The New Era in Product Safety Labeling

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Chair – ANSI Z535 Committee
Chair – U.S. TAG to ISO/TC 145

Reducing Risk, Protecting People

The ANSI Z535 Standards 1991-2011

• U.S. voluntary consensus standards that define the “state-of-the-art” in this country
  – ANSI Z535.1-2011 Safety colors
  – ANSI Z535.2-2011 Safety signs for the environment & facilities
  – ANSI Z535.3-2011 Safety symbol design and testing
  – ANSI Z535.4-2011 Product safety labels
  – ANSI Z535.5-2011 Temporary safety tags and barricade tapes
  – ANSI Z535.6-2011 Product safety information in manuals

April 6, 1987 Industry Week Magazine
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The ANSI Z535 Standards

• The U.S. industry consensus standards for **visual safety communication** for practically all other safety signs, tags and labels

The ISO/TC 145 Standards 1996-2013

• International voluntary consensus standards that define the "state-of-the-art" on a global basis
  - ISO 9186, Parts 1-3 Symbol testing (perception, comprehension, recognition)
  - ISO 3864-1 Safety signs (for the environment & facilities)
  - ISO 3864-2 Product safety labels
  - ISO 3864-3 Safety symbol design
  - ISO 3864-4 Safety colors
  - 20+ other standards related to graphical symbols and their use

Failure to Warn / Failure to Instruct / Inadequate Warnings

An ever-increasing percentage of product liability & premises liability lawsuits contain these allegations
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Restatement of the Law, Third, Torts: Products Liability
- Design defect
- Manufacturing defect
- Warnings defect

The Rise of Liability Exposure & the need for Warnings
- The legal "duty to warn" can apply to premises
- Where the public, visitors, guests, &/or subcontractors have access
- Examples include parks, hotels, beaches, golf courses as well as factories and industrial sites.

260 Pages of Warnings Cases…and Growing
- "The increase in the number of warnings cases is a warning itself - a warning to manufacturers. Makers of products must respond to the increasing creativity of claimants’ lawyers and the frequent sensitivity of courts to products claims based on the lack of an adequate warning."

Professor Marshall Shapo,
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Liability Prevention Documents

- Your product’s safety signs
- Your product’s manual

The Legal U.S. Market Requirements

- Manufacturers must meet or exceed current standards relevant to their products (ANSI Z535.4-2011)
- Standards provide a “common ground” baseline of expected:
  - Function
  - Performance
  - Safety

Safety labels are critical for exporting products

- Safety labels are a highly visible component of your product that must be considered for meeting export requirements (e.g. the CE mark)
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ANSI Z535: Defines 3 categories of safety labels

- Hazard alerting labels
- Safety instruction labels
- Notice labels

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ANSI Z535.4 component #1

Signal Words and Signal Word Panel Colors

Purpose: To convey the level of severity and the probability of injury

Risk Assessment – ANSI B11

Risk =

- Probability of occurrence
- Severity of harm
- Exposure frequency / duration

Risk assessment is the foundation

Step 1: Use the Risk Assessment Form to begin to assess areas of concern
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Risk assessment is the foundation

**Step 2:** Score the level of risk before the control measure

- **ANSI Z10-2012**
- **MILSTD 882**

Terms: ANSI Z10-2012  Appendix F Risk Assessment

Risk assessment is the foundation

**Step 3:** Choose the appropriate control measure

- **ANSI Z10-2012**
- **Annex G**
If a safety sign is the chosen control measure

**Step 4: Choose the right signal word**

- **DANGER**
  Indicates a hazardous situation which, if not avoided, will result in serious injury or death.

- **WARNING**
  Indicates a hazardous situation which, if not avoided, could result in serious injury or death.

- **CAUTION**
  Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

ANSI Z535 accurately defines risk level signal words

**ANSI Z535 accurately defines signal words**

- **NOTICE**
  Indicates information considered important but not hazard (personal injury) related (e.g., property damage, security, sanitation, housekeeping rules).

- **SAFETY INSTRUCTIONS**
  (or similar words): Indicates a type of safety sign, or separate panel on a safety sign, where safety-related instructions or procedures are described.

Using the Risk Assessment Scoring Form as the foundation

[Diagram of Signal Word Selection Matrix]

Source: Clarion using MILSTD 882

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**ANSI Z535 Signal Word Definitions - 2011**

- **DANGER**: Indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most severe situations.
- **WARNING**: Indicates a hazardous situation that, if not avoided, could result in death or serious injury. 
- **CAUTION**: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
- **NOTICE**: Indicates information considered important but not hazardous (e.g., messages relating to property damage). The safety alert symbol shall not be used with this signal word.

