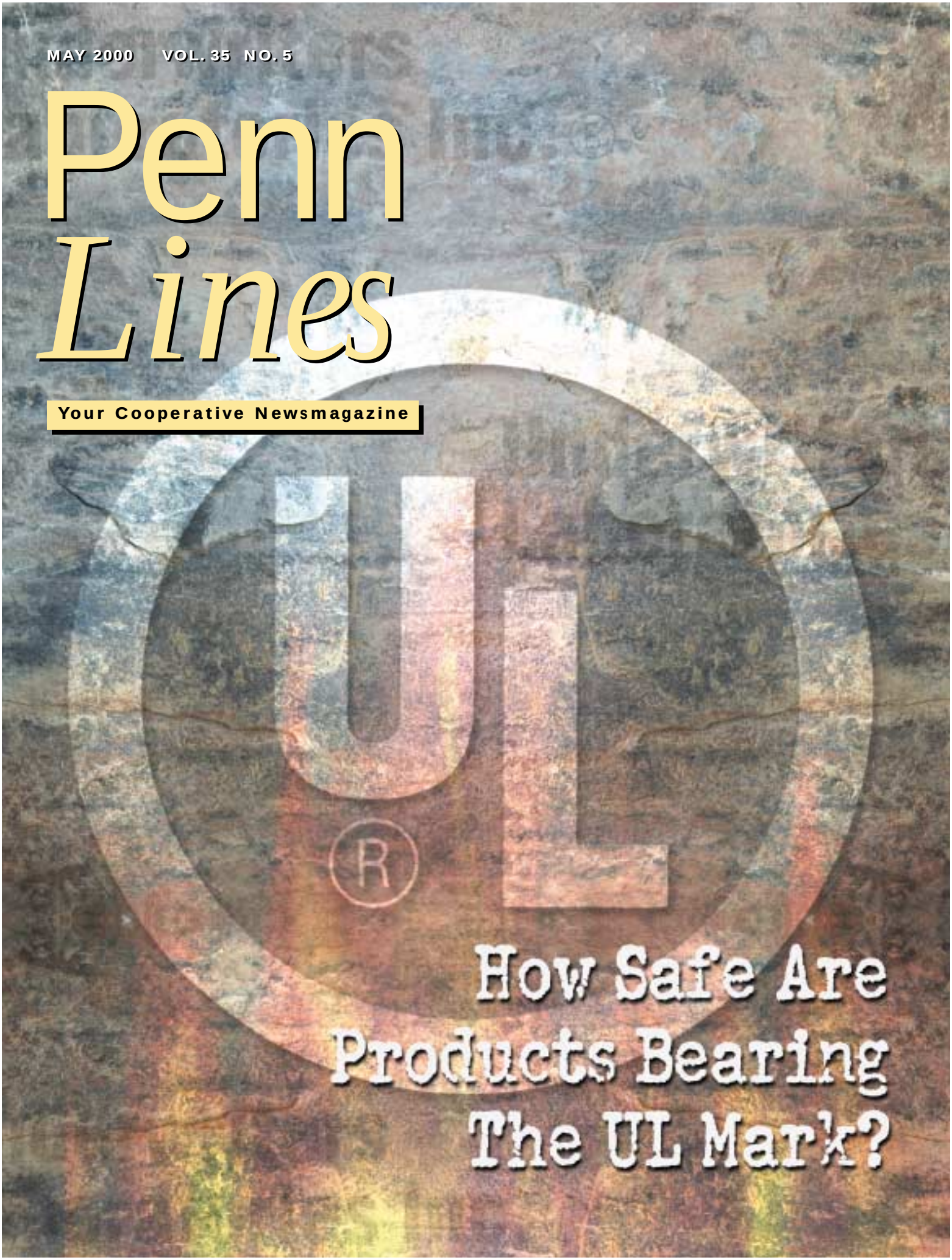
MAY 2000 VOL. 35 NO. 5

Penn Lines

Your Cooperative Newsmagazine



How Safe Are Products Bearing The UL Mark?

