

## Kerosene Heater Safety

If you use a kerosene heater in your home or place of business, you should take precautions against a number of serious hazards.

### These dangers include:

**Fire or explosion.** Fire could be caused by operating the heater too close to furniture, draperies or other combustibles, by knocking over a lighted heater, or by accidentally igniting fuel when filling the tank. Explosions could be caused by use of the wrong kind of fuel, or by operating the heater in an area where there are combustible fumes.

**Burns.** Burns could be caused by direct contact with a heater, or by ignition of combustible clothing. Children especially should be kept at a safe distance from operating heaters. Even pets could be injured.

**Asphyxiation.** Kerosene heaters consume oxygen as they burn. If they are operated in a small room or in an inadequately ventilated area, oxygen in the air could be reduced to a dangerous level. Reduced oxygen supply could lead to incomplete combustion of fuel and the production of carbon monoxide. Carbon monoxide is a colorless, odorless gas which in sufficient concentrations, or if breathed over a period of time, can kill without warning.

**Indoor air pollution.** In addition to carbon monoxide, kerosene heaters can emit such pollutants as carbon dioxide, nitrogen dioxide and sulphur dioxide. Breathing these substances can create a risk, especially to such people as pregnant women, asthmatics, individuals with cardiovascular disease, elderly persons and young children.

These hazards can be minimized or averted by carefully following manufacturers' instructions for use of kerosene heaters, and by adopting other common-sense safety measures.

You also should be aware that kerosene heaters still are illegal in some areas. Before you buy one, check your local fire department or fire marshal for any restrictions on use in your area.

### Picking the Model

There are two types of portable kerosene heaters - convective and radiant.

The convective heater usually is circular in shape. Its fuel tank is located below the wick and combustion chamber. The wick absorbs and delivers fuel to the combustion chamber.

Convective heaters circulate warm air upward and outward in all directions. They're designed for large areas or even several rooms, but never for a small, closed area such as a bedroom. Some owners report that one or two of these units can adequately heat an entire house when the temperature stays above freezing.

Convective heaters must be moved for refueling because they don't have a removable fuel tank. Generally, refueling is done with a siphon pump. Be sure a convective heater has a fuel gauge.

Radiant heaters - usually rectangular in shape - are designed for smaller areas. They also feature

a wick and combustion chamber and have, in addition, a reflector which directs heat at people or objects. Some radiant heaters have electric fans to increase the flow of warm air.

Many - but not all - radiant models have a removable fuel tank, which means that the heater can stay in place. Only the fuel tank needs to be carried to where the fuel is stored.

A radiant heater without a removable fuel tank must be moved for each refueling - just like a convective model.

Be sure your heater has a recognized seal of approval such as the Underwriters Laboratories (UL) label. The UL label means the heater has performed well under test conditions and meets acceptable fire safety standards.

Also be sure your heater has a battery-operated lighting device - it eliminates the need for matches.

Heaters should have a safety shutoff device, which extinguishes the flame if the unit is jarred or tipped over.

## Dealing with Hazards

A well-designed kerosene heater emits no smoke or strong odor during normal operation. But you might notice a faint kerosene odor when you enter the house.

There's also a strong odor from kerosene heaters for several minutes when they're turned on or off and when they run out of fuel. Thus, it's a good idea to check the fuel gauge regularly.

But the real danger is that misuse of kerosene heaters could replace room oxygen with carbon monoxide and lead to death by asphyxiation.

Therefore, it's important to have adequate ventilation to other rooms, and a source of fresh, outside air such as a window or door open at least one inch whenever you're using a kerosene heater.

Emission of other major pollutants such as nitrogen dioxide, carbon dioxide and sulphur dioxide is an extra reason why you need adequate ventilation and fresh, outside air.

Kerosene heaters could be especially hazardous in bedrooms, particularly when units designed to heat large spaces are used in small rooms.

"You need to keep an eye on a kerosene heater and if you're sleeping, you're not going to be able to do that," warns a fire protection engineer.

