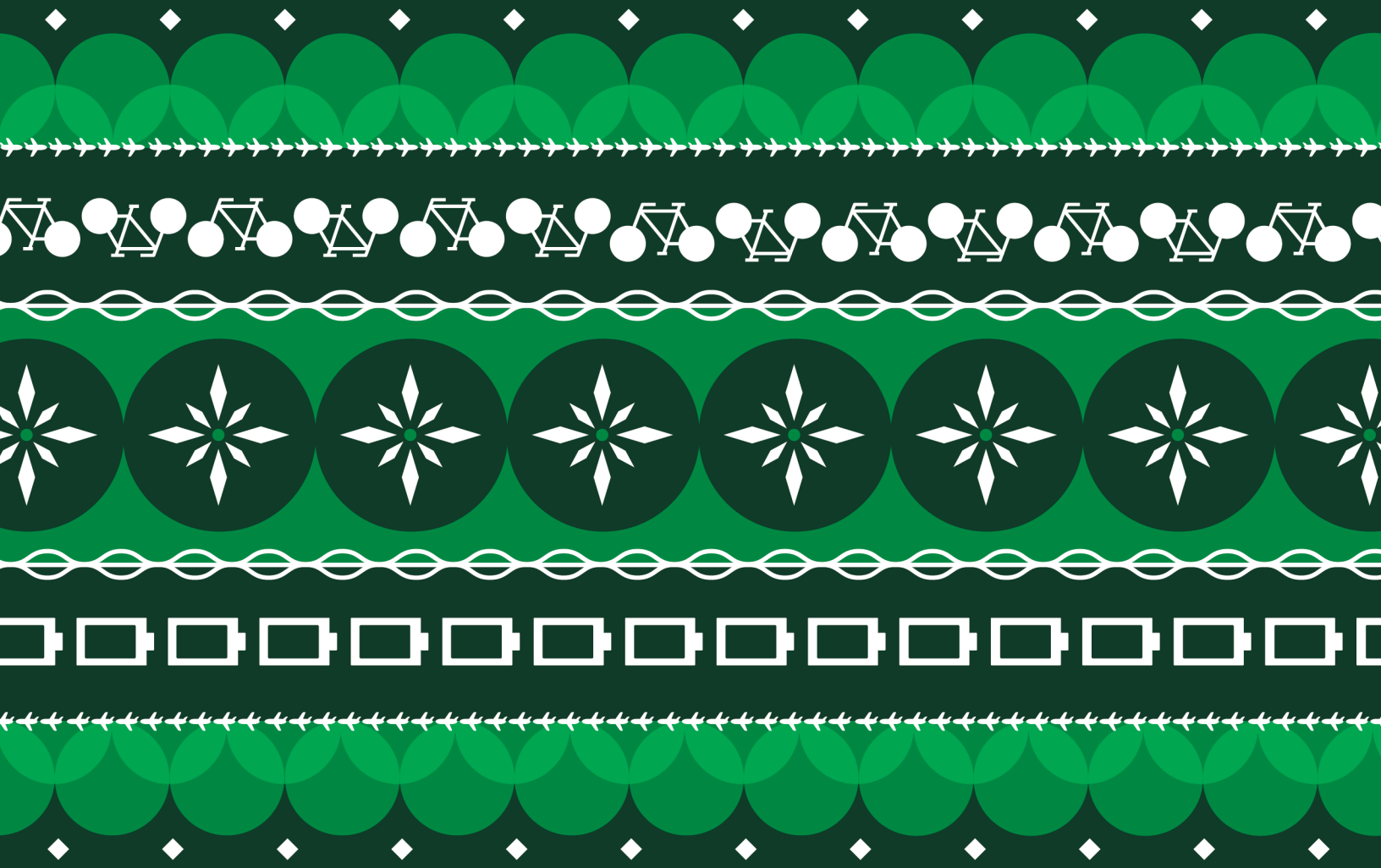
UL Standards & Engagement

2024

Holiday Safety Guide



Introduction

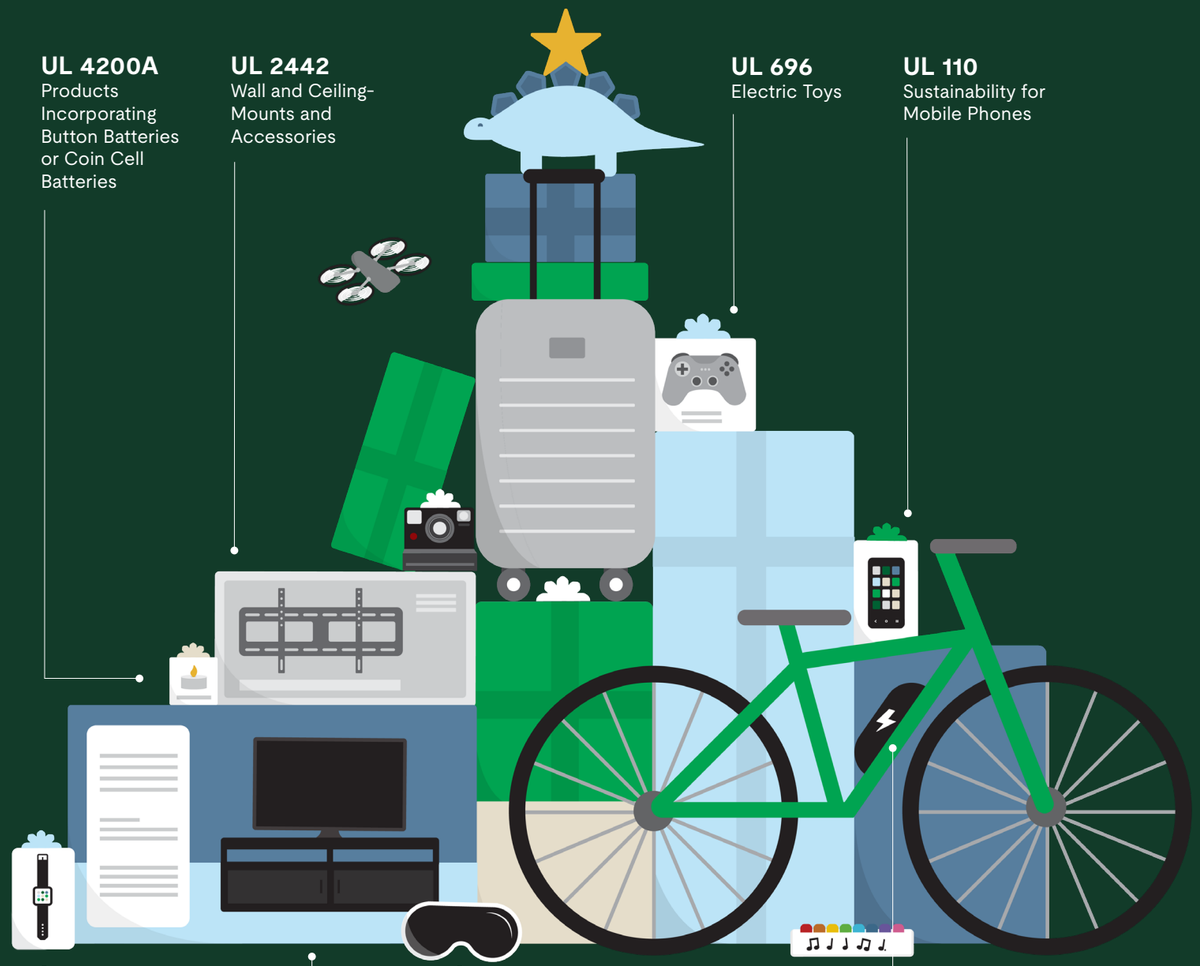
At UL Standards & Engagement, we believe that safety is key to making the holidays special. For more than a century, we've thought about every detail when it comes to making your home safer — developing standards that protect you when flipping on the light in the morning (that's UL 20, the standard for switches) and parking in the garage at night (that's UL 325, the standard for automatic garage doors), and almost everything in between.