How Safe Are Products Bearing UL Mark?

The "gold standard" of American safety — the Underwriters Laboratories seal — may be tarnished, say some fire officials

by Caroline E. Mayer
Washington Post Staff Writer

It's on the alarm clock that rousts you out of bed in the morning, the reading lamp you turn off at night. It can be spotted on your coffee maker and toaster, your refrigerator, stove and gas grill — and your TV, CD player, telephone and computer monitor.

"It" is the UL mark, a small circle surrounding the letters "UL" that certifies an appliance, no matter what size or purpose, has been approved by the world's largest independent testing service, Underwriters Laboratories. Stamped on nearly 15 billion products a year, it is, in the words of Debra Rade, UL chief legal officer and senior vice president of administrative operations, "the American mark of safety."

There's no question that UL provides a valuable service and even the sharpest critics of the not-for-profit company — such as Jesse Aronstein, a New York engineer who has taken UL to task over the past 20 years, challenging many of its standards — say the UL mark guarantees that a product is safer than if UL weren't around. But over the past several years, a number of UL-approved products — space heaters, halogen lamps, baby monitors and toasters — have caused fires.

In one case, the popular Omega fire sprinkler system — approved 15 years ago — has been found to fail 30 percent of the time. And some ionization smoke detectors and carbon monoxide alarms designed to pass UL laboratory tests didn't work as promised in the "real world."

Firefighting officials, who for many years championed UL as a world leader in safety testing and standards, have begun to openly express doubts in the wake of the recall of more than eight million sprinklers. In fact, the National Association of State Fire Marshals is considering challenging UL's tax-exempt status, granted by Congress in 1954 to organizations "testing for the public safety."

"We're experiencing more problems than we had before," says David Smith, president of Associated Fire Consultants, an Arizona fire-investigation firm. "A lot of products seem to be hitting the market that are not fire safe but have been deemed so by UL."

Rade counters that among the 17,000 different products tested by UL "there are very few [approved] that present a substantial hazard. Problems that do occur are caused by new technology — or old technology put to a new use. Through those problems we've learned that the system works. As soon as problems are uncovered, the wheels are set in motion to analyze the issue and respond."

What UL Does

UL's origins trace back to 1893 when the Chicago Board of Fire Underwriters sent electrical investigator William Henry Merrill to discover the cause of fires at the Columbian Exposition. Seeing a need for a safety-testing organization, Merrill launched UL in the back room of a Chicago fire station.

What started as a two-man operation with $350 worth of equipment has now grown into an international corporation with $512 million in assets, $407 million in annual revenue, more than

5,200 employees and 13 laboratories worldwide. It oversees more than 700 safety standards and runs 89,000 product investigations a year.

A walk through UL's Northbrook, Ill., headquarters and testing facilities highlights the varied products vying for the UL mark — window glass, roofing shingles and wallboard; bulletproof vests, safes and locks; TVs, CD players and pinball machines; vacuum cleaners, toasters and pizza ovens; hair dryers, garbage disposals and flashlights; medical beds, garage doors and even pet-bed warmers.

"We don't test for quality but for any foreseeable hazard — fire, shock, sharp edges, radiation," explains John Drengenberg, UL manager of consumer affairs. "We look for the worst possible conditions, simulate them and test them to ensure that if a product fails, it fails safely."

So fire resistant safes are subjected to 2,000 degrees of heat and then dropped the equivalent of five stories onto broken cement blocks to make sure the safes won't pop open and the papers inside aren't charred beyond legibility. A hand-held hair dryer is where consumers can come into contact with live wires and be shocked or electrocuted. The cord is flexed 3,000 times — 10 times per minute — to make sure it isn't likely to break during normal use.

TVs are deliberately short-circuited to see if they start fires. A refrigerator door is opened and closed 300,000 times to see if the door can still be opened from the inside so children can't get trapped after it is discarded.

