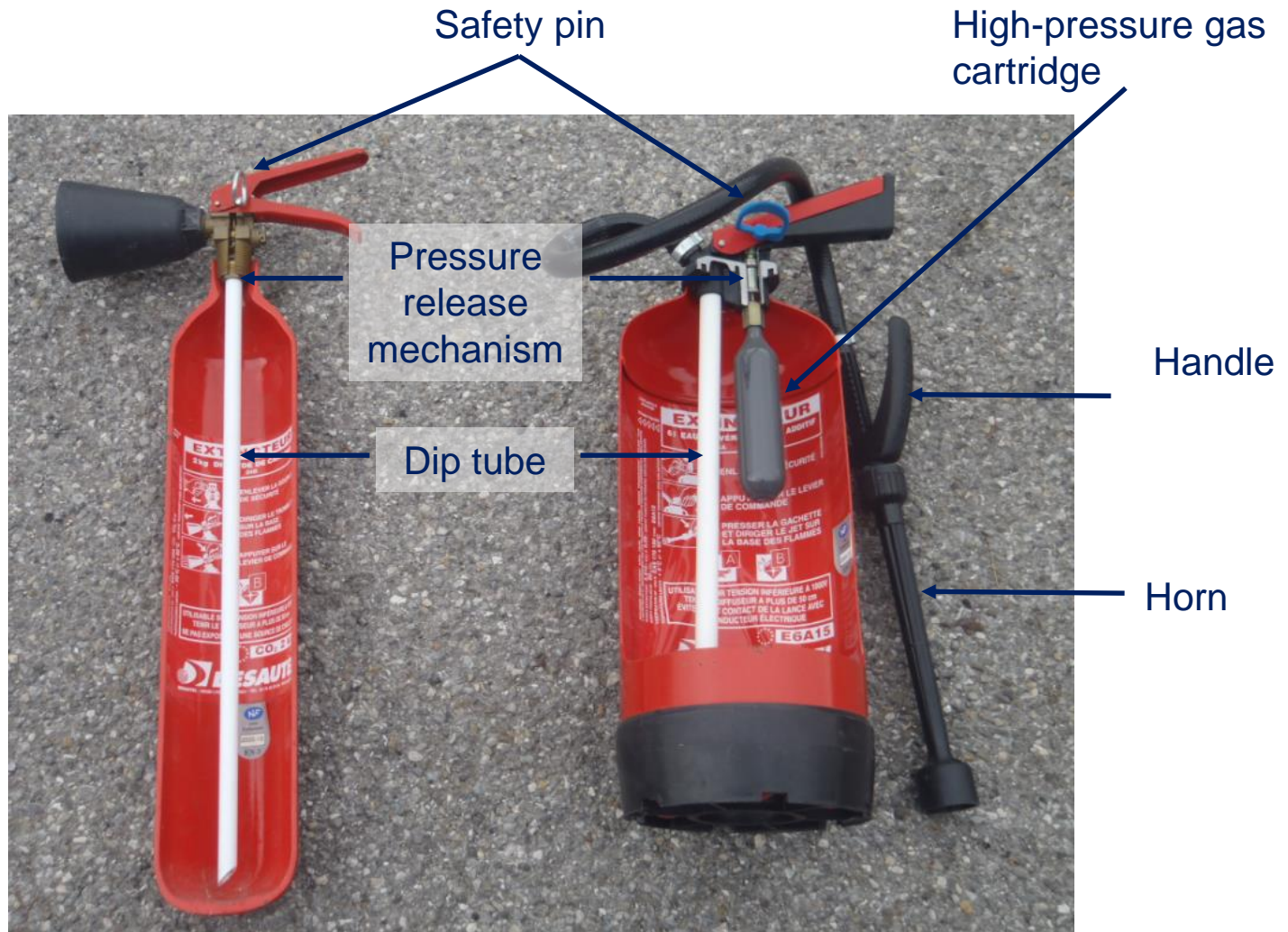


Terminology



Instructions

FIRE EXTINGUISHERS

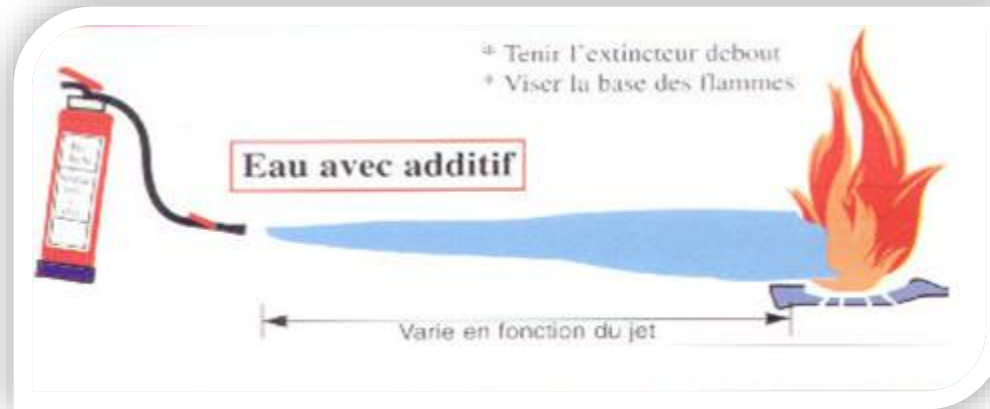


Cross section

FIRE EXTINGUISHERS

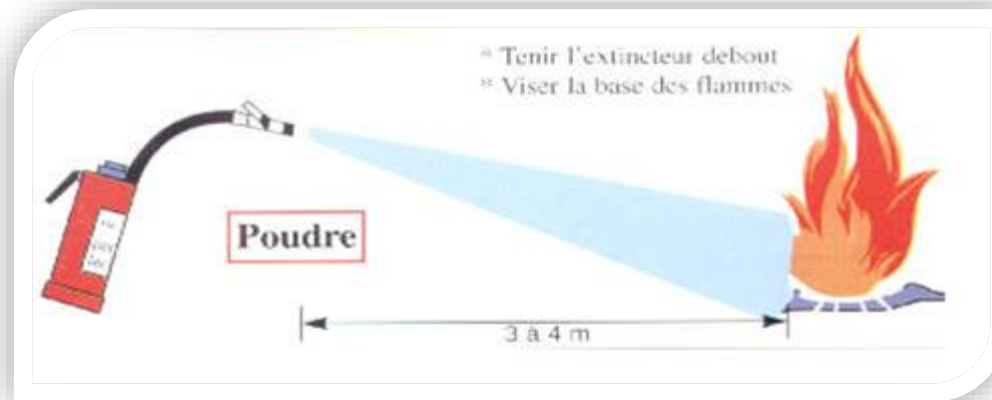
Activation

Water with
additive



Activation

