

RETURN TO
(CANADIAN GOVERNMENT
SPECIFICATIONS BOARD)

24-GP-1
26 October 1951
CANCELLATION
18 March 1960

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

COLOR CODE
for

COMPRESSED GAS CYLINDERS AND PIPELINES

CGSB Code 24-GP-1 dated 26 October 1951 is hereby cancelled. It is superseded in part by the following publications:

- (1) CGSB code 24-GP-3: Identification and Classification of Piping Systems.
- (2) Canadian Standards Association Code Z39-1959: Marking of Portable Compressed Gas Containers to Identify the Material Contained.

ARCHIVES COPY

Ref

24-GP-1
26 October 1951
AMENDMENT NO. 1
30 October 1953.

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

COLOR CODE FOR COMPRESSED
GAS CYLINDERS AND PIPELINES

Appendix A - Delete Appendix A entirely and replace with
the attached sheet.

Withdrawn/Retirée

APPENDIX A

24-GP-1

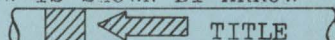
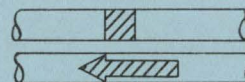
COLORS & MARKING FOR IMPORTANT PIPING IN HMC SHIPS.

EXACT IDENTIFICATION IS BY TITLE

PRIMARY COLOR WARNING IS BY BAND

DIRECTION OF FLOW IS SHOWN BY ARROW

EXAMPLE-



SERVICE	ILLUSTRATION	COLOR OF BAND	COLOR OF ARROW
FIRE MAIN AND HANGER SPRAY	TITLE	RED	BLACK
MAIN SUCTION	TITLE	BLACK	BLACK
SALT WATER SERVICES INCL. CIRC.	TITLE	BLACK	BLACK
FLOODING & DRAINING	TITLE	BLACK	BLACK
DOMESTIC WATER - HOT	TITLE	GREY	BLACK
HYDRAULIC SUPPLY	TITLE	GREY	BLACK
TELE MOTOR	TITLE	BLACK	BLACK
VENTILATION	TITLE <i>STATE SUPPLY OR EXHAUST</i>	GREEN	BLACK
AIR LINES	TITLE <i>STATE PRESSURE</i>	GREY	BLACK
OIL FUEL LINES	TITLE <i>STATE SUCT., FILLING, DISCH. OR SUPPLY</i>	YELLOW	BLACK
LUB. OIL LINES	TITLE <i>STATE SUCT., FILLING, SUPPLY OR RETURN</i>	YELLOW	BLACK
DIESEL OIL LINES	TITLE <i>STATE SUCT., FILLING, DISCH., OR SUPPLY</i>	YELLOW	BLACK
GASOLINE LINES	TITLE <i>STATE SUCT., FILLING, SUPPLY OR RETURN</i>	YELLOW	BLACK
THERMOGRAPH PIPING	TITLE	BLACK	BLACK
STEAM LINES	TITLE <i>STATE PRESS. & TEMP.</i>	GREY	BLACK
FEED WATER LINES	TITLE	GREY	BLACK
CARBON DIOXIDE - FIRE	TITLE	RED	BLACK
CARBON DIOXIDE	TITLE <i>STATE SUPPLY OR RETURN</i>	GREY	BLACK
FREON	TITLE <i>STATE SUPPLY OR RETURN</i>	GREY	BLACK
FOAM	TITLE	RED	BLACK
DOMESTIC WATER - COLD	TITLE	PIPE PAINT-ED WHITE	BLACK
STEAM SMOTHERING	TITLE	RED	BLACK

REMEMBER - COLORS DO NOT IDENTIFY THE MATERIAL BUT INDICATE THE FOLLOWING -

- * RED - FIRE PROTECTION MATERIAL
- GREY - PHYSICALLY DANGEROUS MATERIAL
- YELLOW - INFLAMMABLE MATERIAL
- GREEN - OXIDIZING MATERIALS OR THOSE THAT SUPPORT COMBUSTION
- BLACK - NO PARTICULAR DANGER

* Number symbols in blocks refer to color numbers in 1-GP-12a: Standard Paint Colors.

REFERENCE COPY

24-GP-1
26 October 1951
CORRECTION NO. 1
15 January 1952

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

COLOR CODE FOR COMPRESSED GAS CYLINDERS AND PIPELINES

Para. 3.1.1.2 The word "black" is to be added to the list of background colors given in the second sentence, causing this sentence to read, "Cylinders having a background color of red, brown, blue, black, grey, or green shall have the title painted white."