Our mission of working for a safer world doesn't stop when the holidays start. It becomes even more important. According to our second annual holiday safety study, 93% of 2,004 U.S. adults in 2024 plan to celebrate Thanksgiving and winter holidays in some way, contributing to behavior that differs from January to October norms. During the holidays, we change the way our houses are decorated, we cook more elaborate meals, we travel away from home, and we shop for items we don't regularly purchase.

These behavioral changes during the holidays can elevate safety risks — risks that are responsible for more fires and trips to the ER than other times of year. Our 2024 study showed some holiday safety misunderstandings that could make days less merry and bright, but there are reasonable steps to mitigate those risks and ensure your holidays are spent gathered around the tree — not in the hospital waiting room.

Since 1903, ULSE has developed more than 1,700 safety standards and documents, which are incorporated into millions of products at the top of holiday wish lists. Most safety standards are voluntary — and widely adopted by many manufacturers. There are not, however, guarantees that every product on the market conforms to standards. (We have it on good authority though that everything made in Santa's workshop is tested and certified to safety standards.)

This guide is designed to help you make smart decisions to reduce the risk when cooking, gifting, decorating, and traveling this season. From the standards that protect your products, to the safety tips that will help you avoid injury, we are leveraging more than a century of safety expertise to make the holiday season one to remember — for all the right reasons.



Gifting

76%
of gift buyers say they prefer to buy from well-known retailers

73%
of gift buyers say they are motivated by price

72%
of gift buyers say they prefer to buy from well-known brands

65%
of gift buyers say they prefer to buy products that meet safety standards

The top electronics, appliances, and toys on this year's wish lists include items that will be carefully thought about and researched. But will that research consider safety?

Whether it's the charger that powers your devices or the makeup of a product's battery compartment, our standards put measures in place to prevent injuries during the holidays, including guidance on how manufacturers can make battery compartments more difficult for a child to open, mitigate fire and shock risks from electric toys, and safeguard e-bikes and e-scooter batteries against overcharging.

Nearly three-quarters (72%) of Americans in our 2024 holiday safety study say they plan to purchase gifts this season. Of those, 83% anticipate buying some type of battery-powered gift. Top items include electronic toys, wireless or Bluetooth headphones, small kitchen appliances, personal care products, smartphones, and tablets.

While a vast majority of gift buyers say they are motivated to buy items for the best price (73%), and from well-known brands (72%), buyers are most motivated to make purchases from well-known retailers (76%). The holidays are an expensive time of year, so the hunt for deals is not surprising. In fact, nearly half (49%) said that a low price matters most to them when shopping for the holidays, and when coming across a significant discount, many feel excited about getting a good deal (46%) or are curious and want to learn more (33%). Yet, only 65% say they prefer to buy products because they meet safety standards and only 10% are skeptical of a product's quality if it is steeply discounted. As consumers head into stores or buy online, we offer the following recommendations to help ensure good deals don't bargain away safety.

Charge Smartly and Safely

1. Charge with cables that come with the product
2. Buy replacements or extras from the manufacturer
3. Check that the chargers have been certified by a third-party testing company

Top Rechargeable Holiday Gifts

31% Electronic toys
29% Wireless or Bluetooth headphones
27% Personal care and wellness products
26% Small kitchen appliances
24% Smartphone
21% Tablet
21% Game controllers
21% Smartwatch
18% Portable speakers
18% Portable charger/power banks
17% Portable gaming console
17% Laptop
12% Battery-powered power tools
11% Wireless computer keyboard or mouse
11% Portable lights or flashlight
10% Rechargeable batteries
10% Digital camera
8% Cordless or robot vacuum cleaners
8% Virtual or augmented reality device
8% E-cigarette or electronic vaping device
8% Other smart wearables
7% Battery-powered home security cameras
6% Electric bike
5% Electric scooter
5% e-reader
5% Battery-powered lawn care products
4% Smart luggage with removable batteries
4% Hoverboard
4% Battery-powered lighter
3% Medical devices
9% Other
16% None of the above

*Multiple responses allowed

22%
of Americans said they were “very aware” of the risk of thermal runaway

With headphones, smartphones, and tablets at the top of planned gift lists, safe chargers are a must. With Apple’s recent shift to all USB-C chargers, a bigger market creates more opportunity for counterfeits that risk safety. A UL Solutions test of 400 counterfeit Apple adapters found that only three of 400 passed — a 99% failure rate. The investigation report said, “All but three failed our basic safety tests and were fire and shock hazards. Twelve were so poorly designed and constructed that they posed a risk of lethal electrocution to the user.”

Whenever possible, use the charger that came with the product and check that it is certified by a third-party testing company to reduce the risk of fire or electric shock. Purchasing replacement chargers directly from the manufacturer also limits the hazards.

Many of the most coveted electronics are rechargeable. These devices are typically powered by lithium-ion batteries, and it’s important to buy products and batteries that adhere to safety standards and are designed to prevent thermal runaway. This refers to a state of uncontrollable heat that can result in fire or explosion if the lithium-ion battery is damaged or overcharged.

Unfortunately, a separate September 2024 study conducted by UL Standards & Engagement found that 40% of Americans were not aware of the thermal runaway risk with lithium-ion batteries. In fact, only 22% said they were “very aware” of the risk. It’s an awareness gap that can become a safety threat if safe practices aren’t followed.

Lithium-ion batteries are in countless products and can be a clean, rechargeable source of energy. While a majority (65%) of Americans reported they were aware that smartphones, laptops, e-readers, and tablets contain lithium-ion batteries, the same ULSE September survey found that awareness declines for other top gifts that rely on their rechargeable power — like e-bikes and scooters, hoverboards, cordless vacuums, and power and lawn tools.

