Safety Signs and Colour at Work

Safety signs and colour are useful tools to help protect the health and safety of employees and workplace visitors.

Safety signs are used to:

- draw attention to health and safety hazards
- point out hazards that may not be obvious
- provide general information and directions
- remind employees where personal protective equipment must be worn
- show where emergency equipment is located
- indicate where certain actions are prohibited

Colour attracts attention and can be used extensively for safety purposes. For example, colour can be used as an additional safety measure to identify the contents of pipes and the nature of the hazard.

The choice of colour also draws attention to the probability of a hazard causing harm. For example, the colour red is used to indicate a definite hazard. A potential hazard is communicated by the colour yellow.

When employees are aware of the hazards around them and take the necessary precautions, the possibility of an injury, illness or other loss is minimized.

However while safety signs and colours are valuable in warning of hazards, they are not substitutes for eliminating or reducing those hazards, whenever possible.

This guideline will help your workplace to effectively use safety signs and colours for the protection of employees and visitors alike.

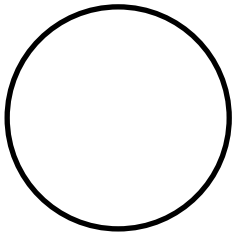
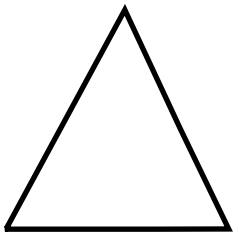
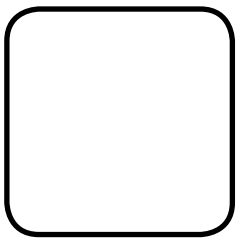
Sign Categories

As shown in the table below, there are three basic sign categories used in the workplace:

- regulatory
- warning
- information

Each category is distinguished by its shape.

These categories are divided into sub-categories that can be recognized by their colour.

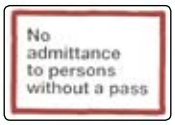
Category	Sub-category	Colour
 1. Regulatory A circle indicates that an order is in force	**1.1 Prohibition** forbids an action	Red and black on white
	1.2 Mandatory requires an action	White on black
 2. Warning A triangle indicates caution or danger	**2.1 Caution** indicates a potential hazard	Black on yellow
	2.2 Danger indicates a definite hazard	White on red
 3. Information A square indicates information	**3.1 Emergency** indicates first aid, health, fire protection, fire fighting and emergency equipment	White on green
	3.2 General Information indicates permission or public information	White on blue

Sign Types

One of three sign types should be used to communicate a message:

- symbol signs
- symbol signs with text
- text signs

Use symbols that are simple and easy to learn and recognize. Include simple wording (text) to help explain the meaning of the symbol or to provide more information. Text signs should only be used when no appropriate symbols exist. Check the CSA international standard CAN/CSA Z321-96 to see if the topic or message you want to convey is listed. Examples of the three types of signs are shown below, based on the CSA standard.

	Symbol sign		Symbol sign with text Text sign
1. Regulatory 1.1 Prohibition			
1.2 Mandatory			
2. Warning 2.1 Caution			
2.2 Danger			
3. Information 3.1 Emergency			
3.2 General Information			

Symbols for Hazardous Materials

By law, hazardous materials received in the workplace must be identified by special symbols on container labels. You may know these special symbols as WHMIS symbols. These symbols indicate the nature of the hazardous material such as compressed gas, oxidizing material, or toxic material. For information on the symbols to use and their colour restrictions, check the Controlled Products Regulation under the federal **Hazardous Products Act**.

Safety Colours

While there is no legislation requiring the use of colour in the workplace, colour can be used to indicate hazards or point out safety equipment. For example, colour can be applied on:

- indicator lights or buttons
- pipes
- separate work areas
- machinery
- vehicles
- aisles, floors and stairs

Indicator lights or buttons

With the extensive use of colour in our daily lives, we have learned to associate certain colours with specific meanings. For example, red on a traffic light means stop. These associations should be taken advantage of in the workplace to help employees easily recognize the message associated with the colour and respond quickly, as in the case of indicator lights and control buttons:

Colour	Indicator Light	Button/Control
Red	Danger or alarm	Stop/off
Yellow	Caution	Caution/ intervention needed
Green	Safe condition	Start/on

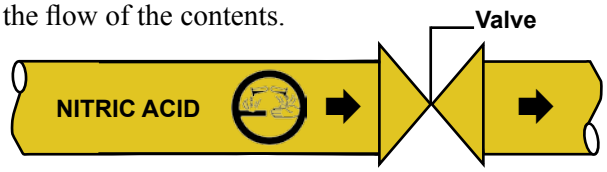
Piping Systems

There are many ways you can identify the contents of pipes. The law, however, requires you to train your workers on the identification system you use.

