



KY-A-Syst for the Home
Environmental Stewardship
for Homeowners

Liquid Fuels: Safe Handling and Storage

Teaching Guide

Introduction:

Liquid fuels are used around most homes to power vehicles, run machines, or heat the home. Fuels are hazardous and need to be properly managed so they don't pollute the water you drink or the air you breathe. Fuel spills can contaminate groundwater or soil, which can lead to expensive cleanups and/or lower property values.

Fuels used for lawnmowers, weed eaters or chain saws are usually stored in portable containers. It is best to buy small quantities that can be used within a month. Fuels used seasonally should be used up at the end of the season. Store these fuels in their original containers or in UL-approved containers. Containers should be clearly labeled and fitted with a spout so fuel can be poured without spilling. Spilled fuels can cause fires. Storage containers and fuel-powered devices should be checked periodically for leaks. They should be stored in well-ventilated, unattached sheds or garages away from the house.

Fuel storage tanks can be even more dangerous than portable containers of fuel. They should be placed at least 150 feet from water wells. Landowners are financially responsible for leaks from tanks on your property, even if you are unaware of the tank's existence. Underground tanks that are more than 15 years old have a dramatically higher chance of leaking. Most older steel tanks have no corrosion protection to protect them from leaking. Fiberglass tanks won't corrode, but sharp objects can puncture them. Tanks may also leak where pipes, valves, hoses and fittings are connected and should be checked periodically.

Underground tanks, especially those over 15 years old, should be inspected on a regular basis. A simple way to check for leaks is to monitor fuel levels over time. Differences in monthly records may indicate a leak.

Overfilling is a common cause of spills. Some tanks can be fitted with automatic shutoff devices, while others can be fitted with vent whistles or fill-level indicators. Box-like containment structures can also be installed for aboveground storage tanks. These structures can prevent leaks and spills from spreading. Aboveground tanks should be stored on stable concrete or steel supports with barriers to protect them from impact damage.

If you have an abandoned fuel storage tank on your property, it is environmentally and legally wise to have it removed. Although not required by state law, it is recommended that a state-certified remover be hired to take out any tanks. If contaminated soil is found after the tank is removed, an environmental consultant should be hired to remove the soil.

Focus on Children:

Storing liquid fuels in proper containers is especially important if young children are around the home. Children may think fuel stored in milk jugs or 2 liter pop containers is drinkable. Children who play in the dirt are also at risk from contaminated soil around leaking or abandoned tanks.

Lesson Purpose and Objectives:

Purpose: This lesson is designed to assist people in handling and storing liquid fuels safely.

Objectives: This lesson guide contains a lot of information about how to handle and store liquid fuels safely. It may be difficult to cover all the material in one session. Therefore, you are encouraged to select a program based on the type of audience you are serving and their needs. It is best to select and focus on *only two or three* of the following objectives.

Understand the importance of storing fuel in the original or UL-approved containers.

Realize fuel containers and fuel-powered devices need to be checked often for leaks.

Become knowledgeable about the best place to store your fuel containers or to place your fuel storage tank.

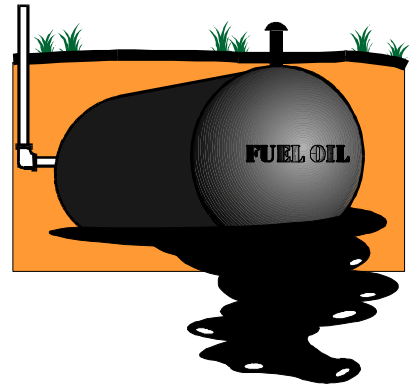
Learn the age of your underground fuel storage tank and whether it is protected from corrosion.

Comprehend the importance of regular checks for leaks of underground, basement, or aboveground tanks.

Explore the proper way to transfer fuel.

Study the best spill and damage protection for aboveground fuel tanks.

Other (Please list in the space below):



Suggested Resources & Materials:

The following items are available for your use in teaching this lesson. Select and use resources according to your program focus and needs. County agents should request these items in advance.

Publications & Fact Sheets

Numbered-series Extension publications available through order entry:

- *Assessing and Reducing the Risk of Groundwater Contamination from Petroleum Product Storage* IP-42

Other: (Please specify below.)

Suggested Teaching Techniques and Activities:

Select only those activities that will help you teach the lesson. Limit selection according to your program focus, audience, and length of lesson.

- Use the transparencies to give an overview of safe storage and handling of liquid fuels. Encourage discussion as you present the information.
- Have the participants read the Ky-A-Syst for the Home publication *Liquid Fuels: Safe Handling and Storage*. Ask them to go back through the publication and answer the questions in the boxes. Suggest participants record all B and C responses and list changes they plan to make from information in the publication or from other sources. They can do this on the Action Checklist on Page 4. Encourage them to set target dates for taking action. Suggest that they review the checklist from time to time to see if any responses have changed.
- Invite someone from the Underground Storage Tank Branch of the Kentucky Division of Waste Management to speak to the group about how to protect families from liquid fuel tank leaks and spills.
- Bring in examples of UL-approved containers (red for gasoline, blue for kerosene, and yellow for diesel). Show the audience how to properly label the containers, and how to fit the containers with spouts to allow pouring without spilling.
- Have an employee of the Kentucky Fire Marshall's office talk to the audience about the proper storage of liquid fuels. Ask them to stress the dangers of leaks and spills and possible consequences of accidents.
- Other: (Please specify below.)

Suggested Evaluation Techniques:

Select the technique(s) best suited to the information you would like to obtain from your audience. Immediate evaluation will provide reaction to the presenter and program materials. Delayed evaluation will give a better indication of changed behavior and attitudes.

- ◆ At the close of the program, ask each participant to name *one* thing they learned from the lesson.
- ◆ At the end of the program, ask each participant to list something they will go home and do as a result of the lesson. Have them write the item on a piece of paper with their name and the date of the lesson. Save the papers and several weeks/months later survey the group to see if they actually did it.
- ◆ Hand out a copy of the *Help Us Serve You Better* evaluation form. Ask participants to complete the form and leave it in a specific place as they leave.
- ◆ Return to the group several weeks later and ask them to fill out the Follow-up Feedback Form and collect them as they leave. If you cannot return to the group in person, contact a representative number of the participants by phone and collect the data requested on the Follow-Up Feedback Form from each.
- ◆ Other: (Please specify below.)

Reporting Impacts (*Information for County Extension Agents*):

Use the following priority indicators and program accomplishment (PAC) codes when reporting impacts as a result of this program. Information taken from the FY01 PAC and priority indicators lists.

PAC Code 610 - Indicator:

- Number of individuals adopting practices that insure safe water.

PAC Code 440 – Indicator:

- Number of persons who report practice changes related to safety.

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