Even with hundreds of e-bike fires across the globe and ample media coverage of the problem, an alarming number of consumers are still unaware of what powers their devices. While many of these e-bike fires are due to shoddy third-party or counterfeit lithium-ion batteries, 49% of e-bike owners were not even aware that lithium-ion batteries power those devices.

E-bikes and other products like lawn care equipment, power tools, and cordless vacuums require larger lithium-ion batteries. With increased size comes increased risk. Nearly half (45%) of Americans are not aware that lithium-ion batteries are the energy source for their battery-operated power tools like cordless drills and saws. For a family in Walden, VT, it was a battery fire from tools that led to the loss of their home.

These are avoidable tragedies. With holiday shopping underway, look for products that are certified by a nationally recognized testing lab, and follow best practices like not overcharging batteries, or not charging them overnight when a fire could take off too fast to escape.

Lithium-ion battery fires are intense, fast, and difficult to extinguish. Researchers found that 30 years ago, you had about 17 minutes to escape a house fire. With more synthetic materials in modern furniture and home construction, the estimate is now three minutes. With lithium-ion battery fires, it may only be seconds.

The Fire Safety Research Institute of UL Research Institutes conducted an e-bike fire test in partnership with the FDNY, finding that it took less than 20 seconds from when smoke first appeared from the e-bike to the room being totally engulfed in flames. Keeping e-bikes and scooters — and any lithium-ion powered devices — from blocking escape routes in your home can help ensure you aren’t trapped inside in the event of a fire.

The only thing worse than realizing you don’t have the right batteries for the new toy your child had at the top of her wish list? Not knowing the accidental ingestion risks posed by small batteries in poorly designed compartments, or the thermal runaway risks posed by substandard lithium-ion batteries.

Through the Years...

UL first began testing and listing electric toys in 1918, with the first products being electric transformers — most notably those used to drive toy trains. A transformer manufactured for the Lionel Company was first listed in 1921, followed by American Flyer in 1924. Many children were overjoyed to find these trains roaring around the tree on Christmas morning, and we at ULSE are likewise heartened to know that we’ve been making children’s holidays safe and special for more than 100 years.

49%
of e-bike owners are unaware that there are safety standards for lithium-ion batteries

Know the Rechargeable Risks

1. Educate yourself on thermal runaway
2. Know which products contain lithium-ion batteries (almost anything rechargeable)
3. Never place lithium-ion powered devices where they could block your exit in the event of a fire

Nearly 3 in 10 (33%) gift buyers in the ULSE holiday study plan to buy a gift for a child aged 6 years or younger this season. Another 28% have children 7 to 12 on their lists. With a total of 61% of gift-givers buying for children, it is important to be thoughtful about safety when making purchasing decisions.

Electronic toys topped our list of top rechargeable tech products this year, with 31% of gift buyers saying they planned to purchase at least one gift in the category. For younger children, be cautious with products containing coin- and button-cell batteries — and not just in their toys. Toys already require battery compartments that are more difficult for children to access or for batteries to fall out. But coin-and button-cell batteries are widely used in other household electronics. Batteries from remotes, key fobs, and other common items have contributed to a concerning number of battery ingestion emergencies. According to CPSC, an estimated 70,322 battery-related emergency department visits occurred from 2010 to 2019, nearly doubling the 1990 to 2009 estimate of 40,400 in half the time. The majority of these incidents occurred among children under the age of 6.

The risk of accidental battery ingestion is lower than in years past following action by the CPSC in September 2023 that made conformance to UL 4200A, the Standard for Products Incorporating Button Batteries or Coin Cell Batteries, mandatory to comply with Reese's Law, named for Reese Hamsmith, who lost her life at 18-months-old to accidental battery ingestion. Compliance with the law was required by March 2024 and will make it more difficult for batteries to fall out or be accidentally removed by children. Not sure when your product was manufactured? You can look for battery compartments that use a screw or two-step process to open, rather than those that can easily pop open if dropped.

Virtual reality and augmented reality devices are another big item, with 8% of gift buyers saying there is one on their list to purchase. ULSE's standard for VR, AR, and mixed reality devices, UL 8400, was released last year with input from major manufacturers including Apple, Microsoft, Meta, and Sony, as well as from government groups like CPSC. It will make these products safer for users, though it is new enough that products are not likely to be certified to the standard yet. However, you can look for features if buying a VR device that will keep the adults and teens — or mostly teens, as these devices are only recommended for ages 12 and up — on your gift list safer in the real world.

The standard specifically addresses issues like motion sickness, skin sensitivity, and heat exposure to the eye — among other potential negative reactions. For consumers who want to buy VR headsets this season, ensure that the device fits the head well and offers a restricted use area to reduce the likelihood of falls or collisions. Following the manufacturer recommendations for appropriate ages and taking time to read the instructions for safe operation will also support protecting your gift recipient.

Consider Safety Differences for Children and Teens

1. Buy micromobility devices like e-bikes, scooters, and hoverboards that are tested and certified to reduce the risk of battery fire and injury
2. Inspect gifts that use button- or coin-cell batteries to ensure the battery compartments cannot be easily opened by a child, or pop open by accident
3. Pay attention to manufacturer instructions that offer important tips for safe operation

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Holiday Fakes Have Real Consequences

Frequency	Bought a holiday gift knowing it was counterfeit	Unknowingly bought a counterfeit product as a holiday gift
Very often	4	4
Often	5	6
Sometimes	10	11
Rarely (once or twice)	10	19
Never	68	54
Not sure	4	5

When people think of counterfeit items, they mostly think of accessories and apparel. Our survey showed that of holiday gift buyers who had intentionally purchased a counterfeit product, 59% of them had bought apparel or accessories.

While buyers may be aware they are not getting a genuine designer handbag for $20, they may have a harder time distinguishing, for example, a counterfeit lithium-ion battery from the original manufacturer item.

A faulty battery carries more injury risk than a fake purse. Although only 10% of holiday shoppers who admit to knowingly and unknowingly purchasing a counterfeit reported buying fake lithium-ion batteries, that translates to many substandard products posing a risk to recipients.

As many as 29% have knowingly bought a counterfeit at least once. Even more (40%) report that they have been deceived into unknowingly buying a counterfeit at least once.

Given that counterfeits intentionally deceive, a majority (54%) of holiday shoppers are confident that they've never fallen victim; however a 2023 study by Michigan State University's Center for Anti-Counterfeiting and Product Protection found that 66% of U.S. consumers had been fooled into buying a counterfeit in the last year alone.

Three-quarters (75%) of holiday shoppers agreed they would take extra precautions to avoid buying counterfeit products and 73% plan to research product authenticity before purchasing, yet a concerning minority still say they plan to intentionally purchase counterfeit goods (14%) or will consider counterfeit goods if authentic versions are too expensive (18%) when buying gifts this year. Those minority percentages, however, translate to approximately 24 million people who plan to intentionally purchase counterfeit goods, and approximately 31 million people who will consider counterfeits if the real deal is too expensive.