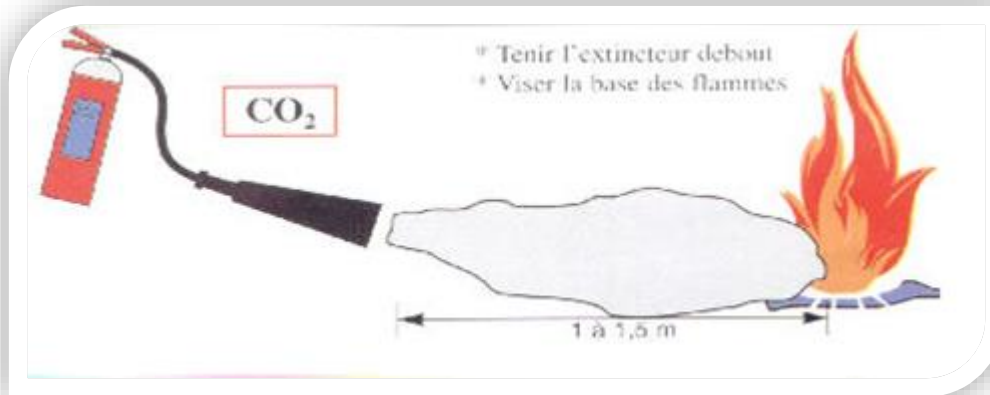
Powder



FIRE EXTINGUISHERS

Activation

CO2



FIRE EXTINGUISHERS

Activation



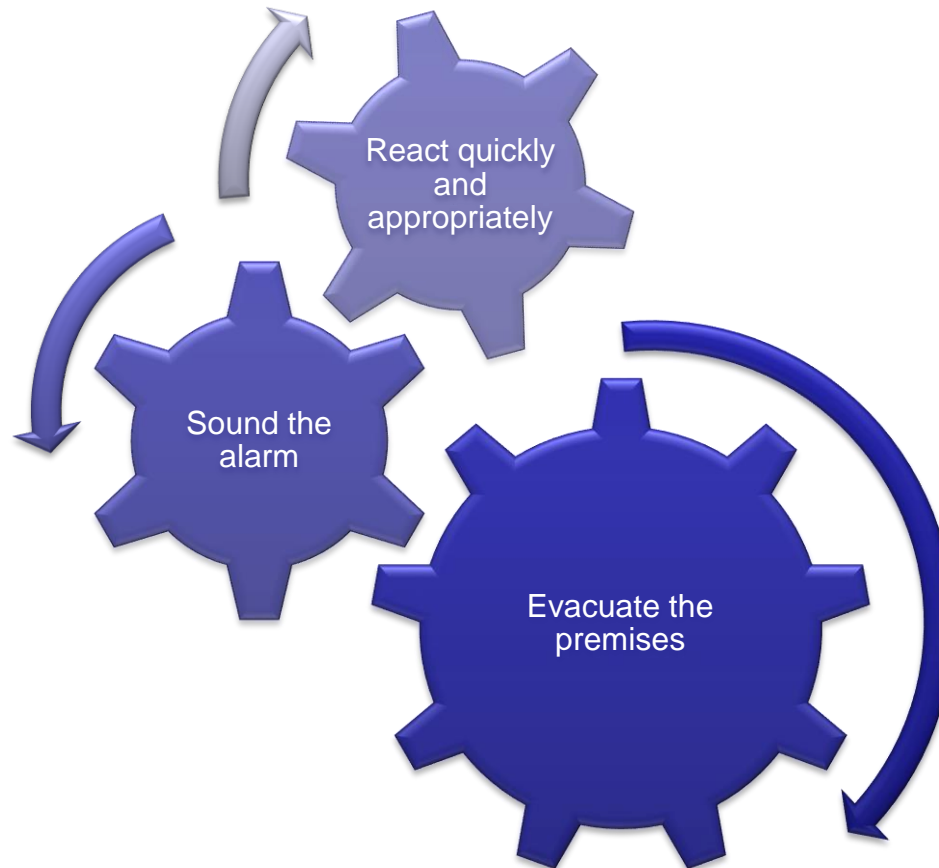
INSTRUCTIONS



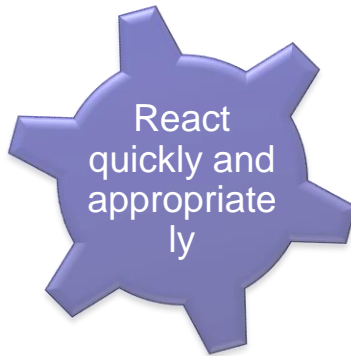
If a fire breaks out, what should I do?



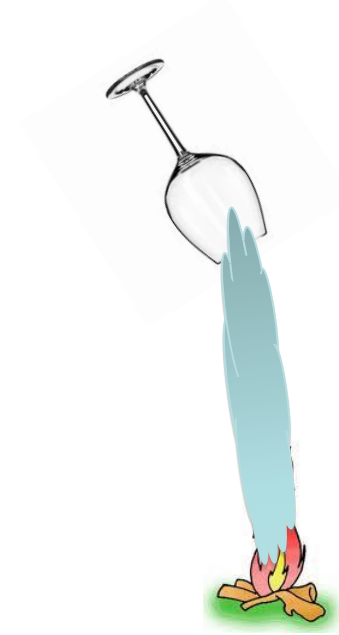
If a fire breaks out, what should I do?



INSTRUCTIONS



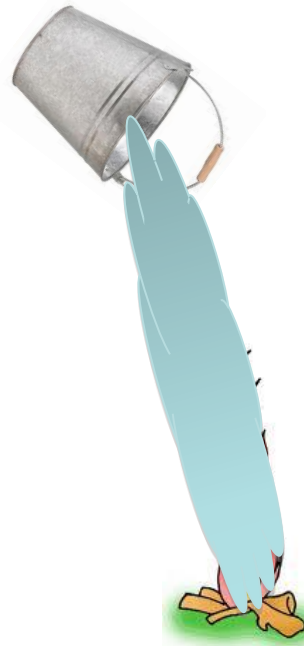
In the **1st minute** after breaking out, a fire can be extinguished with a glass of water !



INSTRUCTIONS



...in the **2nd minute** with a bucket of water...