For pop-up toasters, temperature tests are run to see if cords, wires and plastic housing get too hot. But no tests are run to see what happens when food gets stuck in the toaster, jams the heating element to keep it from popping up, then ignites — an increasingly common problem as more consumers heat up large bread products likes bagels and pastries. From 1993-96, there were at least 30 fires caused by toasters that failed to shut off.

UL has declined to add a food test, saying foods such as bread vary so much that it would be scientifically impossible to create a test that could be repeated precisely in different labs around the country. It took UL two years to propose and mysterious. "But that's only because we're an engineering organization," she adds. "We pay very careful attention to detail to make sure everything is in order before issuing any announcement, decision or revision.

"All UL standards are developed to anticipate real-world events," she continues. "If we don't anticipate everything, if there's a misuse of product we never thought of, we change our standard."

UL officials are very proud of what they've accomplished. "The U.S. enjoys the highest level of safety in the world — that's indisputable. And one of the reasons the U.S. enjoys that is because UL has set the entire foundation for product-safety certification," Rade declares.

Fueling The Fire

But interviews with more than 50 fire experts, safety officials, building-code authorities, engineers and lawyers around the country and a review of thousands of pages of documents obtained from court suits and the U.S. Consumer Product Safety Commission (CPSC) under the Freedom of Information Act highlight a number of concerns about UL:

➢ UL's safety tests may not reflect what happens in the real world. More than 350 ionization smoke detectors — which account for 90 percent of all smoke detectors sold in the U.S. — have failed to sound an alarm in residential fires; about one-third of those same detectors were sent back to the manufacturer for retesting and were found to have passed UL smoke standard.

Joseph Fleming, Boston fire marshal and deputy fire chief, has concluded, after 10 years of study, that the ionization smoke detector does not provide sufficient protection in "cold smoke," or smoldering fires — ones not hot enough to drive smoke upward toward the ceiling where detectors are placed. The reason, he claims: UL's smoldering-fire test was written more than 20 years ago and does not reflect different synthetic materials now used in upholstery and mattresses.

(continues on next page)

UL Mark...

(continued from page 7)

"While an alarm may sound in UL labs, it may not go off in a home because the smoke particles released may be radically different than they were 20 years ago," Fleming says. "UL puts smoke detectors through four different tests to measure response to fast-flaming fires, but only one to measure response to smoldering fires."

He adds, "Smoldering fires, by their very nature, demand accurate smoke detectors because people have plenty of time to fall asleep before the hazard develops."

For at least a decade, fire officials and federal safety experts have urged UL to reconsider the test. In November 1994, CPSC staff told UL they were concerned that the smoldering fire test "does not represent the smoke in residential smoldering fires."

Only recently has UL indicated a willingness to review its cold smoke standard. Meanwhile, lawsuits against ionization detector manufacturers are winding their way through courts in several states.

➢ UL doesn't always consider factors that could affect the long-term integrity of a product and it rarely tests products once they leave the factory. For instance, UL didn't consider how key components of the Omega fire sprinkler system would react over time with some of the additives and chemicals commonly found in a sprinkler's water supply.

➢ When a problem develops, there is evidence that UL is slow to react and often faults consumers for not using the product properly or electricians, plumbers and other contractors for not installing it correctly. One case involves fires started by halogen lamps.

UL first told consumers to reduce the wattage of halogen bulbs from 500 watts to 300 watts and then, a few months later, directed manufacturers to place "Hot Surface" warning labels on the lamps. But the 300-watt bulbs were found by the CPSC to start fires, even though they passed UL's tests. It took two years before UL adopted a tougher fire standard.

Similarly, UL blamed the faulty Omega sprinkler on bad installation and local water system anomalies. UL maintained that position even after the CPSC recalled millions of them for a design defect. UL only stopped calling the failure a "site specific" problem after the CPSC accused it of misleading the public.