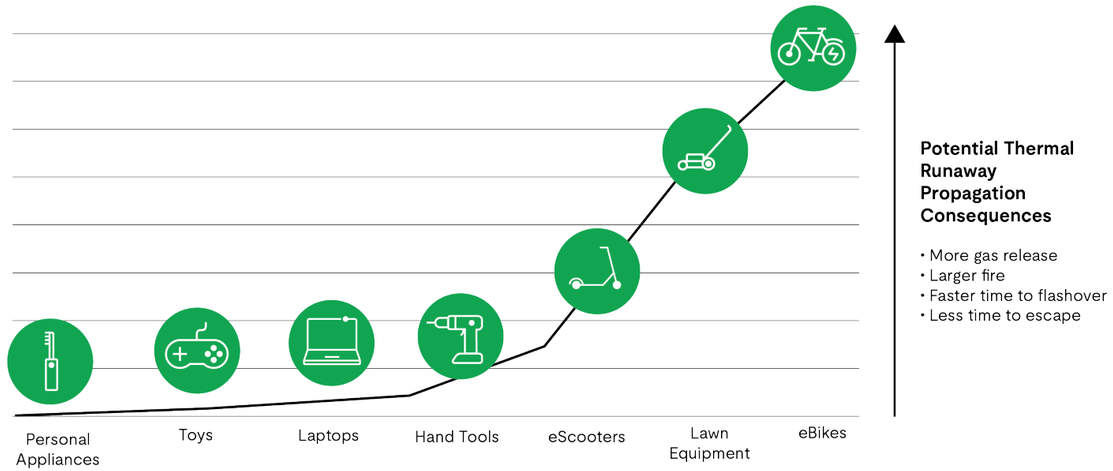
The true price of counterfeits can be much costlier than the item itself. While most holiday gift givers surveyed prioritized low price (49%) over brand name or reputation (44%), it is important to make sure a great deal is not actually a counterfeit scam. Fake goods mortgage our safety, resulting in more than 70 deaths and 350,000 serious injuries annually.

This holiday season, take the time to ensure the gifts you give are certified to applicable safety standards by looking for the mark of an independent, third-party testing laboratory such as UL Solutions, Intertek, CSA Group, and others.

29%

have knowingly bought a counterfeit at least once. Even more (40%) report that they have been deceived into unknowingly buying a counterfeit at least once.

Expert Advice: What You Need to Know About Lithium-Ion Battery Fires



Holiday wish lists are filled with tech gadgets and devices, many of which run on lithium-ion batteries. These batteries are commonly found in household items and can be dangerous if not handled correctly. Take steps to educate yourself this season by checking out need-to-know insights from the Fire Safety Research Institute.

What Causes Battery Fires

While lithium-ion battery-powered devices have many benefits like longer charge time and higher efficiency, they do pose unique fire risks. Lithium-ion batteries store energy more densely than traditional batteries and can become unstable if damaged (punctured, swollen), improperly used (overcharged), or exposed to extreme temperatures. This instability can lead to overheating, sparking, and even explosions.

Why Battery Size Matters

The size of the battery scales the potential severity of the consequences. Smaller personal devices, like a hand-held shaver or electric toothbrush, typically have only one cell. Larger devices like a laptop could have a battery around six times larger and a power tool could have a battery ten or more times larger. Devices like an e-scooter could have a battery more than 150 times larger than single cell devices. The larger the battery, the higher the energy potential – meaning they release more energy when they fail.

How the Modern Home Accelerates the Speed of Fire

Lithium-ion battery-powered devices provide us with many conveniences, but they do pose unique fire risks – and our homes are full of them. Modern homes are filled with synthetic furnishings and materials that ignite more quickly and make fires from smaller devices still a serious smoke and fire risk. FSRI research found that 30 years ago, you had about 17 minutes to escape a house fire. With more synthetic materials in the furniture and different construction materials, the estimate is now three minutes. With lithium-ion battery fires, a room can be fully engulfed in flames in less than a minute.

Source: Fire Safety Research Institute

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What Can I Do About Lithium-Ion Battery Safety? Take C.H.A.R.G.E.

To fully Take C.H.A.R.G.E. of Battery Safety, it is crucial to follow each step from choosing the right product all the way through choosing the right way to dispose of it. Skipping any of the steps can result in an increased fire risk. Do the right thing. Take C.H.A.R.G.E. of Battery Safety for your loved ones and your community.

Choose Certified Products

- When purchasing lithium-ion battery-powered devices, be sure to look for products that are listed or safety certified by a nationally recognized testing laboratory to ensure they meet important safety requirements.
- Countless products sold online do not meet these critical safety standards.

Handle Lithium-Ion Battery-Powered Devices With Care

- Follow the manufacturer's instructions.
- Only use the charging equipment that comes with the product.
- Store batteries away from extreme temperatures, direct sunlight, exits, and anything flammable.
- Charge larger devices (such as eBikes) outside the home – and never in your exit path.
- Do not modify the battery or the charger in any way.
- Do not charge larger devices overnight.

Always Stay Alert for Warning Signs

- Check battery-powered devices often for damage or abuse such as swelling or punctures.
- Listen for unusual hissing or popping sounds.
- Watch out for excessive heat or a strange odor.
- If you notice any of these warning signs, stop using the lithium-ion powered devices.
- White or gray wispy smoke indicates immediate danger of thermal runaway.

Recycle Devices and Batteries Properly

- Responsibly dispose of old or damaged batteries and devices by taking them to the nearest battery recycling center.
- Never discard batteries, chargers, or battery-powered devices in regular trash bins.

Get out Quickly if There's a Fire

- Know the warning signs to look and listen for and get out if you see – or hear – one.
- Follow your home fire escape plan to leave immediately and call 9-1-1

Educate Others on Battery Safety

- Now that you know what actions to take, spread the word. Protect your friends and loved ones by sharing how they can Take C.H.A.R.G.E. of Battery Safety.

Source: Fire Safety Research Institute

Decorating

Nearly 154 million Americans will decorate their homes with lights, trees, wreaths, menorahs, or all of the above this holiday season.

One of the best ways to make sure your decorations sparkle — not spark — is to buy and use products that conform to safety standards. UL Standards & Engagement has standards for many of the electrical products that help to make the holiday season bright. However, sometimes even the safest products can have problems from inherent hazards or operator error. Safety standards are based on conditions — and those conditions do not include overloaded outlets or putting the Christmas tree inches from the fireplace.

Christmas tree fires are a known risk, and fortunately, according to the National Fire Protection Association, they have trended downward over the years. With nearly 90 million Americans in our holiday safety survey saying they plan to decorate a holiday or Christmas tree, NFPA's reported average of 160 tree fires per year is low. That said, being cautious about what tree and décor to buy and using it correctly can drive that number even lower and ensure you aren't contributing to a rare statistic.

