Help prevent fires
Think of yourself! Think of others!
Do you know the most common causes of fires?

**Most common causes of fires at the UPC**

- Electrical installations
- Working with flammable substances
- Flames
- Heat sources
- Gas

**Causes of fires in Spain, 2012-2013**

- Electricidad; 22%
- Fumadores; 19%
- Cocinar; 7%
- Fuego directo; 14%
- Productor de calor; 30%
- Fuga de gas; 8%

*Study of fire victims in Spain. Fundación Mapfre. December 2014*
Six golden rules for preventing fires

1. Turn off electrical equipment when you finish work for the day.
2. Don't use heaters or hobs.
3. Maintain apparatus, equipment and installations in good condition.
4. Don't overload electrical outlets.
5. Smoking is prohibited inside buildings. Don't throw cigarette butts or matches in wastepaper baskets.
6. Ensure that all building spaces are kept orderly and clean.

Notify your supervisor of:
- Any failure or malfunction of equipment or installations.
- Any potential fire hazard.
Preventing fires

Take special care when working in laboratories

Chemistry laboratories

Exercise care when handling:
- Flammable chemicals and combustive agents.
- Cylinders containing flammable technical gases.
- Heat sources: furnaces and ovens, electric and gas (Bunsen) burners, heating baths and mantles.

Before

Read safety data sheets for chemical products.

During

Don’t leave chemical processes unattended.

Don’t leave chemical products near heat sources or exposed to sunlight.

In case of a spill
If case of a spill, use the spill response kit.

To finish up

Store flammable materials in safety cabinets.

Ensure that containers are tightly closed.
If flammable materials must be kept refrigerated, use specially designed refrigerated cabinets with extra safety features, not conventional refrigerators.

Follow SHR 308 safety guidelines: Response in case of a spill of liquid chemicals

Follow SHR 302 safety guidelines: Proper storage of chemical products
Emergency information

Preventing fires

1. Causes of fires
2. Take preventive measures
3. Laboratories
4. Hot work
5. Outside the UPC

Take special care when working in laboratories

Cylinders containing flammable technical gases
Hydrogen, acetylene, propane, etc.

Cylinders containing gas under pressure must be secured to prevent tipping, which could result in a very serious accident if the valve breaks.

Pay attention to leak detection system alarms and follow established procedures in case of emergency. Any cylinders containing flammable and/or toxic gases under pressure that are stored in laboratories must be equipped with continuous leak-detection systems.

Heat sources

Furnaces (muffles) and ovens

Install them in suitable places:
- Far enough from walls and the ceiling to allow air to circulate freely.
- Away from combustible elements.
- Not in fume hoods.

Ensure that materials placed inside such equipment can withstand high temperatures.

Use a safety oven when working with flammable materials.

Follow SHR 215 safety guidelines: Furnaces (muffles) and ovens
Preventing fires

Take special care when working in laboratories

Heat sources

Electric and gas (Bunsen) burners

Don't place test tubes, flasks (Florence, Erlenmeyer) or beakers in direct contact with burners.
Use a stand, tongs, tripod stand, ring support or wire gauze.

Don't use burners to heat flammable liquids.

Use a Bunsen burner with a standard fitting, safety device (gas cut-off), and gas and air regulator.

Unplug equipment and/or close gas cocks when you finish your work.

Heating baths and mantles

Use sand or water baths whenever possible. Use of mineral oil baths is not recommended.

Don't use these devices if the casing or connection cable is damaged.

Follow SHR 213 safety guidelines: Electric burners and SHR 214 safety guidelines: Gas (Bunsen) burners
A hot spot can be the starting point for a fire.

**Electronics laboratories**

Exercise care when handling:
Soldering (the temperature of a hot soldering iron tip is about 350°C).

**Before**

Don't use a soldering iron in the presence of flammable gas or materials, or where there's a risk of fire or explosion.

**During**

Use stands for manual soldering irons. Don't put them directly on table surfaces.

**To finish up**

Unplug the equipment.

Wait until the point cools before putting the soldering iron away.

Follow [SHR 218 safety guidelines: Soldering](#)
Emergency information

Preventing fires

1. Causes of fires
2. Take preventive measures
3. Laboratories
4. Hot work
5. Outside the UPC

A hot spot can be the starting point for a fire

Electric resistance welding and oxy-fuel welding and cutting
Exercise care when handling:
- Electric arc and oxy-fuel welding done in laboratories and workshops
- Maintenance work in buildings

Before

Ensure that combustible materials (including building materials) are at least 10 m away from the work area.

If this is not possible, use suitable screens.
Use individual protection equipment and appropriate clothing.
Don't use clothing stained with grease or solvents.

Properly clean and prepare any containers and pipes that have contained fuel.
Place a fire extinguisher near the work area.

During

Oxy-fuel welding
Watch out for leaks from cylinders or overheating of the acetylene cylinder. Never use oxygen from a cylinder for blowing or cleaning.

Electric arc welding
Never use a gas pipe or electrical conduit as your ground.

To finish up

Check in the vicinity of the work area to make sure that no spark or ember has ignited any material.

Follow SHR 216 safety guidelines: Oxy-fuel welding and SHR 217 safety guidelines: Electric arc welding
Most fires happen at home

Simple recommendations to prevent fires at home

**In the kitchen**
- Never leave frying pans, casseroles or pots unattended on a hob.
- Clean stove hoods frequently. Don't let grease build up.
- If you smell gas, don't touch any switches or light a flame.
- Close the gas cock and ventilate your home.

**In the bedroom**
- Never smoke in bed.
- Don't leave lit candles unattended.

**In the living room**
- Don't place heaters near furniture or sofas, and don't dry clothing by placing it in front of or on top of one.

**Electrical**
- Maintain your home's electrical system in good condition.
- Don't use power strips or multi-socket adapters.
- Never tamper with appliances: if they overheat, unplug them immediately.

Percentage of fatalities in fires by building type