➢ Product-safety decisions are typically made in private, with manufacturers having greater opportunity to comment than the public and other interested parties, including competitors. And when questioned, UL often cites client confidentiality, making it hard to uncover how decisions were made and difficult to get standards or listing decisions changed, revised or reconsidered.

In 1995, UL approved a special electrical connector to hook copper wiring with aluminum wiring — even though CPSC had for years declared these connectors unsafe. The CPSC was never consulted and has repeatedly urged UL to reverse its decision.

Tool Of Private Industry?

In many nations, safety standards are set or approved by a government entity with industry involvement. In the U.S., standards are established primarily by private industry — either through independent labs like UL or other industry-supported organizations. The CPSC, an independent federal agency charged with acting as a watchdog against hazardous products, imposes regulations only when it believes voluntary industry efforts are insufficient.

Because U.S. firms rely on self-regulation, the issue of how well UL — the dominant standards writer for electrical and fire safety, with very few competitors — is doing its job becomes critical.

Some experts contend that UL's problems stem from the way it is organized and funded — with more than nine-tenths of its revenue coming from companies for testing products. In 1998 (the last year for which complete figures are available), UL earned $407 million in revenues, with $376 million coming from testing. While actual testing fees are small — $7,000 for a toaster — UL also receives payments from manufacturers wishing to display the UL mark on its products.

"In the last couple of years, we've had cause [from the fire sprinkler recall to failure of ionization smoke detectors] to reconsider and re-evaluate that maybe things can be done better," says Donald Bliss, New Hampshire state fire marshal and chairman of the National Association of State Fire Marshals Task Force on Consumer Product Safety. "We're concerned that UL relies heavily on upon revenues from manufacturers and developers of products. If they have such an intimate relationship with the manufacturer and are designing safety standards at the manufacturer's request, is that in the public interest?"

If UL sets too tough a standard, others claim, it may not have many products to test. As a result, UL may choose

the lowest common denominator for standards to gain as many clients as possible.

"They've got to make money off these folks to stay in business," challenges Mark Chubb, a private fire safety consultant and former executive director of the Southeastern Association of Fire Chiefs. "Don't they have to please these folks who pay them for tests? If so, are they playing to that audience instead of public safety?"

However, Mary Sheila Gall, CPSC vice chairman and commissioner, defends UL, noting that while some errors in judgment were unfortunate, they are by no means representative of the lab's performance.

"UL has developed more than 700 safety standards while conducting safety tests for more than 17,000 products," she stresses. "To suggest that UL operates as a tool of industry is without any evidence.

"Since our inception, the CPSC has worked cooperatively and productively with UL. Without the conscientious efforts of standard-setting organizations such as UL and others, the American public would be left vulnerable to hazards posed by thousands of unsafe products.

"[The CPSC] could never hope to effectively investigate, test and regulate such an enormous panoply of consumer products. And having standards set by the federal government would never achieve the level of product safety that has resulted from this private-public partnership — the preference for which has been reiterated by Congress."

And not all fire and safety officials find fault with UL. Patrick Coughlin, executive director of the Residential Safety Institute, a Washington, D.C. public interest group promoting fire protection, believes UL's critics are wrong.

"It's easy to be critical of them based on anecdotal evidence," he concludes. "But I think UL is very open and responsive."

This article appeared in the December 20-27, 1999, issue of The Washington Post National Weekly Edition *and is reprinted with permission.*

Underwriters Laboratories Primer

Headquarters:	Northbrook, Ill.
Founded:	1894 by William H. Merrill, an electrical investigator.
What it does:	Sets more than 700 safety standards to test 17,000 kinds of products. In 1998 (last year numbers are available), it conducted 89,630 product evaluations and 14.7 billion products were made bearing the UL mark.
Facilities:	13 labs worldwide.
Employees:	5,258.
Assets:	$512 million.
Annual revenues:	$407 million, with $376 million coming from companies paying for UL's testing services.