

# Carbon Monoxide

The Silent Killer

# What Happened?

During the course of the night of December 5-6 the a neighbor's home filled with carbon monoxide, killing 4.

Concerned neighbors entered the house after the neighbors missed several appointments on Saturday morning. One family member was found alive and was hospitalized.

CO Concentrations of 700ppm were found in the house at the time of the rescue.

## **Cause**

The fresh air intake vent to the furnace room had been intentionally blocked, causing CO to be drawn into the rest of the house.

# Carbon Monoxide – The Silent Killer

## •What is it?

- Odorless, colorless, poisonous gas.
- Product of imperfect combustion.
- Number 1 cause of poisoning deaths in the US (~500 per year).
- Effects ~10,000 people every year.
- 144 Anchorage Fire Department responses this year alone.

## •How does it work?

- Red blood cells preferentially absorb CO rather than oxygen.
- Concentration in blood builds up over time.
- Brain and organs starved of oxygen.

## •Symptoms

- 50ppm OSHA maximum 8 hour exposure.
- 200ppm Slight headache, fatigue, nausea after 2-3 hours.  
Watch for blue lips and fingernails.
- 400ppm Frontal headaches after 1-2 hours, life-threatening after 3 hours.
- 800ppm Dizziness, nausea, and convulsions within 45 minutes.  
Unconsciousness within 2 hours.  
Death within 2-3 hours.
- 1,600ppm (and higher) Death within 1 hour.

# Carbon Monoxide – What to do

## •Other Potential Sources of CO

- Space Heaters.
- Internal combustion engines.
- Wood Burning Stoves

## •Prevention

- Have all appliances regularly inspected – especially the furnace.
- Don't block air intakes.
- Look out for excessive moisture, corrosion, or soot.
- Buy / replace / test / clean your CO monitor. They do wear out!

## •Treatment If you suspect someone has been exposed,

- GET OUT! Get to fresh air ASAP.
- Call 911 if symptoms are severe. Get to a hospital.
- Severe exposure requires “hyperbaric chamber” to force oxygen back into body.

## •Afterward

- Thoroughly ventilate poisoned areas.
- Do not return home until source of CO is identified and repaired.

# Carbon Monoxide – Detectors

## Home CO Gas Detectors Use One of Three Sensing Technologies:

### **Biomimetic (gel):**

1. **Designed to mimic the body's response to Carbon Monoxide.**
2. **Can take up to 48 hours to reset after exposure to Carbon Monoxide.**
3. **Because the sensor constantly absorbs Carbon Monoxide, they cannot reset themselves to zero properly, causing false alarms. Case in point – Chicago in 1995 reported thousands of false alarms due to this type of sensor.**

### **Metal-Oxide:**

1. **More accurate than Biomimetic sensors.**
2. **High power requirements – they have to be plugged in or wired directly to the electrical system in your home.**
3. **No internal self-diagnostic tests to determine the working condition of the sensor.**
4. **Cross sensitive to gases other than Carbon Monoxide that may be used in your home such as hairspray.**
5. **Sensor accuracy can drift up to 40% (either more or less sensitive) after 6 months of use.**

### **Electrochemical:**

1. **Electrochemical IDR sensing technology is the most accurate and dependable CO detection technology available to the consumer.**
2. **Used as an industry standard sensor for professional Carbon Monoxide gas detection equipment.**
3. **Instantly detects the presence of Carbon Monoxide.**