A way of ensuring that your employees have a clear understanding of what a pipe contains is by:

- labeling the pipe with a tag that clearly identifies the material inside
- attaching the appropriate WHMIS symbol, if the material is a controlled product
- painting the pipe with a safety colour

Use arrows on the pipe to show the direction of the flow of the contents.



Safety colours conventionally used for pipes in the workplace include:

Colour	Classification	Example
Red	Fire quenching materials *never paint sprinkler heads	Water, foam, carbon dioxide, halon, etc.
Green	Liquids that are not hazardous by nature	Liquids, liquid admixtures
Blue	Gases that are not hazardous by nature	Gas, gaseous admixtures
Yellow	Materials that are hazardous by nature	Materials that are flammable or explosive; chemically active or toxic; radioactive; or under extreme temperatures or pressures

For more information on how to identify piping systems, refer to the American Society of Mechanical Engineers (ASME) standard A13.1-2007.

Other Applications for Safety Colours

Safety colours are also useful in work areas, and on equipment and machinery. The safety colours and their meanings are listed below, based on the American National Standards Institute (ANSI) standard Z535.1-2006.*

Colour	Meaning	Examples
Red	Danger or stop	Containers of flammable liquids; emergency stop bars; stop buttons; fire protection equipment
Orange	Warning	Hazardous parts of machines which may cut, crush, or otherwise injure a worker; inside of movable guards or the inside of transmission guards for gears, pulleys, chains, etc.; exposed parts (edges only) of pulleys, gears, rollers, cutting devices, power jaws, etc.
Yellow	Caution	Physical hazards which might result in striking against, stumbling, falling, tripping or being caught in-between; storage cabinets for flammable materials; containers for corrosive or unstable materials
Green	First aid/ safety equipment/ emergency egress	First aid kits, stations; stretchers; emergency showers; emergency exit routes
Blue	Safety information	Signs requiring use of personal protective equipment (PPE)

**Note to Canadian workplaces: A few variations exist between colour and their recommended meanings. When in doubt, go with the CSA standard.*

Determining Your Requirements

Whether you are evaluating your existing safety sign and colour system, or planning a new one, the system will be more effective and easier to implement by asking for feedback and suggestions from your staff. You can also tap the expertise of your health and safety representative or committee.

Discuss such issues as:

- What messages need to be conveyed to employees and workplace visitors?
- Which messages are most important to health and safety?
- Do current signs appropriately convey the importance of a message, e.g., do more important messages stand out?
- Are current signs and safety colours easy to understand? Do they meet the needs of observers with visual limitations, e.g., those who confuse red and green? How about the needs of employees who do not speak English?
- Are employees trained to understand workplace signs and colours?
- Do employees comply with signs?
- Is there consistency in the use of safety signs and colours?
- Are signs visible, away from clutter or obstructions, and well-lighted?
- Are signs and colours effective in drawing attention to hazards?
- Are signs posted in the best possible location and within an appropriate distance from hazards?
- What is the general condition of existing signs?
- Do signs meet legal requirements?
- Do the signs, symbols and colours used reflect current standards (e.g., CSA standards)?

Pointers for Effective Safety Sign and Colour Use

After determining your needs, work with your health and safety representative or committee to set standards for signs and colours to use throughout the workplace.

Ensure the signs and colours are used consistently. Research shows that companies that have implemented a uniform sign and colour system to make hazards more visible and easy to identify have successfully lowered their injury frequency rates. Workers know that signs and colours mean the same thing even when they work in different departments or plant locations. It also enables employees to quickly locate first aid, fire fighting and other emergency equipment.

The signs and colours in your workplace should provide enough information for persons to protect their health and safety.
Signs, especially those that indicate hazards, should:

- attract a person's attention
- clearly identify the nature of the hazard
- specify the immediate action required
- be posted in a place that provides enough time for a person to read the sign and act accordingly
- be easily recognized and understood by all employees
- reflect the needs of those who have visual limitations or who do not speak English
- be sized or placed according to the importance of the message

Posting Signs

Signs should be clearly visible, positioned in the line of sight, and free from any obstructions or clutter.

Keep signs well-lighted. Observers should be able to read a sign easily and recognize its safety colour. Lighting should also be sufficient to make any hazard clearly visible.

Post the sign within an appropriate distance from the hazard it is pointing out. An observer must have enough time to see and read the sign and do whatever is necessary to keep safe.

In general, signs should be displayed alone. When signs must be grouped together, place them in an appropriate order.

