

# PRODUCT SAFETY AND LIABILITY COMPONENTS IN FOCUS

By Erin Earley

## From Risk Assessment to Warnings and Instructions – and the Synergy Between Them

The focus of these “On Your Mark” columns is visual safety communication related to equipment, machinery, and component parts – especially the symbols and content that make up on-product labels, warnings, and instructions. While we specifically hone in on these elements, they cannot – and should not – operate in a vacuum. That’s because they’re one, intertwined component in a comprehensive product safety strategy; looking at them separately could be detrimental to the safety of the product user and to the liability risk of the manufacturer. Here, let’s explore the key components to keep in mind for your product safety strategy – from risk assessment to safety labels and manuals – and some of the ways that they all work together to improve safety and reduce risk.

### THE SYNERGY IN PRODUCT SAFETY AND LIABILITY

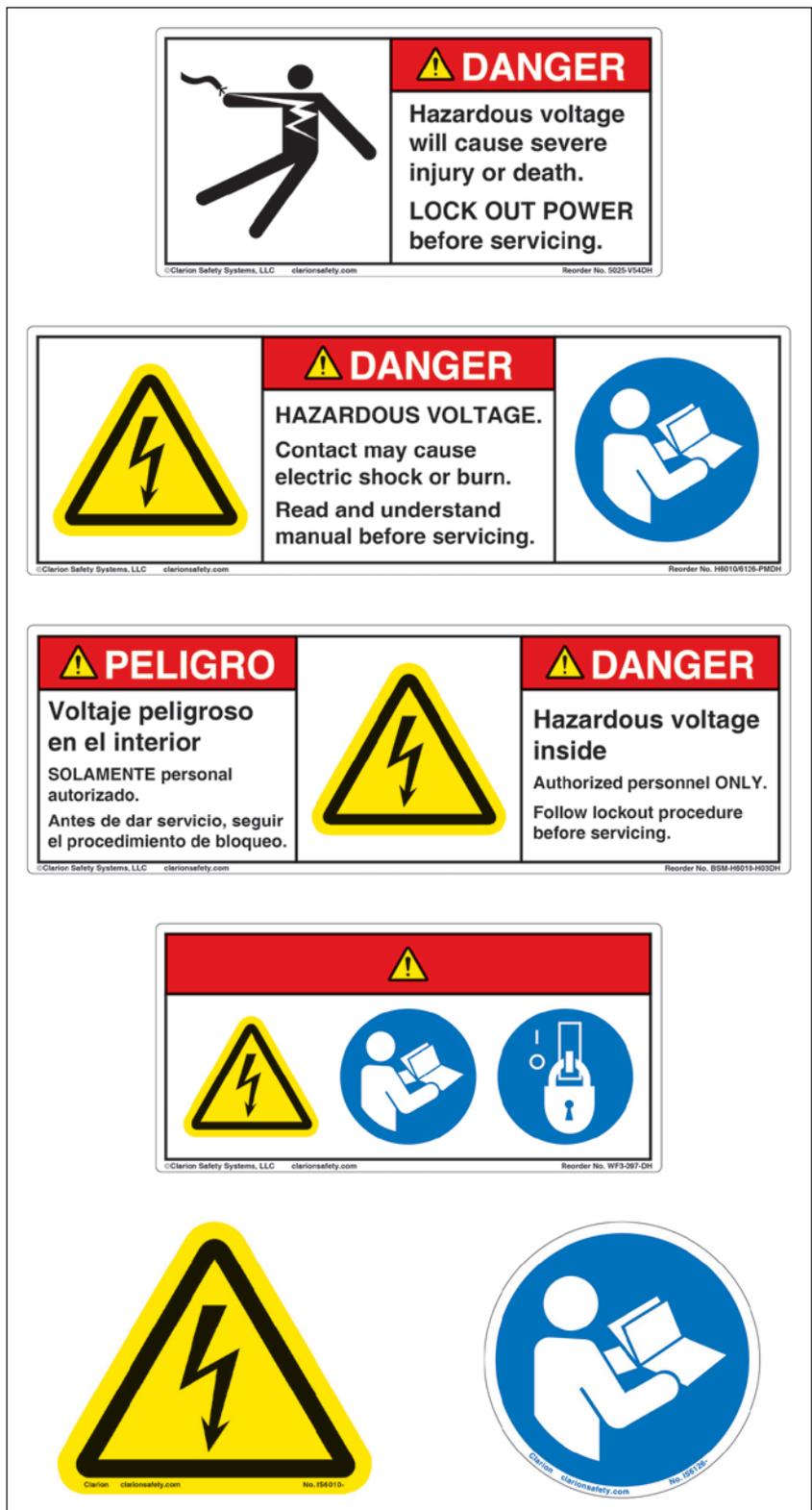
Today’s equipment and machinery manufacturers have many concerns to contend with related to safety, risk, and compliance issues throughout the product lifecycle.

“Their main duties can be summed up simply as: provide a safe product, instruct in its safe use, and warn of its hazards,” says Angela Lambert, who works with product safety teams on a regular basis through her role heading standards compliance at Clarion Safety Systems. “Executing on this throughout the design and manufacturing process, however, is much more nuanced, and mandates looking at key areas of product safety in a systematic way. This helps to ensure consistency and will situate a manufacturer in the best potential position should a liability claim arise.”