CANADIAN GOVERNMENT SPECIFICATIONS BOARD

REFERENCE COPY

COLOR CODE
FOR
COMPRESSED GAS CYLINDERS
AND
PIPELINES

24-GP-1

26 OCTOBER 1951

THE OBJECT OF THIS STANDARD IS TO ESTABLISH A COMMON COLOR CODE
FOR VISUAL WARNINGS TO ACCOMPANY THE WRITTEN IDENTIFICATION
OF MATERIALS CONVEYED IN PIPING SYSTEMS AND
CONTAINED IN COMPRESSED GAS CYLINDERS

NATIONAL RESEARCH COUNCIL, OTTAWA, CANADA

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CANADIAN GOVERNMENT SPECIFICATIONS BOARD

COLOR CODE FOR COMPRESSED
GAS CYLINDERS AND PIPELINES *

1. INTRODUCTION AND GENERAL REQUIREMENTS

1.1 General

1.1.1 Object - The object of this standard is to establish a common color code for visual warnings to accompany the written identification of materials conveyed in piping systems and contained in compressed-gas cylinders, and to facilitate the segregation of these cylinders at depots. The use of this standard will promote greater safety and will lessen the chances of error, confusion, or inaction in times of emergency, by providing a uniform color code to quickly warn personnel of outstanding hazards inherent in the materials involved. However, this standard does not define the manner or conditions under which these materials may be used safely.

1.1.2 Scope - This color code is applicable to all installations where color coding is used in industrial plants or shore establishments, and to all compressed gas cylinders owned by or procured for government departments. This color code is NOT applicable to electrical conduits ventilation ducts, nor pipe lines installed in aircraft. Use of this color code is optional for hose lines and nozzles, ship installations, and equipment intended for operation in forward areas.

1.1.3 Method - This color code establishes, defines and assigns a color for recognition to each of six classes of materials. Five classes have been selected to represent universally recognized types of hazards involved in the handling of dangerous gases or liquids. The sixth class is assigned for the exclusive use of fire protection materials and equipment. This color code requires application of the color warnings in a distinctive manner, as a visual aid and supplement to written identification.

1.2 Color Specifications - The colors assigned in this standard shall conform in hue, value and chroma to the requirements identified by numbers specified in Canadian Government Specifications Board Schedule 1-GP-12a: Standard Paint Colors. (See Para. 4.3)

1.3 Employment of Colors

1.3.1 Warning Colors - The colors specified herein are assigned for use as both primary and secondary warnings.

* This code does in no way supersede or interfere with the Regulations of the Board of Transport Commissioners for Canada. (See Para. 4.4)

<u>Class</u>	<u>Standard Color</u>	<u>Class of Material</u>
1	Yellow, No. 5-2	Flammable materials - All materials known ordinarily as flammables or combustibles.
2	Brown, No. 4-2	Toxic and poisonous materials - All materials extremely hazardous to life or health under normal conditions as toxics or poisons.
3	Blue, No. 2-6	Anesthetics and harmful materials - All materials productive of anesthetic vapors and all liquid chemicals and compounds hazardous to life and property but not normally productive of dangerous quantities of fumes or vapors.
4	Green, No. 3-14	Oxidizing materials - All materials which readily furnish oxygen for combustion (except air) and fire producers which react explosively or with the evolution of heat in contact with many other materials.
5	Grey, No. 1-7	Physically dangerous materials - All materials, not dangerous in themselves, which are asphyxiating in confined areas or which are generally handled in a dangerous physical state of pressure or temperature.
6	Red, No. 9-3	Fire protection materials - All materials provided in piping systems or in compressed gas cylinders exclusively for use in fire protection.

1.3.2 Use of Black and White - The colors, Black No. 10-1 and White No. 10-2, are assigned, WITHOUT SIGNIFICANT MEANING, for general use where specified in this standard, with the two following exceptions:

EXCEPTIONS

1.3.2.1 Potable or Drinking Water - Water-piping systems containing water determined as suitable for human consumption and installed for this purpose shall be painted White No. 10-2, throughout, or to match surroundings when not in conflict with other color designations in this code.

1.3.2.2 Feed Water - Water piping systems containing feed water shall be painted Black, No. 10-1, throughout.

1.3.3 Use of Orange and Buff - The colors, Orange, No. 8-1 and Buff No. 7-6, are assigned, WITHOUT SIGNIFICANT MEANING, for use as colors on selected groups of compressed gas cylinders for segregation.

1.4 Color Assignment - For information concerning color coding of piping systems and compressed gas cylinders not covered by this Code, application should be made to the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa.

