

Consumer Product Safety Commission

Extension Cords Fact Sheet

CPSC Document #16

THE STATISTICS

The U.S. Consumer Product Safety Commission (CPSO) estimates that each year, about 4,000 injuries associated with electric extension cords are treated in hospital emergency rooms. About half the injuries involve fractures, lacerations, contusions, or sprains from people tripping over extension cords. Thirteen percent of the injuries involve children under-five years of age; electrical burns to the mouth accounted for half the injuries to young children.

CPSC also estimates that about 3,300 residential fires originate in extension cords each year, killing 50 people and injuring about 270 others. The most frequent causes of such fires are short circuits, overloading, damage, and/or misuse of extension cords.

THE PROBLEM

Following are CPSC investigations of injuries that illustrate the major accident patterns associated with extension cords, namely children putting extension cords in their mouths, overloaded cords, worn or damaged cords, and tripping over cords:

A 15-month-old girl put an extension cord in her mouth and suffered an electrical burn. She required surgery.

Two young children were injured in a fire caused by an overloaded extension cord in their family's home. A lamp, TV set, and electric heater had been plugged into a single, light-duty extension cord.

THE STANDARDS

The National Electrical Code says that many cord-connected appliances should be equipped with polarized grounding type plugs. Polarized plugs have one blade slightly wider than the other and can only be inserted one way into the outlet. Polarization and grounding ensure that certain parts of appliances that could have a higher risk of electric shock when they become live are instead connected to the neutral, or grounded, side of the circuit. Such electrical products should only be used with polarized or grounding type extension cords.

Voluntary industry safety standards, including those of Underwriters Laboratories Inc.(UL), now require that general use extension cords have safety closures, warning labels, rating information about the electrical current, and other added features for the protection of children and other consumers.

In addition, UL-listed extension cords now must be constructed with #16 gauge or larger wire, or be equipped with integral fuses. The #16 gauge wire is rated to carry 13 amperes (up to 1560 watts), as compared to the formerly-used # 18 gauge cords that were rated for 10 amperes (up to 1200 watts).

Use extension cords only when necessary and only on a temporary basis.

- * Use polarized extension cords with polarized appliances.
- * Make sure cords do not dangle from the counter or table tops where they can be pulled down or tripped over.
- * Replace cracked or worn extension cords with new. #16 gauge cords that have the listing, of a nationally-recognized testing laboratory, safety closures, and other safety features.
- * With cords lacking safety closures, cover any unused outlets with electrical tape or with plastic caps to prevent the chance of a child making contact with the live circuit.
- * Insert plugs fully so that no part of the prongs are exposed when the extension cord is in use.
- * When disconnecting cords, pull the plug rather than the cord itself.
- * Teach children not to play with plugs and outlets.
- * Use only three-wire extension cords for appliances with three-prong plugs. Never remove the third (round or U-shaped) prong, which is a safety feature designed to reduce the risk of shock and electrocution.

Use only extension cords that are specifically designed for use in these instances.

- * Check the plug and the body of the extension cord while the cord is in use. Noticeable warming of these plastic parts is expected when cords are being used at their maximum rating, however, if the cord feels hot or if there is a softening of the plastic, this is a warning that the plug wires or connections are failing and that the extension cord should be discarded and replaced.
- * Never use an extension cord while it is coiled or looped. Never cover any part of an extension cord with newspapers, clothing, rugs, or any objects while the cord is in use. Never place an extension cord where it is likely to be damaged by heavy furniture or foot traffic.
- * Don't use staples or nails to attach extension cords to a baseboard or to another surface. This could damage the cord and present a shock or fire hazard.
- * Don't overload extension cords by plugging in appliances that draw a total of more watts than the rating of the cord.
- * Use special, heavy duty extension cords for high wattage appliances such as air conditioners, portable electric heaters, and freezers.
- * When using outdoor tools and appliances, use only extension cords labeled for outdoor use.

