We encounter batteries almost everywhere (laptops, phones, MP3 players, cameras etc.) as they provide productivity, convenience and entertainment to us at work and play. It is VERY IMPORTANT that we all understand that batteries can be dangerous if not used, handled, charged, transported, maintained or disposed of correctly.

Most modern battery packs hold a tremendous amount of electrical energy that can be dangerous if not respected and handled properly.

The greatest danger is fire caused by improper use, charging or storage of batteries. There is potential for harmful chemical contents to come into contact with our eyes or skin and cause injury if batteries leak or begin to corrode electronic equipment.

At ASU, we recently experienced the effects of improper charging of a laptop battery that resulted in a fire and complete evacuation of a building. Fortunately, no one was injured, but there were property losses and a disruption of classes and research. The U.S. Consumer Product Safety Commission (CPSC) is aware of at least 47 incidents involving smoke or fire associated with notebook computers, from January 2001 through August 2006. To promote safe use of notebook computers, batteries and chargers, CPSC offers the following tips:

- Do not use incompatible computer batteries and chargers. If unsure about whether a replacement battery or charger is compatible, contact the product manufacturer.
- Computer batteries can get hot during normal use. Do not use your computer on your lap.
- Do not use your computer on soft surfaces, such as a sofa, bed or carpet, because it can restrict airflow and cause overheating.
- Do not permit a loose battery to come in contact with metal objects, such as coins, keys or jewelry.
- Do not crush, puncture or put a high degree of pressure on the battery as this can cause an internal short-circuit, resulting in overheating.
- Avoid dropping or bumping the computer. Dropping it, especially on a hard surface, can potentially cause damage to the computer and battery. If you suspect damage contact the manufacturer.
- Do not place the computer in areas that may get very hot.
- Do not get your computer or battery wet. Even though they will dry and appear to operate normally, the circuitry could slowly corrode and pose a safety hazard.
- Follow battery usage, storage and charging guidelines found in the user's guide.

CPSC has battery and other product safety information available at [www.cpsc.gov](http://www.cpsc.gov). To join a free e-mail subscription list, please go to [www.cpsc.gov/cpsclist.aspx](http://www.cpsc.gov/cpsclist.aspx).

There is a very good overview of laptop battery safety on Youtube available at [http://www.youtube.com/watch?v=uJxbXgOQc8Q](http://www.youtube.com/watch?v=uJxbXgOQc8Q).
General Safe, Use and Handling Tips for all Batteries

There are many types of batteries in use. Generally speaking, there are three main types of batteries: Consumer non-rechargeable batteries widely available in common sizes, e.g., AAA, AA, C, D, 9 volts, etc.; Consumer rechargeable batteries (Available in common sizes such as AAA, AA, C, D, 9 volts, etc.); and Industrial batteries (e.g., lead-acid, which can be found in vehicles, emergency lighting, fire alarm panels, etc.).

Many battery manufacturer’s offer safe use and handling tips. Below is a list compiled by EH&S. In addition to following these tips, always refer to the manufacturer’s user’s manual for any item using batteries and follow safe use and handling tips for the batteries.

- Always charge and use your device on a hard, flat, smooth, NON-COMBUSTIBLE surface.
- Always make sure the Air Vents are free from obstruction. Blocked or partially obstructed (even dirty) air vents can cause a severe spike in temperature in your device that may lead to fire and/or potentially dangerous releases of chemicals.
- Never charge or use your laptop computer or other devices on a carpet, rug, blanket, couch, bed, similar surfaces or inside a briefcase, back pack, suitcase or other enclosed or confined environment. Critical air circulation to cool your device can be lost when it is charged or used on a soft or uneven surface. This reduced airflow can lead to a very dangerous overheating situation resulting in fire.
- Periodically clean the air vents and internal areas (that you have access to) on your device. Dust, lint or other "dust bunnies" are potentially combustible materials. Also excessive dust, lint or "dust bunnies" can also restrict proper convection and cooling airflow - leading to fire.
- If you smell smoke or anything burning, immediately turn off your device (if safe) and unplug it from the wall and contact the device manufacturer.
- If either your device or AC adapter is running HOT - please pay attention to that. That is a warning sign. You should call your manufacturer and ask them to help you troubleshoot the problem.
- Never take a battery pack apart. Disassembling a battery can subject you to chemical burns and electrical shock.
- Never connect or bridge the positive and negative contacts of a battery - that risk severe electrical shock or explosion.
- Do not carry a battery pack in your pocket or store a battery pack with loose coins, keys, paper clips or other metal objects - as those metal objects could short circuit your battery causing a fire, electrical shock or explosion.
- Recycle your batteries according to ASU guidelines.
- If you have dropped or damaged your battery in any way, contact the manufacturer for a battery safety evaluation.
- Do not use your battery if it looks deformed in any way. Immediately replace misshaped, deformed or damaged battery packs.

Batteries can make our lives more productive and enjoyable, but they can be dangerous if not understood and used properly. If you have any safety related questions, please contact your electronic equipment manufacturer or EH&S at (480) 965-6219 or EHS@asu.edu.