**ANSI Z535 – Choosing the right signal word**

- **NOTICE**: Used when there is a hazard and an action is required.
- **CAUTION**: Used when there is a potential personal injury hazard.
- **WARNING**: Used when there is a potential for personal injury.

**The safety alert symbol**

- Means there is a potential personal injury hazard
- Versions D & E are for ISO harmonization

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ANSI Z535-2011 accurately communicates risk

What's the right signal word?

Here's where you enter the hazard...
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What you look like after interaction with the hazard...

Is this the right signal word?

ANSI Z535 signal word colors

ANSI Z535.1 safety colors are tightly defined and should be adhered to for proper color discrimination = color coding

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Red or orange? See ANSI Z535.1

ANSI Z535.4 on translation

- Annex D – Translation chart of signal words
- For domestic and export use
- 29 languages
- There is no obligation in ANSI Z535 to translate

Trend: Use of translations both for U.S. and export

- Multiple languages on safety labels are not mandatory in the U.S.
- Who is your intended audience?
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ANSI Z535.4 Component #2

The Word Message

Purpose: To convey hazard nature, consequence and/or avoidance information

The challenge: Balancing completeness with brevity

• The word message should be concise so it can be readily understood. ANSI Z535.4-2011
• Human factors studies and case law point towards giving people more complete information so they can make wise decisions
• Too much information may result in the warning being ignored or becoming illegible

Handling complexity

• “Refer to manual” labels
• Safety instruction portions added to labels
• Safety instruction labels

SAFETY INSTRUCTIONS

1. Read and understand the warning message.
2. Make sure you understand the labels.
3. Follow all safety instructions.
4. Use the product properly.
5. Do not tamper with the product.
6. Keep the product away from children.
7. Do not use the product if it is damaged.
8. Keep the product clean and dry.
9. Do not use the product if it is not functioning properly.
10. Do not use the product if it is not working.
11. Do not use the product if it is not safe.

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## ANSI Z535.4 Component #3

### Symbols

**Purpose:** To convey hazard nature, consequence and/or avoidance information

![DANGER](image)

**Use of Symbols**

- Adding a symbol makes the sign difficult not to notice
- **Noticeability** is the first requirement of a safety sign (per human factors experts)

![WARNING](image)

**Symbols represent the state-of-the-art**

- Bring a higher level of noticeability to the sign
- Communicate quickly and across language barriers
- Sometimes require training and/or context to understand
- Three categories: public information, safety, function and control
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Symbol design

- ISO symbols represent the global language for safety
- There are ISO rules for safety symbol design best practices

ISO Standards – ISO 3864-1

- Warning Signs
- Mandatory Action Signs
- Prohibition Signs
- Safe Condition/Safety Equipment Location Signs
- Fire Equipment Location Signs


- First published 2004
- Symbol-only / Symbol with text / Combination signs
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Symbol-only labels are an option in ANSI Z535.4-2011

- Began being allowed in ANSI Z535.4-2007
- Used individually or grouped

Symbol design

- Clarion has developed and implemented best practices for graphical symbol design
- The field is called “Semiotics” – explores how messages are communicated through signs and symbols.

Changing OSHA – Sign standards updated 9/11/13
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The GHS and ANSI Z535 initiatives

The "Right to Know"

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The GHS and ANSI Z535 initiatives

Has become....

The "Right to Understand"

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GHS prescribes symbols, signal words & content

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ANSI Z535.4-2011: Various format options for safety labels

Optional use of translations

Multiple symbols or multiple hazards

A “system” of safety labeling

Durability Considerations

• You must pay attention to this aspect of your labeling program
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Material choices must be right

Compatibility is key
- Overlaminate
- Overlaminate adhesive
- Ink
- Base material
- Base material adhesive or attachment method
- Backing/masking

An intelligent decision-making process

Clarion’s Method:
- Listen to client’s needs
- Design labels & signs to meet current standards and client’s needs
- Choose proper materials for expected durability
- Train client’s installers in application methods to get maximum longevity

Continued diligence is required

- Safety label programs are an on-going process
- Never “once and done”

- ANSI and ISO standards are revised (e.g. new formats, symbols)
- Your own accident history
- Your industry’s accident history
- Other industries’ accident histories for similar hazards
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Your Goal: Consistency and compliance

- Across product lines
- Across company divisions
- Across marketplaces

Proof positive the new warnings technology works

Clarion

50+ million signs and labels sold
15,000+ clients
180+ industries
25 years in business
0 lawsuits

If safety communication is not done right…

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