The Consumer Product Safety Commission, a federal government agency, has recommended strengthening of voluntary safety standards by manufacturers and continued public education regarding proper use of kerosene heaters.

## Using it Safely

If you purchase a portable kerosene heater, you'll have to allow time for buying fuel, fueling the heater and taking care of maintenance.

You'll need to check the wick every week or two during the heating season. If it's dirty, clean it according to the manufacturer's instructions.

It's also essential to wipe up any kerosene spill-age at once - it's a fire hazard - and to remove

dust and dirt regularly.

Kerosene heaters require 1-K grade kerosene. When colored or cloudy kerosene is burned, it will give off an odor, smoke and cause increased indoor pollution levels because the fuel's higher sulphur content sharply boosts sulphur dioxide emissions. And kerosene other than 1-K grade can gum up the wick. Never use a substitute such as gasoline or camp stove fuel. In a kerosene heater, such fuels could start a fire or explode.

To avoid the risk of fire even in normal operation you should place kerosene heaters several feet away from all furniture, curtains, papers, clothes, bedding and other combustible materials.

Remember that kerosene heaters have a constant open flame and should not be used in a room where there are flammable solvents, aerosol sprays, lacquers, gasoline, kerosene containers or any type of oil.

Parents of babies, toddlers and young children, as well as pet owners, should be aware that touching any part of an operating kerosene heater above the open flame could result in a serious burn.

This is why safety cages - designed to keep small children and pets at a distance - have become popular.

Never attempt to move a lighted kerosene heater. Even a carrying handle could cause a burn. Extinguish the flame and allow the heater to cool before moving it.

And never refuel a kerosene heater in living quarters or when the heater is still hot. Wait for it to cool.

Fire officials strongly urge that kerosene heaters be turned off before you go to sleep. It's better to use your central heating system while the family is sleeping.

## **Remember that you can lessen the fire, serious burn, pollution and asphyxiation dangers from kerosene heaters by:**

1. Following safety tips.
2. Maintaining a constant source of fresh air.
3. Keeping doors to other rooms open.

It's important, too, to have a smoke detector and a fire extinguisher nearby.

## **Handling Fuel**

With a portable kerosene heater, you'll be making frequent trips to a kerosene fuel dealer, unless you're on a delivery route.

One large convective heater operating 15 hours a day needs up to 14 gallons of fuel a week - an amount that would require three five-gallon kerosene containers. Be sure the containers are clearly marked "Kerosene."

It's dangerous to mix gasoline and kerosene - or their containers. Never use a gasoline can as a substitute for a kerosene container.

Once you get the containers back home, you'll need a place to keep the kerosene cans and to refuel the heater.

In both cases, a garage is preferable to the house. If there's no garage, a basement location distant from the central heating system or an outside storage shed are possibilities.

Resist the temptation to refuel a hot kerosene heater in a warm house - it's like playing with dynamite! And never smoke during refueling.

Follow the siphon pump instructions and fill only about 90 percent of the tank. Cold kerosene expands in a heater tank as it warms to room temperature and could overflow if there isn't enough room.

Return the heater to the spot where it will be turned on. Open at least one window slightly and ignite the heater according to the manufacturer's instructions.

## **Summer-Fall Maintenance**

### **Here's what to do before a portable kerosene heater is stored for the summer:**

- Remove all fuel from the tank and discard. Kerosene can change chemically and spoil over the summer.
- Clean the wick if it's dirty. If it's worn out, replace according to the manufacturer's instructions.
- Clean the heater and discard weak batteries. Store good batteries in a dry place, taping the ends.
- Place the unit and accessories in a dust-free and moisture-free containers - possibly the box the heater came in.

### **Here's what to do when taking your heater out of storage in the fall:**

- Install batteries and inspect shut-off mechanism and wick for proper operation.
- Fill the tank with fresh kerosene. Never use kerosene from a previous heating season - it could have spoiled.

Go through the owner's manual to make sure you remember all the operating and safety features.