



Preventing Gasoline Burn Injuries

A Newsletter for Burn Awareness Week 2001
February 4-10, 2001

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Burn Awareness Week is observed the first full week in February—February 4-10, 2001. This week is designed to provide an opportunity for burn, fire and life safety educators to unite in sharing a common burn awareness and prevention message in our communities. Burn Awareness Week, celebrated early in the year, is an excellent opportunity to “kick off” a full year of burn awareness education activities.

Questions or Comments? Contact us at:
American Burn Association
625 N Michigan Ave., Suite 1530
Chicago, IL 60611
Tel: 800.548.2876
Fax: 312.642.9130
email: info@ameriburn.org

Facts Regarding Gasoline-Related Injuries

Gasoline, when ignited in a controlled manner to power engines, serves a very useful purpose. Because it is so commonplace, however, we sometimes take its presence for granted. However, the same quality of explosive ignition that makes gasoline so valuable as a fuel can cause terrible injuries when it is handled carelessly or used in a manner for which it is not intended.

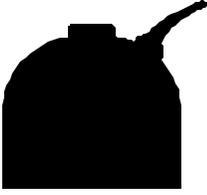
Gasoline and flammable liquid-related burns are a preventable problem. Death and injuries resulting from gasoline ignition or exposure occur in a variety of ways and no single data source captures them at all. The National Fire Protection Association, however, estimates that each year in the U.S. there are over 6,000 gasoline-related residential fires, 500 deaths from gasoline-related fires, and nearly \$500 million in direct property damage from gasoline-related fires—not to mention the thousands of people who are treated in hospital emergency rooms or are hospitalized for gasoline-related burns.

The ignition of gasoline from broken fuel lines and gas tanks in car crashes that trap their occupants remains a major source of gasoline-related death and severe burn injury. The prevention of such deaths and injuries drives the work of those in a variety of disciplines, including vehicle and highway designers, policymakers, and educators, among others. However, a much larger number of gasoline-related injuries occur in and around the home, or result from improper transportation of gasoline in portable containers. While improved product design has helped reduce such injuries, the great majority of those that continue to occur could be prevented by educating and changing the behavior of those who store and transport gasoline other than in their highway vehicle fuel tank. In order to promote the prevention of such incidents, an understanding of the flammability of gasoline and other petroleum products is needed. Knowing how to prevent these injuries can protect loved ones from a devastating consequence.

Flammable Liquid Comparison Chart

	Flash Point	Vapor Density (air = 1)
Gasoline	-45 F (-43 C)	AP 3 to 4
Diesel Fuel	125 F (>52 C)	>1.0
Kerosene	>100 F (38 C)	AP 4.5
Propane	-156 F (-104 C)	1.56 @ 32 F (0 C)
Natural Gas	Flammable Gas	0.6

Flash Point is the minimum temperature at which the liquid will give off sufficient vapor to form an ignitable mixture with air. **Vapor Density** is the ratio of density of vapor to the density of air. Substances with vapor density greater than 1 are heavier than air and tend to accumulate in low or enclosed spaces.



Gasoline Safety

- **Never use gasoline around a flame source.** Be aware of sources such as matches, lighters, cigarettes and pilot lights on stoves and water heaters.
- **Only use gasoline outdoors,** in well-ventilated areas.
- Start charcoal grills with fuels labeled as charcoal starters— **never use gasoline.**
- **Fill equipment gasoline tanks** when engines are turned **off and cold.** Running engines can spark and cause ignition of the gasoline.
- **Never carry gasoline in the trunk of your car for an extended period of time.**
- **Never siphon gasoline by mouth.** It can be fatal if swallowed.
- **If gasoline is spilled on clothes,** remove them immediately. Place clothing outdoors for several days before washing and drying so that gasoline vapors can evaporate.
- **Always keep the minimum amount of gas required** (generally no more than one gallon).
- **If gasoline is swallowed, do not induce vomiting.** Seek medical attention immediately.