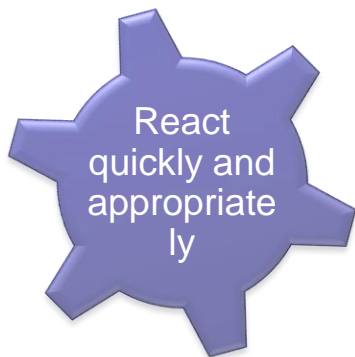
INSTRUCTIONS



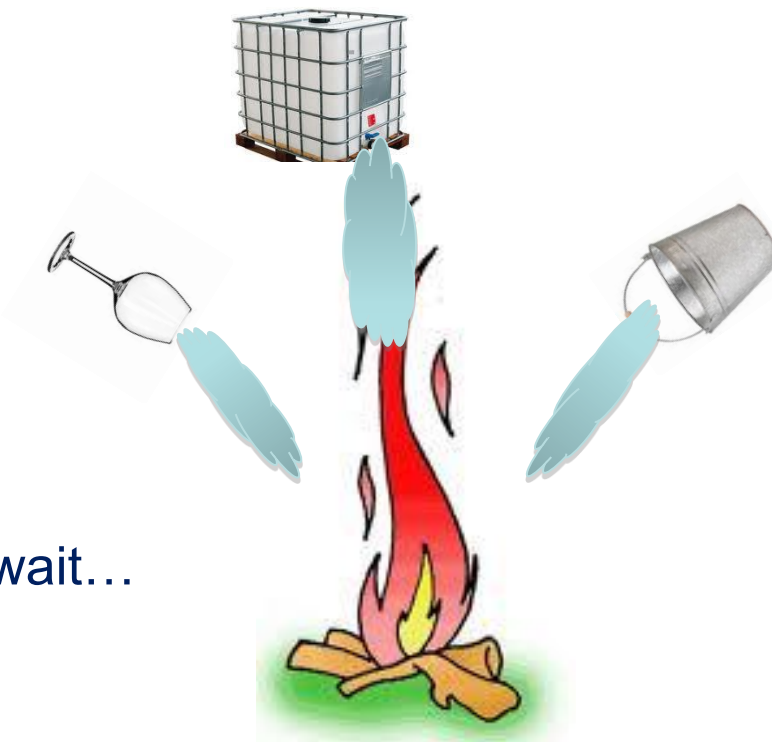
...in the **3rd minute** tons of water will be needed...



INSTRUCTIONS

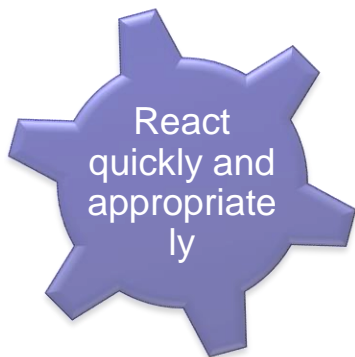


But whatever you do will be better than nothing at all...



The longer you wait...

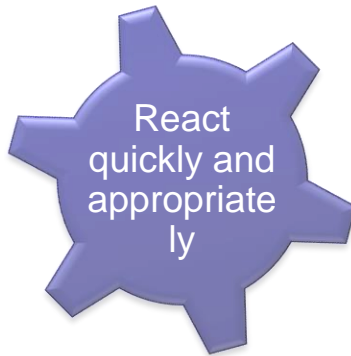
the more fire-fighting resources will be needed!



When should I act?

- ✓ When the fire is visible and limited
- ✓ When an extinguisher is close to hand
- ✓ When there are not too many fumes

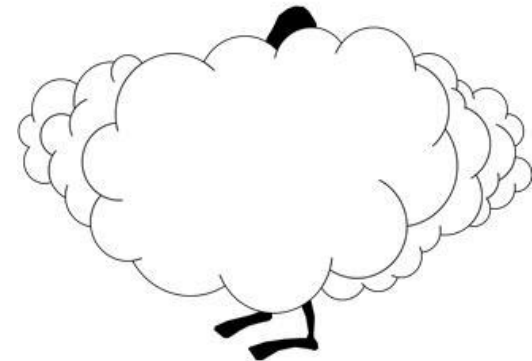




When **not to act?**

Just **sound the alarm and evacuate the premises**

- ✓ When the fire is not visible
- ✓ Too many fumes = Danger



INSTRUCTIONS



Call the Fire Brigade on (+41 2276) **74444**
or using the red telephones

Message:

- ✓ **Calling number** (name/CERN ID, phone number)
- ✓ **the type of incident** (fires, fumes, gas leak etc...)
- ✓ **the precise location** (Building, floor, office)

Apply the instructions and do not hung up without being told so by the operator



Evacuate the premises as soon as the alarm sounds

In an orderly fashion, without running !