The vast majority (84%) of Americans who typically put up a holiday tree opt for an artificial one. Worryingly, nearly half (46%) of those with artificial trees say they did not check or are not sure if they checked to see if the tree had a "fire resistant" label on the package. Trees certified to UL 2358 will have been tested for response to fire, reducing the risk.

46%
of those with artificial trees say they did not check or are not sure if they checked to see if the tree had a "fire resistant" label on the package.

Fire resistant trees may also offer more time for escape if a fire occurs, particularly if it happens while you are asleep. NFPA reported that tree fires were most common between 3 p.m. and midnight.

The placement of a tree can also influence safety. Thirteen percent of home decoration fires happen because decorations are placed too close to a heat source like fireplaces or open-flame candles. The idyllic scene of the Christmas tree next to a roaring fire is achievable, provided the tree follows clearance requirements, which the NFPA puts at three feet. UL Standards & Engagement has standards for everything to keep your fire safe and cozy, from several standards that support building of safe chimneys and fireplaces, to those that cover processed fire logs like Duraflame (UL 2115).

Maintain Holiday Trees All Season

1. Water natural trees daily and choose artificial trees that are fire resistant
2. Employ a timer or turn off tree lights before bed, as fires are more likely to occur at night
3. Place trees at a safe distance from heat sources

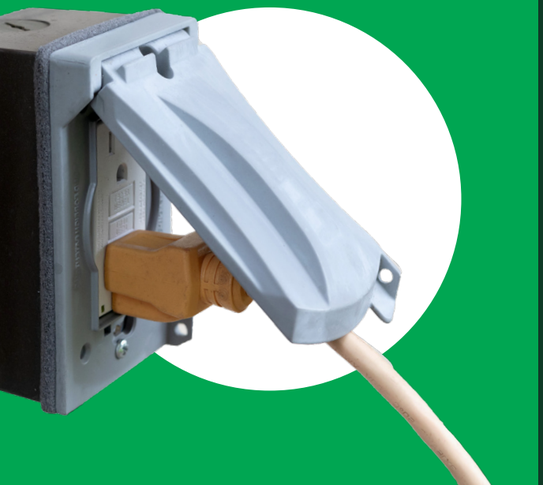
When it comes to lighting the home for the holidays, our holiday study found most Americans who decorate with string lights are making safe choices. Eighty-three percent say they typically inspect lights for broken sockets, frayed wires, or loose connections. Another 84% said the same for inspecting power strips and extension cords for damage. Nearly as many (81%) say they usually check to make sure outdoor lights are plugged into weatherproof, GFCI outlets, and 76% say they make sure their outside lighted decorations are certified for outdoor use.

The cause for concern, despite the behaviors above being practiced by strong majorities, is that over half (54%) said they would plug multiple power strips or extension cords together to connect their lighted decorations, also known as “daisy-chaining.”

Consumers in the market for new indoor or outdoor holiday lights should be comforted to know that those certified to UL 588 are put through rain tests, water immersion tests, UV exposure tests, and several more.

Through the Years...

In 1921, UL published the first edition of UL 588, the Standard for Seasonal and Holiday Decorative Products, which covered light strands for Christmas trees and similar holiday decorations. In that same year, First Lady Florence Harding announced she would have live flame candles placed in the windows of the White House for Christmas, reviving an old New England and family tradition. However, the First Lady and President Warren Harding canceled those plans at the urging of UL General Agent George Muldaur, who feared not only the fire risk posed to the White House, but also the example it would set for the nation who might do the same and spark house fires.



Display Sparkling Not Sparking Lights

1. Do not overload outlets and power strips or connect multiple power strips together, and use weatherproof GFCI outlets for outdoor lights
2. Inspect string lights, extension cords, and power strips for visible damage like frayed wires, broken sockets, or loose connections
3. Ensure powered decorations are turned off when inhabitants are away from home or asleep

Trends with Decorating

84%
inspect power strips or extension cords for damage

83%
inspect lights for broken sockets, frayed wires, or loose connections

81%
check to make sure outdoor lighted decorations are plugged into weatherproof outlets

55%
use one or more light timers that automate on/off functionality for lighted decorations

76%
check to make sure outdoor lighted decorations are rated for outdoor use

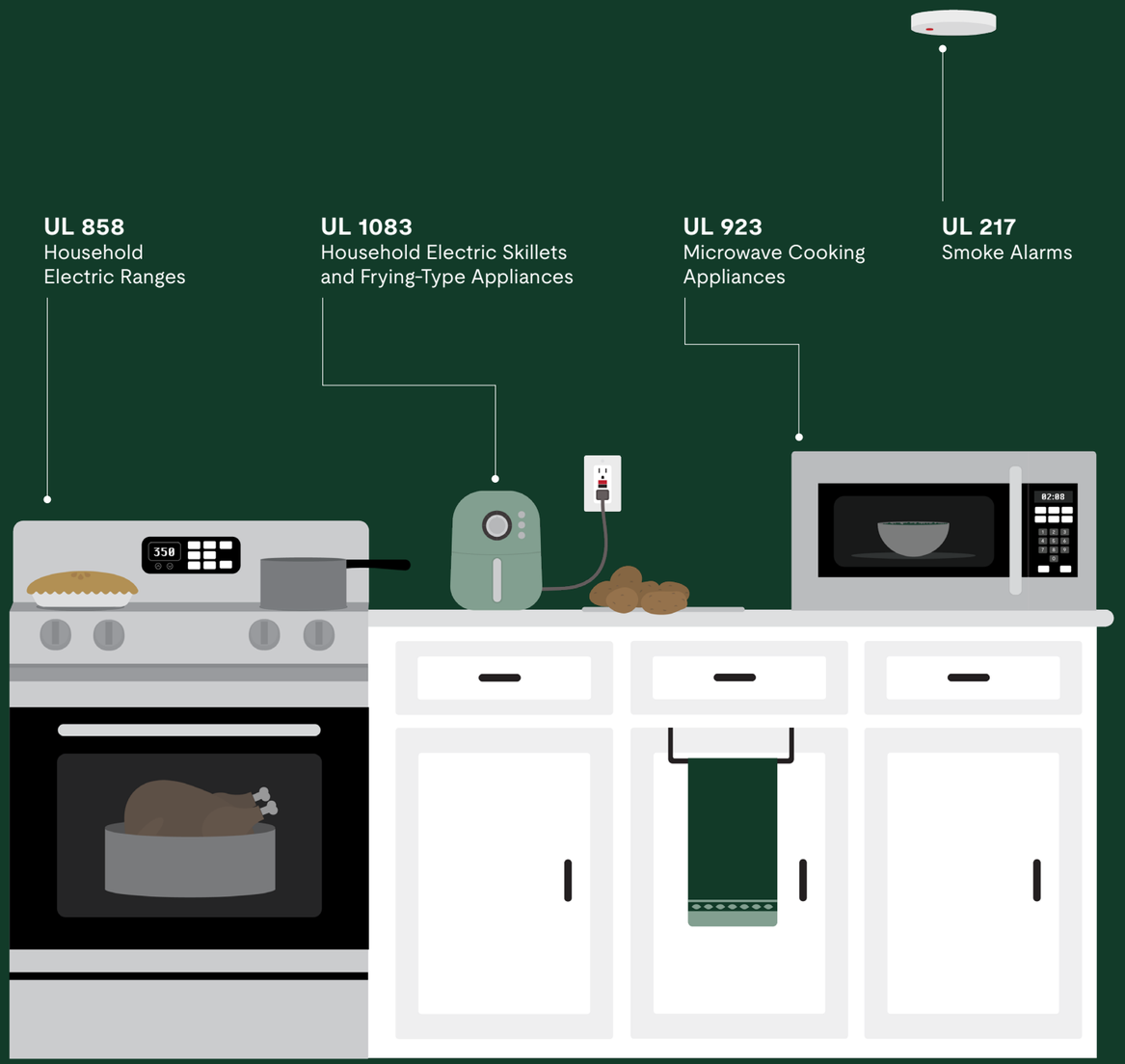
51%
turn off power to the outdoor outlets before plugging in lighted outdoor decorations

