

Revision No. 3	10 / 2005	Page 1 of 4
Kennecott Utah Copper Corporation Safety and Health Standards		Standard No.: 15.6 Color Coding Requirements

15.6.1 **INTRODUCTION**

15.6.1.1 The use of color coding and labels enables quick recognition, provides a warning of danger where needed, and identifies classification of hazards.

15.6.2 **REQUIREMENTS**

15.6.2.1 Standard color coding will be used throughout KUCC. [ANSI Standards](#) will be used as a guideline for application of this KUCC standard unless otherwise noted in the standard.

15.6.2.2 Marking a physical hazard with a warning can never be a substitute for elimination of the hazard, if possible. Color coding must remain clear and identifiable. Do not paint over any signs, labels or equipment tags.

15.6.2.3 **MACHINERY, EQUIPMENT & BUILDINGS** - Buildings are to be painted a color which blends in with the area's environment (e.g. tan).

- o Where fire extinguishers are mounted on stationary structures, the site shall be painted red and an appropriate sign shall be installed.
- o Demarcation lines for workshop floors shall be yellow.
- o The outer surface of machine guards and guard support frames shall be painted yellow.
- o Equipment shall be identified with numbers and where necessary an abbreviated but clear description of the equipment. Letters shall not be smaller than one inch and should preferably be three inches high.

15.6.2.4 **PIPING** - Pipes are defined as conduits for the transport of gases, liquids, semi-liquids or fine particulate dust. For the purpose of this standard, piping systems shall include pipes of any kind and in addition, fittings, valves and pipe coverings. Supports, brackets or other accessories are specifically excluded from application of this standard.

15.6.2.5 This standard considers legend to be primary and explicit for identification of contents. Positive identification of the contents of a piping system shall be by lettered legend giving the name of the contents in understandable form. Arrows shall be used to indicate direction of flow. Contents shall be identified by legend with sufficient additional details (such as temperature, pressure etc) as necessary to identify the hazard. Legends shall be:

- o Brief, informative, pointed and simple for greatest effectiveness.
- o Applied close to valves or flanges and adjacent to changes in direction, branches and where pipes pass through walls or floors.

References:					
American National Standards Institute (ANSI) A13.1 - & Z53.1					
Manual on Uniform Traffic Control Devices for Streets and Highways.					
Facilities Emergency Response Plans					
Signatures					
Original signed by: Frank Klobchar	12/20/05	Original signed by: Chris Crowl	12/21/05	Original signed by: Bill Champion	12/21/05
_____ Standards Committee Chairman	_____ Date	_____ Vice President Human Resources	_____ Date	_____ President, KUCC	_____ Date

- Applied at intervals on straight pipe runs sufficient for identification.
 - Identification may be accomplished by stenciling and / or the use of tape or markers. Key shut-off valves, as identified in the Plant Emergency Response Plan, should be properly labeled.

15.6.2.6 Color should be used to identify characteristic hazards of the contents (see Table 1). Color should be displayed on or contiguous to the piping by any physical means, and its use shall be in combination with legend. Color may be used in contiguous total length coverage or in intermittent displays (See Exhibit 15.6.1).

- Contrast shall be provided between color field and legend for readability. Table 1 in section gives recommendations for color of legend on various color fields covered in this standard. Use of letters of standard style, in sizes of one-half inch or larger is recommended. For identification of materials in pipes of less than three-fourths inch in diameter and for valve and fitting identification, the use of a permanently legible tag is recommended.

TABLE 1 - CLASSIFICATION OF MATERIALS HAZARDS AND DESIGNATION OF COLOR CODING

Classification	Color Field	Color of Letters for Legend
Materials Inherently Hazardous (Examples: LP Gas, natural gas, acetylene, hydrogen, oxygen, alcohol, oil, acids, caustics):		
Flammable or Explosive	Yellow	Black
Chemically Acidic or Toxic	Yellow	Black
Extreme Temperatures or Pressures	Yellow	Black
Radioactive	Yellow	Black
Materials of Inherently Low Hazard		
Liquid or Liquid Mixture (Examples: Water, slurries, sewers & drains)	Green	White
Gas or Gaseous mixture (Examples: nitrogen, compressed air)	Blue	White
Fire, Water, Foam CO ₂ , Halon, FM 200 etc.	Red	White

- 15.6.2.7 Attention shall be given to visibility with reference to pipe markings. Where pipelines are located above or below normal line of vision, the lettering shall be placed below or above the horizontal centerline of the pipe.
- 15.6.2.8 Pipelines designed to operate at temperatures between 400F and 900F shall be painted aluminum in color.
- 15.6.2.9 Shower and / or eyewash facilities shall be painted green.
- 15.6.2.10 **PHYSICAL HAZARDS** - All color coding for physical hazards shall use [ANSI Z53.1](#) as a guideline. This section shall apply to the use of safety color coding for the identification of physical hazards, the location of safety equipment, protective equipment, stationary machinery, portable powered hand tools, signs and markers and applies to all existing structures, facilities, equipment and machinery as well as subsequent modifications and additions.
- 15.6.2.11 Locations, objects or safety signs that are color coded and for which illumination must be provided shall be illuminated to levels which will permit positive identification of the color and the hazard or situation which the color identifies.
- Wherever possible color contrast (especially lightness contrast) between the safety sign or color coded object and its background should be provided.
- 15.6.2.12 "**Safety Red**" shall be the color for the identification of:

PIPE LEGENDS



FIGURE 1