1.5 General Definitions

1.5.1 Piping System - Piping systems consist of any pipe line or conduit for the transport of gases, liquids, or semiliquids, but NOT for carrying solids in air or gas. Valves, fittings, operating accessories, pipe coverings, and pipe installations of any kind (including submerged or buried pipe lines, their markers or buoys, and their points of tie-in with pumping stations and storage or dispensing facilities) shall be considered as parts of a piping system, while supports, brackets, or other non-operating accessories are not considered parts for application of warning colors.

1.5.2 Compressed-gas cylinder - A compressed-gas cylinder is any tube, bottle, or other type of pressure cylinder larger than 3 inches in diameter by 6 inches in length, used for purposes of transporting liquids or gases under pressure. Bulk containers, such as the 1-ton tube-type pressure cylinder, and all ammunition are excluded.

1.5.3 Primary color warning - A primary color warning is the color assigned to the class into which a material is classified in accordance with its primary hazard from the safety standpoint. These colors appear as a circular band on piping systems, and as main body, top, or band colors on compressed-gas cylinders.

1.5.4 Secondary Color Warnings - A secondary color warning is the color assigned as a warning of a secondary hazard distinctly different from that indicated by its primary color warning. These colors appear as arrows (or triangles) on piping systems and main body, top or band colors on compressed gas-cylinders.

1.5.5 Cylinder Group Color - Cylinder group color is the color assigned to the main portion of the body of a compressed gas cylinder. The body color for each cylinder has been selected to conveniently group the material and to simplify the code.

1.5.6 Commercial Colors - Commercial colors are the colors which may be used, in a limited arrangement, on a small portion of the body and bottom of a compressed-gas cylinder for commercial identification and designation of ownership.

1.5.7 Title - A title is any lettered identification required on a piping system or a compressed-gas cylinder. Titles shall identify the contents by complete names, or by generally recognized abbreviations, symbols, letters, numerals, or combinations thereof.

2. PIPING SYSTEM IDENTIFICATION

2.1 Exact Identification

2.1.1 Titles - Exact identification of materials in any piping system is mandatory and shall be made ONLY by means of titles stenciled in black or white. These titles shall be prominently displayed adjacent to color warnings to obviate errors by color-blind personnel.

2.1.2 Application of Title - It is recommended, where the view is unobstructed, that titles be stenciled on the two lower quarters of the pipe or covering. Lettering in this position is unlikely to be obscured by dust collection or mechanical damage. However, titles should be clearly visible from operating positions, especially those adjacent to

control valves. The use of stencils with standard size letters specified in Table I is recommended. For pipe lines smaller than 3/4 inch in diameter the use of securely fastened metal tags, with lettering etched or filled in with enamel, is suggested.

TABLE I - Size of Stencil Letters

Outside Diameter of Pipe or Covering	Size of Stencil Letters
<u>Inches</u>	<u>Inches</u>
Under $1\frac{1}{8}$ -----	$\frac{1}{2}$
$1\frac{1}{8}$ to $3\frac{1}{2}$ -----	$\frac{3}{4}$
$3\frac{1}{2}$ to 6 -----	$1\frac{1}{4}$
6 to 9 -----	2
9 to 13 -----	3
Over 13 -----	$3\frac{1}{2}$

2.2 Use of Colors on Piping Systems

2.2.1 Warning Colors - The appearance of any of the following six colors on a piping system shall provide a warning of danger from the hazard involved in the system according to the class definitions for warning colors in Para. 1.3.1.

<u>Class</u>	<u>Standard Color</u>	<u>Class of Material</u>
1	Yellow, No. 5-2	Flammable materials
2	Brown, No. 4-2	Toxic and Poisonous materials
3	Blue, No. 2-6	Anesthetics and harmful materials
4	Green, No. 3-14	Oxidizing materials
5	Grey, No. 1-7	Physically dangerous materials
6	Red, No. 9-3	Fire protection materials.

2.3 Primary Color Warnings

2.3.1 Use - A primary color warning shall appear on ALL dangerous piping systems in any installation which is color coded in accordance with this standard.

2.3.2 Application - Primary color warnings shall consist of a SINGLE color applied as a band which completely encircles the piping system. Color bands shall be applied in conformance with dimensional information shown on Figure 1.

2.3.2.1 Option - All pipe and covering of an entire system, including all encircling or partially encircling straps, hangers and supports, may be painted with the primary color warning. When this option is used, NO bands of color shall be applied.

2.3.2.2 Note - The use of color bands on all dangerous piping systems is recommended as an aid to color-blind personnel since the use of bands will indicate to them that hazards are present.