Head away from the smoke



INSTRUCTIONS



Hot
(they rise)

Opaque

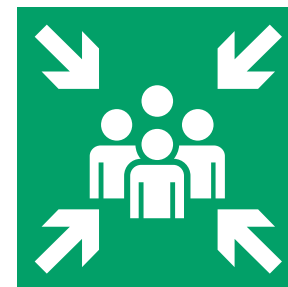
Toxic

Cause irritation

INSTRUCTIONS



**Gather
at the Assembly Point
outside the building**



Remember:

- ✓ to close windows and doors
- ✓ to listen to the Emergency Guides' indication
- ✓ not to use the lifts (except in the LHC)
- ✓ to never go backwards
- ✓ to explain the situation to the firemen



How can I help prevent fires on a day-to-day basis ?



PREVENTION

On a day-to-day basis...



Don't smoke



Keep emergency exits
clear



Keep combustibles to a
minimum



IN SUMMARY



CLASS-TYPES:	Water	Powder	CO2
Class A	Yes	Yes/No yes if polyvalent powder	Ineffective
Class B	Yes/No yes if additive for "Class B"	Yes	Yes
Class C	No	Yes	Yes
Safe aim distance	depends on the hose	3 to 4 metres	1 to 1.5 metres

QUESTIONS



Thanks for listening...
any questions?



...and now it's time for some hands-on experience !

- ✓ Simulator
- ✓ Operation
- ✓ Extinguishers
- ✓ Use
- ✓ Handling
- ✓ Scenarios
- ✓ Emergency facilities





Training Assessment Test



Question 1 – On what kind of fire can I use a CO₂ extinguisher?

1. Dustbin fire
2. Cardboard fire
3. Electrical fire



Question 1 – On what kind of fire can I use a CO₂ extinguisher?

Correct answer

1. Dustbin fire
2. Cardboard fire
3. Electrical fire



Question 2 – upon hearing an evacuation alarm

1. I remain at my workstation
2. I evacuate the premises and proceed to the assembly point
3. I use the opportunity to go for a coffee



Question 2 – upon hearing an evacuation alarm

Correct answer

1. I remain at my workstation
2. I evacuate the premises and proceed to the assembly point
3. I use the opportunity to go for a coffee



Question 3 – After using a fire extinguisher

1. I put it back where I found it
2. I call the Fire Brigade
3. I replace it with one I found elsewhere



Question 3 – After using a fire extinguisher

Correct answer

1. I put it back where I found it
2. I call the Fire Brigade
3. I replace the extinguisher with one I found somewhere else



Question 4 – I open the door to premises full of smoke, and

1. I look around for a fire extinguisher at all costs
2. I activate the evacuation alarm, call the Fire Brigade and proceed to the assembly point
3. I try to find where the fire broke out



Question 4 – I open the door to premises full of smoke

Correct answer

1. I look around for a fire extinguisher above all else
2. I activate the evacuation alarm, call the Fire Brigade and proceed to the evacuation point
3. I try to find where the fire broke out



Question 5 – A fire has just broken out in an electrical cubicle

1. I fetch a CO₂ extinguisher and try to put it out
2. I let it burn and evacuate the premises
3. I cut off the current



Question 5 – A fire has just broken out in an electrical cubicle

Correct answer

1. I fetch a CO₂ extinguisher and try to put it out
2. I let it burn and evacuate the premises
3. I cut off the current





Question 6 – If I can't stop the fire and it starts to spread

1. I look for another extinguisher
2. I activate the evacuation alarm and call the Fire Brigade
3. I evacuate the premises and proceed to the assembly point



Question 6 – If I can't stop the fire and it starts to spread

Correct answers

1. I look for another extinguisher
2. I activate the evacuation alarm and call the Fire Brigade
3. I evacuate the premises and proceed to the assembly point



Question 7 – the principal danger in a fire is

1. the flame
2. the fumes
3. the water used to extinguish it



Question 7 – the principal danger in a fire is

Correct answer

1. the flame
2. the fumes
3. the water used to extinguish it



Question 8 – do you feel capable of using an extinguisher if a fire breaks out?

1- Yes

2- No

Question 8 – do you feel capable of using an extinguisher if a fire breaks out?

If you don't feel ready, do not hesitate to subscribe to another training session