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The U.S. Consumer Product Safety Commission is charged with protecting the public from unreasonable risks of serious injury or death from more than 15,000 types of consumer products under the agency's jurisdiction. Deaths, injuries and property damage from consumer product incidents cost the nation more than \$700 billion annually. The CPSC is committed to protecting consumers and families from products that pose a fire, electrical, chemical, or mechanical hazard or can injure children. The CPSC's work to ensure the safety of consumer products - such as toys, cribs, power tools, cigarette lighters, and household chemicals - contributed significantly to the 30 percent decline in the rate of deaths and injuries associated with consumer products over the past 30 years.

To report a dangerous product or a product-related injury, call CPSC's hotline at (800) 638-2772 or CPSC's teletypewriter at (800) 638-8270, or visit CPSC's web site at www.cpsc.gov/talk.html. To join a CPSC email subscription list, please go to www.cpsc.gov/cpsclist.aspx. Consumers can obtain this release and recall information at CPSC's Web site at www.cpsc.gov.

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Standard Interpretations

11/18/2002 - Compliance requirements for relocatable power taps or "power strips."

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• **Standard Number:** [1910.303\(b\)\(2\)](#); [1910.303](#); [1910.304\(b\)\(2\)](#); [1910.304](#); [1910.305\(g\)\(1\)](#); [1910.305](#)

November 18, 2002

Wade R. Abnett, ASP
Senior Safety Engineer
Middle River Aircraft Systems
103 Chesapeake Park Plaza
Baltimore, MD 21220

Dear Mr. Abnett:

Thank you for your October 22, 2001 letter to the Occupational Safety and Health Administration (OSHA). This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any questions not delineated within your original correspondence. You had concerns regarding an OSHA interpretation letter, "The use of power strips" addressed to Mr. Rick Cee, Chairperson, OSHA, Salt Lake City Technical Center, dated June 11, 1993. This letter has been removed from OSHA's website and is no longer considered current. We apologize for the delay in responding to your request.

Question: What is the current compliance status on the use of "power strips"?

Reply: "Power strips" (as they are most commonly referred to) "Surge/Spike Protectors" or "Portable Outlets," typically consist of several components, such as multiple electrical receptacles, on/off power switch, circuit breaker, and a grounded flexible power cord. One nationally recognized testing laboratory, Underwriters Laboratories (UL), refers to power strips as *Relocatable Power Taps (RPTs)* and, in its "General Information for Electrical Equipment Directory" (sometimes called the UL white book or UL Directory), describes RPTs as "relocatable multiple outlet extensions of a branch circuit to supply laboratory equipment, home workshops, home movie lighting controls, musical instrumentation, and to provide outlet receptacles for computers, audio and video equipment and other equipment." Power strips may contain other electronic components intended to provide electrical noise filtering or surge protection. UL defines and lists such devices in UL 1283, *Standard for Electromagnetic Interference Filters* and UL 1449, *Transient Voltage Surge Suppressors (TVSS)*; TVSSs are dual-listed by UL and meet the requirements of UL 1363, *Relocatable Power Taps*.

OSHA's standard at 29 CFR §1910.303(b)(2), Installation and use, requires that "Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling." Manufacturers and nationally recognized testing laboratories determine the proper uses for power strips. For example, the UL Directory contains instructions that require UL-listed RPTs to be directly connected to a permanently installed branch circuit receptacle; they are not to be series-connected to other RPTs or connected to extension cords. UL also specifies that RPTs are not intended for use at construction sites and similar locations.

Power strips are designed for use with a number of low-powered loads, such as computers, peripherals, or audio/video components. Power loads are addressed by 29 CFR §1910.304(b)(2), *Outlet devices*: "Outlet devices shall have an ampere rating not less than the load to be served." Power strips are not designed for high power loads such as space heaters, refrigerators and microwave ovens, which can easily exceed the recommended ampere ratings on many power strips. They must also meet the requirements of §1910.305(g)(1), *Use of flexible cords and cables*. For example, the flexible power cord is not

to be routed through walls, windows, ceilings, floors, or similar openings.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information.

To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov/>. If you have any further questions, please feel free to contact the Office of General Industry Enforcement at (202) 693-1850.

Sincerely,

Richard E. Fairfax, Director
Directorate of Enforcement Programs

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