Use no more than three symbols in the same location.

Ensure that directional signs are visible from all directions. Include arrows on exit signs wherever the direction is not obvious. Directional signs should be posted at a consistent height throughout the workplace. They should also be posted at appropriate locations or decision points so that the route to take is always clear.

Using Easy to Read and Easy to Understand Signs

Help employees and workplace visitors understand signs quickly by using clear language and symbols than can be learned and recognized easily.

Keep symbols as simple as possible; eliminate details that don't make the message clearer.

Avoid using signs that contain only text messages.

A combination of text and symbols is generally the most effective.

Consider multi-lingual signs if you have employees who do not speak English.

Use capital letters for the first letter of the first word and small letters for the rest.

Use appropriate warning words. These can be in capital letters, if you prefer. For example:

Danger (or **DANGER**) – to warn of a definite hazard.

Caution (or **CAUTION**) – to warn of a potential hazard.

The lettering styles (fonts) most recommended are sanserif, bold or regular face. Examples include: Arial, Helvetica, Folio Medium, Futura, Univers, or equivalent.

Limit one message to a sign. To convey more than one message, use separate signs, as shown below. For example, if hearing protectors and safety glasses are required, use two separate signs, one for hearing protection, and another for eye protection.

Using Safety Colours

Keep colours to a minimum. This emphasizes the most important signs and colour markings, and also prevents confusion and visual fatigue.

Use colours consistently throughout the workplace. Ensure that employees who are colour blind (specifically, red-green confusing) can understand signs and coloured controls. Use symbol signs with text. Use flashing lights, audible alarms or signs beside coloured controls.

Other Pointers

Signs should have rounded or blunted corners to prevent sharp edges, burrs, splinters or other sharp projections.

Position fastening devices carefully so that they don't become hazards.

For more information on sign specifications, refer to the standards listed in References.

Training

Inform employees that signs and colours are being used in the workplace to protect employee/visitor health and safety. Also point out to employees that their cooperation and feedback are necessary for the system to be effective.

Not everyone may be aware that there is a purpose for and meaning in the shape and colour of safety signs or that colours on equipment and around the workplace indicate hazards.

Train employees so that they understand:

- the meaning of the various shapes, symbols and colours used
- the contents of pipes based on their colour, attached tags and other markings
- the consequences if exposed to the hazard
- safety precautions to follow
- what to do in an emergency
- how to use emergency equipment

Make this training a part of your orientation or induction training for new employees.

Provide employees with orientation handbooks that contain complete and updated information on the safety signs and colours used in your workplace.

Review the meaning of signs and colours periodically with employees to ensure all signs are understood. Provide refresher training as needed.

Maintenance

Maintain safety signs in good condition. Inspect signs during regular workplace inspections.

Replace worn, faded, damaged, and outdated signs.

Change signs that are often misunderstood or overlooked.

Remove signs that are redundant or no longer needed.

Repaint areas where safety colours have faded.

What the Law Says

Occupational Health and Safety Act (Ontario)
The following sections of the Regulations for Industrial Establishments (Reg. 851) deal with signs:

- Sec. 16 – door warning sign
- Sec. 20 – traffic warning sign
- Sec. 41 – live electrical equipment warning sign
- Sec. 51, 52 – lifting device capacity sign
- Sec. 62 – identification of hazardous substances in piping systems. Also see WHMIS regulation, section 11
- Sec. 89 – gangways
- Sec. 117 – warning signs on haul roads
- Sec. 118 – signs on bridges of haul roads
- Sec. 139 – noise warning signs

Hazardous Products Act (Federal)
Controlled Products Regulation

- Schedule 11 – hazard symbols
- Sec. 22 – reproduction of hazard symbols

Transportation of Dangerous Goods Regulation (Federal)

- Part 5 – Safety marks

References

American National Standards Institute

- ANSI Z535.1-2006: Safety Colour Code
- ANSI Z535.2-2002: Environmental and Facility Safety Signs
- ANSI Z535.3-2002: Criteria for Safety Symbols
- ANSI Z535.4-2007: Product Safety Signs and Labels
- ANSI Z535.5-2002: Safety Tags and Barricade Tapes (for Temporary Hazards)

American Society of Mechanical Engineers

- ASME A13.1-2007: Scheme for the Identification of Piping Systems

CSA International

- CAN/CSA Z321-96: Signs and Symbols for the Workplace

International Organization for Standardization

- ISO 3864-1:2002: Graphic Symbols – Safety Colours and Safety Signs, Part 1: Design principles for safety signs in workplaces and public areas

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For more information:

IAPA (Industrial Accident Prevention Association)

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