45%
typically prefer to buy the lowest price possible

52%
typically prefer to buy the highest quality

71%
typically prefer to buy from reputable brands

77%
typically prefer to buy from well-known retailers



Cooking

Seventy-two percent, nearly 173 million Americans, plan to make a home-cooked holiday dinner or bake treats in the kitchen, aiming to gather à la Norman Rockwell around a gorgeous spread on the dinner table, and not on the lawn as fire trucks arrive.

Unfortunately, widely celebrated holidays correlate to significant increases in home cooking fires, according to NFPA. Thanksgiving shows the highest rate of increase, with 240% above the daily average of 430 home cooking fires. Christmas Eve is second at 72% higher than the daily average, closely followed by Christmas Day at 71% above average.

The vast majority (87%) of holiday home cooks have some form of smoke alarm near the kitchen, according to our holiday study. Chances are, those smoke alarms conform to UL standards — and specifically, UL 217 which is required by building codes in nearly every state in the U.S. UL 217 was first published in 1976, and has evolved to adapt to changing home building and design techniques, new decorative materials, and, to the relief of holiday cooks, to account for cooking nuisance alarms. Smoke alarms should be installed at least 10 feet from cooking appliances to minimize false alarms while preparing meals or baking cookies for Santa.

It's an important change for more than one-third (35%) of holiday cooks who own a smoke alarm and say they have removed or disabled it at some point, mostly because of frequent low battery chirps (39%), or because the device was triggered by cooking or steam (31%). Most reinstalled or reactivated their alarm immediately or within a few days (81%), but 7% say they never did so.

An updated version of UL 217 will be implemented in the 2025 edition of the National Fire Protection Association's National Fire Alarm and Signaling Code, NFPA 72, effective January 1, 2025, making for a happy (and, hopefully, fire-free) new year.

While most kitchen areas are equipped with smoke alarms, whether they work is in question. Best practices are to test smoke alarms monthly, which 42% of the holiday cooks in our study confirmed doing. Many more, however, are not following that advice. Sixteen percent say they test only every few months, 17% say every six months, and 16% say once a year or less. Concerningly, 10% of home cooks admitted that they never tested (7%) their smoke alarms or didn't know how to test them (3%).

Give Yourself the Gift of Warning

1. Confirm your smoke alarms and detectors are working properly and meet UL standards
2. Test your smoke and carbon monoxide alarms monthly and check the batteries every six months
3. Ensure portable generators are properly placed outdoors, at least 20 feet from homes, and have a carbon monoxide shutoff that conforms to UL 2201

53%
say they do not have a carbon monoxide alarm near the kitchen

26%
say they do not have a fire extinguisher near their kitchen

10%
admit to not testing or not knowing how to test their smoke alarm

To test smoke alarms, press and hold the test button. If a loud, piercing sound does not follow, that can be an indicator the alarm is not working. It also helps to know what the various "beeps" mean. A three-pulse beep is the signal to get out of the home. Just one chirp means the battery is low.

Checking the batteries is also recommended every six months. Fire professionals recommend that when you change the clocks for daylight saving time, it's a good time to also check the batteries in your smoke alarms. Most respondents in our study are following the six-month recommendation, with 73% reporting they check their smoke alarm batteries every six months or more frequently. Another 15% say they check the batteries annually. There are, however, respondents willing to risk the dreaded chirp sound that will pull them from a long winter's nap: 6% say they never check the batteries, 4% report doing it only every few years, and 2% say they don't know how.

While most holiday cooks said they have a smoke alarm near the kitchen, fewer than half (47%) said they had a carbon monoxide alarm. Carbon monoxide is found in fumes produced by furnaces, kerosene heaters, portable generators, and, important to know for holiday cooks, stoves and gas ranges. When these fumes occur, an alarm is often the first — and sometimes only — indication of a problem.

Winter weather can be part of the holiday experience, making celebrations look like a Currier and Ives print, but other times leading to power outages. When this happens, a portable generator can save your holiday plans by offering essential power. If you must use one, look for a generator that conforms to UL 2201. The CPSC analyzed 140,000 simulations of 511 incidents that resulted in generator fatalities and found that "generators compliant with the UL 2201 standard would avert nearly 100 percent of the deaths that occurred."

UL 2201 has requirements that limit the active CO emissions coming from the portable generator and a shutoff requirement if the product is sensing a high output of carbon monoxide. It is the layer of additional protection that can make sure that if the power goes out, you can still avoid raw turkey for your (candlelit) holiday feast.

Sixty-one percent of respondents who bake or cook for the holidays are using their electric or gas stovetops or cooking ranges. NFPA data shows that most cooking fires in the home involve the stove, which is associated with 53% of the reported home cooking fires, 88% of cooking fire deaths, and 74% of cooking fire injuries.

Those numbers do not mean the appliances are unsafe. Kitchen appliances conform to UL standards at high rates. There is, however, operator error and oversight to consider as part of the safety equation.

Lack of attention, whether from leaving cooking food unattended or falling asleep, can lead to tragedy. More than half (53%) of Americans who typically cook during the holidays say they do so with multiple adults. Beyond that, offers of help are common from those not preparing the meal. Give those sharing responsibility or offering to help the task of watching over the stove or other appliances if you must walk away or are tired and need a nap.

Despite all precautions, fires do occasionally happen. Having a fire extinguisher — tested to UL 711 — handy for small flames can help get it under control. Nearly three-fourths (74%) of holiday cooks say they have a fire extinguisher in or near their kitchens, yet that leaves a quarter (26%) who do not.