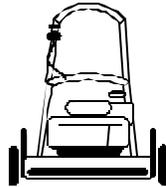
Human and Property Cost of Gasoline-Related Fires

- Over 140,000 gasoline-related fires occur each year nationally. Of these,
 - 120,000 are vehicle fires
 - 10,000 are structural fires (including 6,200 homes)
 - 10,000 are outside and other fires
- Approximately 500 gasoline-related fatalities occur each year.
- Almost \$500 million in direct property damage is recorded each year.
- **1 gallon of gas = 20 sticks of dynamite!**

Source: National Fire Protection Association

Two Simple Rules Regarding Gas

1. **GASOLINE HAS ONLY ONE FUNCTION: TO FUEL AN ENGINE. NEVER USE GASOLINE AS A CLEANING FLUID OR SOLVENT.**



2. **GASOLINE SHOULD NEVER BE USED OR STORED INDOORS OR IN CLOSE PROXIMITY TO SOURCES OF HEAT OR FLAME**

Common Causes of Gasoline Burn Injuries

- ☒ Starting or accelerating a fire (e.g., bonfire, trash, brush, outdoor fire)
- ☒ Improper storage
- ☒ Carburetor priming
- ☒ Fumes near open flame
- ☒ Motor vehicle crash
- ☒ Refueling engine or car/boat repair
- ☒ "Playing" with Gas
- ☒ Farm
- ☒ Industrial
- ☒ Sniffing
- ☒ Suicide/arson/murder



Gasoline Storage



Always store the container in a cool and well-ventilated area. Keep it away from any source of heat or sparks such as a water heater, electric motor or car engine.



Never store gasoline in the house. Always store gas containers in a shed or garage.



If you must store gasoline, do so only in well-ventilated areas away from the house.



Always store gas in approved safety containers.



Gasoline should always be tightly sealed. Seal both the spouts on the container and the vent.



Never use glass or plastic bottles for gasoline storage.



Keep gasoline locked up when not in use. Always keep gas out of the reach of children.

When Should You Seek Medical Attention?

- All burns on the face, hands, feet, major joints or genital area should be considered serious and need to be evaluated by a physician.
- All chemical and electric burns should be seen by a physician, since the damage may not be immediately obvious.
- Burns occurring in an enclosed space, such as a house or car, may be accompanied by smoke inhalation and should be evaluated.

Characteristics of Burns

A burn is damage to the skin and underlying tissue caused by heat, chemicals or electricity—a very simplistic definition for a very complex injury. Burns damage or destroy one or more layers of the skin. Deeper burns may involve the fat, muscle or bone. The temperatures to which the skin is exposed and the length of time the skin is exposed to the burning agent determine the depth of injury. Burns range in severity from minor injuries that require no medical treatment to serious, life-threatening—sometimes fatal—injuries. Burns are categorized in terms of degrees, which are described below. Partial thickness injuries include first and second degree burns; full thickness injuries encompass third degree and deeper injuries.

Superficial (First Degree) Burns Causes: sunburn, minor scalds Generally heal in 3-5 days with no scarring.

Partial Thickness (Second Degree) Burns Damages, but does not destroy top two layers of skin. Generally heal in 10-21 days. Does not require skin graft.

Full Thickness (Third Degree) Burns Destroy all layers of the skin. May involve fat, muscle and bone.

First Aid for Exposure to Gasoline



ALWAYS REMOVE VICTIM FROM ANY FLAME SOURCE IMMEDIATELY!



DIAL 911 TO START EMERGENCY MEDICAL ASSISTANCE

What if someone becomes ill from breathing gasoline? The product is flammable. Take proper precautions to ensure your own safety before attempting rescue. Remove the victim from any source of ignition. Remove the source of contamination or move the victim to fresh air. Perform CPR as necessary and immediately transport the victim to an emergency facility.