According to Lambert, these areas include:

- **Risk assessment:** A thorough risk assessment identifies hazards, estimates the severity of injury presented by each hazard, and estimates the probability of the injury’s occurrence. Then, for risks considered “unacceptable” due to applicable laws, regulations, standards, or public opinion, control measures should be applied to reduce risk. “This is the foundational element from both a product design and safety standpoint,” says Lambert. “You can’t control a risk through design, or provide safeguards or warnings unless you first assess it. The hierarchy of controls, used within the risk assessment process, is a guide in implementing hazard control measures beginning with the most effective measures down to less effective ones, and often uses a combination of all. These measures include guards, labels, PPE, instructions, and training.”
- **Safeguards:** Safeguards are an outcome of the risk assessment process, used to mitigate risk and the potential for injury related to a product’s use. When a hazard can’t be eliminated or substituted, engineering controls like guards may be needed. In terms of the way this ties together with the other key areas, “The safeguards used may need to be referenced or explained through an on-product safety label. Additionally, the product manual and training should be thorough, including information and instructions related to the safeguard,” says Lambert. Missteps in doing this effectively and in line with requirements are common; once again this past year, machine guarding placed in the Occupational Safety and Health Administration’s most recent top 10 list of the most frequently cited standards violations.

- On-product labels, warnings, and instructions:** “On-product warnings or instructions are a particular risk reduction method that can be identified through the risk assessment process. Their development should not be a reactive process; they should complement and be consistent with your risk assessment,” says Lambert. Best practice safety standards come into play here in creating the content for the warnings, including ANSI Z535.4 and ISO 3864-2.
- Product manual:** Product safety labels work as a system with each other to convey safety information, but they also work in conjunction with all other safety and risk reduction documents and measures, including product manuals. “Many times, your on-product warnings are not detailed enough to cover all warnings and instructions. The product manual is the proper location to convey these additional details,” Lambert says, noting that best practice standards here, such as ANSI Z535.6 and industry-specific standards, are important guides.
- Training:** “Training that’s tailored to your particular product’s safe operating procedures and maintenance is an important way to protect the users of your equipment,” Lambert says, noting that training should include information on proper and improper use and align with both the product’s safety labels and manual. This is another area where, per workplace safety statistics, there’s room for improvement as efforts are falling short. According to the Electrical Safety Foundation International’s most recent data, “Constructing, Repairing, Cleaning” accounted for the leading worker activity for electrical fatalities at 52 percent; “Using or Operating Tools, Machinery” accounted for 27 percent of electrical fatalities.



A compilation of a few of the many format and content options available for safety labels.

## BRINGING IT ALL TOGETHER IN YOUR WARNINGS

Since labels play a key role in communicating safety and hazard information and are one of the most visible methods of doing so, let's take a detailed look at how the areas above can intersect related to labeling.

- **ANSI/ISO formats and symbol use:** The format options or structure used for an on-product label is determined by what markets the product is being sold into (U.S. or international) – an outcome of the risk assessment process. Depending on whether you deem it more appropriate to follow the U.S.-based ANSI standards, the international ISO standards, or a combination of these, you have the option to use a word-message-only format, a symbol-only format, or a combination of symbols and text. Symbols used in on-product labels and how their meanings are defined should be consistent throughout the product manual and in all training in order to be most effective.
- **Translations:** Multiple languages for safety labels aren't mandatory for the U.S., but considerations need to be made related to export. For example, for products being sold into Europe, the EU Machinery Directive must be followed, and it has a requirement for translating warnings into the language of the country where the machine is placed on the market or into service. Understanding the intended audience, again as determined by the risk assessment process, and consistently incorporating that information across product safety and liability components is key. Manuals and training information should be translated or available in multiple languages in a uniform manner.
- **Depth of content and references to other safety tools:** References to engineering controls, warnings, and instructions should be presented consistently in the label's content, in the product manuals, and in training materials. While there's not a prescriptive formula for this, labels, manuals, and training should work hand in hand to accurately and effectively convey the needed safety or instructional information. For example, your on-product warnings should be reflected in your manual and, in your training, you may focus a section

on symbol meanings. In addition, if you have important information to convey that doesn't fit on the safety label itself, you can refer users to the manual and to further training. That can be communicated on the label through a message, symbol, or even a QR code linking to a digital asset like an online manual or training tool.

## WHAT TO EXPECT

This interconnectivity of product safety and liability components, especially in terms of labeling, manuals, and training, is a trend that will likely continue well into the future, bolstered by the growth of increasingly complex products, including software integrations and autonomous features, as well as digitization in many areas of safety and training.

"These are certainly areas for product manufacturers and safety engineers to continue to monitor and strive to keep pace with. And, we can expect to see an evolution in the safety standards as well," says Lambert, who is also involved at the leadership level in the development of the ANSI and ISO standards for product safety, including as the chair of ANSI Z535.1 Safety Colors.

"This is a revision cycle year for ANSI Z535, with the standards due to be republished in January 2022, and I look forward to working together with the rest of the ANSI committee members to ensure the standards are up-to-date and reflective of our changing manufacturing and workplace environments. At the same time, a new ANSI Z535 standard is in development. ANSI Z535.7 focuses on safety information in electronic media; its scope is expected to include video materials, webpages, smartphones, and tablets, and virtual reality. This is very indicative of our times – of 'blended' safety and learning approaches between labels, manuals, training, and more. I believe it will highlight even stronger parallels in safety, risk and compliance information and documentation working together as a system." 

Erin Earley, head of communications at Clarion Safety Systems, shares her company's passion for safer products and workplaces. She's written extensively about best practices for product safety labels and facility safety signs. Clarion is a member of the ANSI Z535 Committee for Safety Signs and Colors, the U.S. TAG to ISO/TC 145, and the U.S. TAG to ISO 45001. Erin can be reached at [earley@clarionsafety.com](mailto:earley@clarionsafety.com).

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