Of those who have fire extinguishers at hand, 62% say they are certified to UL standards, with 29% saying they don't know, and another 9% saying they are not. What respondents likely do not realize is that every fire extinguisher on the market in the U.S. is certified to UL standards.

In addition to having an extinguisher present, it is also critical to know when a fire cannot be easily and quickly put out. In the event the fire is too large or growing, get out of the house and call the fire department immediately. No holiday meal is worth risking your life.

The U.S. Fire Administration has a checklist to help you know when to use a fire extinguisher vs. when to evacuate. It also has guidance on what type of fire extinguisher is best based on conditions around your home. Your local fire department is always a good resource for information and training on fire extinguishers.

> Generators compliant with the UL 2201 standard would avert nearly 100 percent of the deaths that occurred.
>
> -Consumer Protection Safety Commission

Cook With Awareness

1. Stay in the kitchen while food is cooking or ask for help attending the stove and other appliances if you must walk away
2. Use timers as a reminder to turn off heat sources or to wake you up if you nod off
3. Keep a fire extinguisher nearby in the kitchen and educate yourself on when to use it and when to get out of the home and call the fire department

Traveling

Whether visiting family and friends or going on vacation, more than 81 million (34%) Americans say they typically travel during holiday season, and over 74 million (31%) plan to continue that tradition this year, according to our study. Holiday travel offers the chance to reunite with loved ones, escape winter weather, or enjoy festive activities such as skiing or visiting light displays. Staying safe in transit and while you are at your destination will give you lasting memories of your experience that are merry, not scary.

Of those travelers heading over the river and through the wood, many will do so by air this year. If you plan to fly to your holiday destination, it is easy to move through check-in without noticing the warning about lithium-ion batteries. In fact, many passengers may not know what lithium-ion batteries are, let alone which devices they may be powering that they have on them.

Many of the devices that make travel more enjoyable, such as earbuds, tablets, cellphones, and portable chargers, are powered by lithium-ion batteries. A September 2024 UL Standards & Engagement study of American adults found that 96% of air travelers have at least one device powered by lithium-ion batteries with them when they fly.

If the batteries are defective or damaged, there is danger of thermal runaway — scary anywhere, but more so at 40,000 feet.

These incidents are extremely rare. They are also completely avoidable. Increasing awareness of the issue, and what to do if lithium-ion battery powered devices heat up during the flight, will help reduce the risk.

Whether packing coats, heavy clothes, or gifts, holiday travelers may grapple with space constraints that require checking luggage. Many (2 in 5 adults) who are purchasing gifts and flying for the holidays plan to pack said gifts in their checked luggage. As rechargeable items top gift lists this year, there is the possibility that more lithium-ion batteries will be going in checked luggage than is typical. Holiday travelers are not the only ones. ULSE's September 2024 study also found a concerning number of flyers who said they put portable chargers in their checked luggage (25%) or in the overhead bin (27%). Another 30% said they put laptops in the overhead bin, and 34% put their e-cigarettes or vapes in checked luggage. Additionally, having these devices out of reach increases the risk. Keep them with you so you have more time to react and prevent a dangerous situation.

Take Care of Batteries When You Fly

1. Know the products you travel with that contain lithium-ion batteries, the warning signs of thermal runaway, and to alert a flight attendant if your device is stuck in your seat
2. Never put devices containing lithium-ion batteries in your checked luggage; keep them within reach
3. Avoid charging lithium-ion battery devices while in flight

Knowing the signs of thermal runaway can help you protect against danger. Warning signs may include: a battery area that is hot to the touch, a swollen battery, a burning or acrid odor, smoke or fumes, or popping or hissing noises. If you detect any of these signs, alert the flight crew immediately so they can place your device in a fire containment bag.

Nearly three-quarters (74%) of travelers planning to go on vacation over the holidays say they plan to stay in a hotel or rental property. Traveling to hotels during the holidays should be a fun and festive experience, and knowing how to mitigate risks helps ensure that it is. One of the most significant — albeit unlikely — risks is carbon monoxide poisoning.

UL Standards & Engagement has a long history of working to prevent carbon monoxide poisoning. Last year, we expanded our standard for single and multiple station carbon monoxide alarms, UL 2034, to cover non-dwelling units, namely motels, restaurants, and other indoor locations that do not have more sophisticated detection systems installed.

Carbon monoxide is found in fumes produced by furnaces, kerosene heaters, vehicles, stoves and gas ranges, portable generators, pool heaters, and more. Detection is often the first, and sometimes only, means to prevent tragedy.

An odorless and colorless threat, carbon monoxide poisoning kills more than 400 people and sends more than 100,000 to the emergency department in the U.S. each year. The numbers may be higher, as symptoms — which include headache, dizziness, nausea, vomiting, and confusion — are easily misdiagnosed.

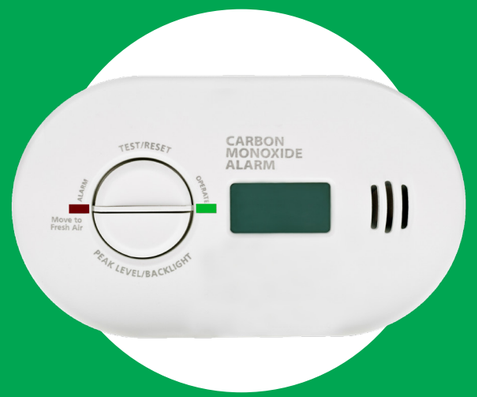
The change to UL 2034 was proposed by Kris Hauschildt, founder of the Jenkins Foundation, which she established after her parents, Daryl and Shirley Jenkins, lost their lives to carbon monoxide poisoning in a hotel room in Boone, N.C.

Less than half (43%) of holiday vacationers who are staying in a hotel say they own a portable carbon monoxide alarm, and even they may not bring it with them on their trips.

The low rates of ownership of portable carbon monoxide alarms may be the result of assumptions that hotels and rental properties have these systems in place. In fact, **only 14 states** require carbon monoxide detectors in hotels.

Still, a strong majority of vacation travelers who are staying at a rental property trust that the places they are staying have carbon monoxide alarms, particularly if they are staying in an upscale hotel chain, where 65% say they don't worry about exposure. The numbers are not much lower for economy and mid-scale hotel chains (61%) or for rental property platforms like Airbnb or VRBO (56%). Not only is that not a reliable assumption, even when Airbnb offered free carbon monoxide alarms to its hosts, a separate study by public health researchers found that only 58% of the company's hosts had them installed.

Knowing before you travel if the hotel or rental property you've booked has carbon monoxide alarms or a detection system installed, can help you determine if you should bring a portable alarm with you — offering peace of mind during the season of peace.