What if gasoline gets on someone's skin or clothing? Avoid direct contact. Wear chemical protective clothing if necessary. Under running water, remove contaminated clothing and shoes. Quickly and gently blot or brush away excess chemical residue. Wash gently and thoroughly with water and non-abrasive soap for 5 minutes or until the chemical is removed. If irritation persists, repeat flushing.

Obtain medical advice immediately. Clothing and shoes contaminated with gasoline should be stored out of doors away from sources of ignition until thoroughly cleaned.

What if someone gets gasoline in their eyes? While holding the eyelids open, immediately flush the eye with luke-warm, gently flowing water for 20-30 minutes or until the chemical is removed. Avoid direct contact. Obtain medical advice.

What if someone swallows gasoline? Never give anything by mouth if the victim is rapidly losing consciousness or is unconscious or convulsing. Have the victim rinse his or her mouth thoroughly with water. **DO NOT INDUCE VOMITING.** Have the victim drink 8 -10 oz. of water. If vomiting occurs naturally, have the victim lean forward to reduce the risk of aspiration. Repeat administration of water. Perform CPR as necessary and immediately transport the victim to an emergency care facility.

Symptoms of Gasoline Overexposure

Body as a whole

- Fever
- Weakness
- Convulsions
- Numbness in arms and legs
- Burning sensation

Respiratory

- Cough
- Slow and shallow breathing
- May smell gasoline on breath

Skin (prolonged contact)

- Rash
- Burns

Eyes

- Irritation and burning

Gastrointestinal

- Nausea and/or vomiting

Heart and Blood Vessels

- Rapid heartbeat
- Vasoconstriction

Nervous System

- Dizziness
- Unconsciousness

Visit the ABA Website at www.ameriburn.org for the complete 2001 Burn Awareness Campaign Kit.

Topics under consideration for future campaigns include: *Summer Recreational and Camping Burn and Fire Safety*; *Fire Safe Cigarettes*; *Burn and Fire Safety for Older Adults*; and *Leaving Home—A Campaign for Young Adults*.

Emergency Care for Burns

Stop the Burning Process. Remove all diapers and clothing from around the burn area—these will retain heat, increasing the damage to the skin. If material is adherent (stuck) to the skin, cool the area with cool water and seek medical attention. Jewelry and metal such as belt buckles and zippers also need to be removed. Run cool—not cold—water over the burn area for a few minutes.

- **Do not** apply ice directly to the burn. Ice can make the burn worse. The opposite extreme temperature may also destroy the skin.
- **Do not** apply creams, ointments or salves. These products retain heat in the damaged tissue.
- **Do not** break any blisters until seen by a physician.
- Cover with a clean, dry cloth.
- First and second degree burns smaller than the person's palm can usually be treated at home. Keep the area clean to prevent infection by gently washing with mild antimicrobial soap several times a day, rinsing thoroughly. Cover open areas with a clean, loose dressing. Consult with your family physician or local burn center if the burn does not heal in two to three days or if signs of infection appear. Burns larger than the person's palm should be evaluated by a physician. For larger burns (bigger than the person's palm) or burns that involve the face, airway, hands, feet or genital area, call 911 or your local emergency number.

Electric Burns may be caused by household current, outside power lines, certain batteries or lightning. They may cause additional damage below the skin.

- Protect yourself! Do not touch the victim until you are sure the power has been disconnected, the plug disconnected from the source, or the patient is free from the electricity.
- Once the victim is free from the source, treat the burns as described above.
- Electricity can cause the heart and breathing to stop. CPR may be necessary.

Chemical Burns can be caused by contact with many household cleansers, lawn care products, fresh cement or other chemicals.

- Gently brush any dry chemicals off the skin.
- Flush affected area with running water for at least 20 minutes or until an emergency worker tells you to stop. If the affected area continues to burn, continue to flush until the pain stops.
- Remove any contaminated clothing.