Stay With Confidence

1. Ask your hotel or rental property if it has carbon monoxide alarms; if present, test the device when you arrive at your hotel
2. Bring a portable carbon monoxide alarm with you when you travel
3. Know the symptoms of carbon monoxide poisoning, including headache, dizziness, nausea, vomiting, and confusion

Trends with Traveling

55%
trust local rental properties

56%
trust app-based rental properties

61%
trust midscale hotel chains

65%
trust upscale hotel chains

of flyers have at least one device powered by lithium-ion batteries with them

of travelers staying in hotel or rental properties do not give thought to whether their lodging has a CO alarm installed

ULSE 2024 Holiday Safety Guide

In a Nutshell

Gifting

Because of the increased risk of fire from rechargeable products such as smartphones, e-bikes, cordless vacuums, power tools, and even electric lawn tools, consider the following:

- Charge with cables that come with the product
- Buy replacements or extras from the manufacturer
- Check that the chargers have been certified by a third-party testing company
- Educate yourself on thermal runaway
- Know which products contain lithium-ion batteries (almost anything rechargeable)
- Keep lithium-ion powered devices from blocking your exits in the event of a fire
- Buy micromobility devices like e-bikes, scooters, and hoverboards that are tested and certified to reduce the risk of battery fire and injury
- Inspect gifts that use button- or coin-cell batteries to ensure the battery compartments cannot be easily opened by a child, or pop open by accident
- Pay attention to manufacturer instructions that offer important tips for safe operation

Decorating

Indoor and outdoor holiday lights that are tested and certified can resist normal use without increasing the risk of fire, electric shock, or injury to persons. But even the safest products can have problems from inherent hazards or operator error.

- Water natural trees daily and choose artificial trees that are fire resistant
- Employ a timer or turn off tree lights before bed, as fires are more likely to occur at night
- Place trees at a safe distance from heat sources
- Do not overload outlets and power strips or connect multiple power strips together, and use weatherproof GFCI outlets for outdoor lights
- Inspect string lights, extension cords, and power strips for visible damage like frayed wires, broken sockets, or loose connections
- Ensure powered decorations are turned off when away from home or asleep

Cooking

Unfortunately, widely celebrated holidays correlate to significant increases in home cooking fires, according to NFPA. Stay safe in the kitchen with these tips:

- Confirm your smoke alarms and detectors are working properly and meet UL standards
- Test your smoke and carbon monoxide alarms monthly and check the batteries every six months
- Ensure portable generators are properly placed outdoors, at least 20 feet from homes, and have a carbon monoxide shutoff that conforms to UL 2201
- Stay in the kitchen while food is cooking or ask for help attending the stove and other appliances if you must walk away
- Use timers to remind you when to turn off heat sources or to wake you up if you nod off
- Keep a fire extinguisher nearby in the kitchen and educate yourself on when to use it and when to get out of the home and call the fire department

Traveling

Holiday travel should be merry, not scary. Whether visiting family and friends or going on vacation, stay safe in transit with the following tips:

- Know the products you travel with that contain lithium-ion batteries, the warning signs of thermal runaway, and to alert a flight attendant if your device is stuck in your seat
- Never put devices containing lithium-ion batteries in your checked luggage; keep them within reach
- Avoid charging lithium-ion battery devices while in flight
- Ask your hotel or rental property if it has carbon monoxide alarms; if present, test the device when you arrive at your hotel
- Bring a portable carbon monoxide alarm with you when you travel
- Know the symptoms of carbon monoxide poisoning, including headache, dizziness, nausea, vomiting, and confusion

Conclusion

The holidays are a special time. The gifting, decorating, cooking, and traveling traditions are core to what make them unique. It brings welcome changes to our behavior and at UL Standards & Engagement, we want those changes to be made with confidence in safety.

Deck those halls. Make grandma's stuffing. Find the perfect gift. Fly to loved ones. Everything that makes the holidays enjoyable can happen more safely when we have awareness of the risks and can take reasonable steps to mitigate them.

At UL Standards & Engagement, we are always working for a safer world — during the holidays and all year long. We wish you a safe, joyful season and a happy New Year.

Methodology

Holiday Study

This UL Standards & Engagement Insights survey measures consumer understanding, behavior, and sentiment across four thematic areas related to the U.S. fall and winter holiday season — seasonal decorations, preparing holiday meals, gifting, and holiday travel.

This nationally representative survey of 2,004 U.S. adults was designed by ULSE and conducted online by BV Insights between September 23-27, 2024. The margin of sampling error at 95% confidence for aggregate results is +/- 2.2%.

Population segments that track higher or lower than overall results are noted where applicable; these results are statistically significant at the 95% confidence level. Available demographic information: gender identity, age/generation, geographic location, urban/suburban, marital status, family composition, own/rent, education, employment, income, racial identity, LGBTQ+ identity, disability/accessibility, political leaning.

Conversions from the data from percentages to number of U.S. adults were created using two sources of publicly available data: (1) 2020 wave of the U.S. Census for U.S. adult population estimate of 258.3 million, and (2) Pew Research Center's Internet/Broadband Fact Sheet which estimates 93% of U.S. adults use the internet, as of 2021.

Sept. 2024 Lithium-Ion Battery Study

This survey was designed and formulated by UL Standards & Engagement. It presents the findings of an online survey conducted by Big Village, among a total sample of 2,024 U.S. adults between September 5-9, 2024. The margin of sampling error at 95% confidence for aggregate results is +/- 2.2%.

About Us

120 years in standards development

UL Standards & Engagement is a nonprofit standards development and advocacy organization that translates safety science into practical, action-oriented standards, from toasters to life jackets, and lithium-ion batteries to solar power.

The organization also serves as a vital resource for policymakers and shares knowledge, advances partnerships, and advocates for standards and policies to create a safer, more sustainable world.

What is safety science?

Safety science engages ingenuity of top minds across scientific fields to engineer a safer and more sustainable world in which every individual can thrive.

What is a standard?

A standard is a document of best practices for manufacturing and testing the safety, security, and sustainability of a product or system, developed and voted on by experts across industries and interests.

How are standards developed?

UL Standards & Engagement convenes technical committees comprised of experts from manufacturing, government, academia, nonprofits, and other relevant groups to determine a standard. Technical committee members review proposals for new or revised standards and work together to achieve consensus through balloting in a fair and transparent process.

What happens after a standard is published?

All standards are free to view. Manufacturers and innovators can develop products, which can then be tested and certified that they conform to our standards to ensure they are as safe as possible. UL Standards & Engagement is continuously monitoring and revising standards to address a changing risk landscape and emerging technologies.

Fast Facts:

- 1,700+ standards and documents in use today
- 4,000+ individuals serve on ULSE Technical Committees
- 40+ countries are represented through our Technical Committees
- 81 MOUs with agreements in several countries and regions
- ULSE is the only standards development organization accredited in the U.S. and Canada, and authorized in Mexico

To learn more please visit **ULSE.org** or scan the QR code