2.3.3 Location on Piping System - Immediately adjacent to all operating accessories such as valves, regulators, flowchecks, strainers, cleanouts, vents, etc., all coded piping systems shall be painted with a primary color warning. In addition, primary color warnings shall be painted throughout the system at convenient intervals, e.g., where branch lines join the system, where the system passes underground or through walls, and at any other conspicuous places where warnings are required by safety authority.

2.3.3.1 Option - Operating accessories may also be painted with the primary color warning.

2.4 Secondary Color Warnings

2.4.1 Use - An arrow shape shall appear on all dangerous piping systems in any installation which is color coded in accordance with this standard. Any material system possessing an outstanding hazard of a type distinctly different from that indicated by its primary color warning shall have a secondary color warning applied, and the color of the arrow shall be selected according to the class definition for warning colors in Para. 1.3.1. Systems which do not involve such additional hazards shall have arrows either the same color as the primary warning or black or white.

2.4.1.1 Note - When the option in Para. 2.3.2.1 is selected, the secondary color warning shall appear as an arrow in all locations specified in 2.3.3.

2.4.2 Applications - A colored arrow shall appear adjacent to each primary color warning applied to a piping system and shall indicate the normal direction (s) of flow of the material in the system. Dimensional information is shown on Figure 1.

2.4.2.1 Options

2.4.2.1.1 Tails may be omitted on arrows, creating triangles with one corner indicating the normal direction of flow.

2.4.2.1.2 Operating accessories may also be painted with the secondary color warning.

2.5 Classification of Materials in Piping System

The classification of materials in a piping system shall be as specified in Table II.

TABLE II - Classification of Materials in Piping Systems

Material	Primary warning (band color)	Secondary warning (arrow color)
Acetic acid (aqueous solution)	Blue	(1) yellow
Acetic anhydride	Blue	Yellow
Acetone	Yellow	(1)
Acetylene	Yellow	Yellow
Air, Compressed	Grey	Green
Alcohol, allyl, liquid	Yellow	Brown
Alcohol, (amyl, butyl, ethyl, propyl, wood)	Yellow	(1)

TABLE II - Classification of Materials in Piping Systems - Continued

	Primary warning (band color)	Secondary warning (arrow color)
Ammonia, anhydrous	Brown	Yellow
Argon	Grey	(1)
Arsenic trichloride, ^{no} liquid	Brown	Blue (1)
Benzene (benzol)	Yellow	Brown
Benzyl chloride	Blue Yellow	Yellow (1)
Carbon dioxide	Grey	(1)
Carbon dioxide (fire)	Red	Grey (1)
Carbon monoxide	Yellow	Brown
Carbon tetrachloride	Blue	Brown (1)
Carboxide	Blue	(1)
Caustic potash, liquid	Blue	(1)
Caustic soda, liquid	Blue	(1)
Chlorine	Brown	(1)
Crude oil, petroleum	Yellow	(1)
Cyclopropane	Yellow	Blue
Ethylene	Yellow	Blue
Formaldehyde	Yellow	Brown
Freon	Grey	(1)
Manufactured gases (coal, natural, pintsch, etc)	Yellow	Brown
Fuel Oils (motor fuel, heating, cooking etc)	Yellow	(1)
Gasoline (motor fuel)	Yellow	(1)
Helium	Grey	(1)
Hydrochloric acid	Blue	(1)
Hydrocyanic acid, liquid	Brown	(1)
Hydrogen	Yellow	Yellow
Hydrogen chloride, gas	Brown	(1)
Hydrogen peroxide (dioxide)	Green	Blue (1)
Hydrogen sulfide	Yellow Brown	Brown Yellow
Kerosene (kerzene)	Yellow	(1)
Lacquer and paint (mixed)	Yellow	(1)
Methane	Yellow	(1)
Methyl bromide	Brown	(1)
Methyl chloride	Yellow	Brown
Nitric acid	Blue	Green
Nitrogen	Grey	(1)
Nitrous oxide	Blue	Blue (1)
Oxygen	Green	Green (1)
Petroleum gases (liquid and nonliquid)	Yellow	(1)
Steam	Grey	(1)
Sulfur dioxide	Brown	Grey
Sulfuric acid	Blue	(1)
Vacuum contaminated	Grey	Brown
Vacuum (noncontaminated)	Grey	(1)
Water, fire	Red	(1)
Water, potable	White	(2)
Water, feed	Black	(3)

(1) Arrows on these systems may be the same color as the primary warning or black or white as preferred.

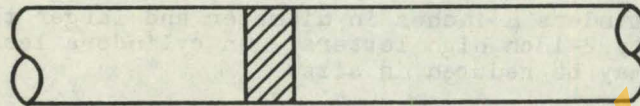
(2) Para. 1.3.2.1

(3) Para. 1.3.2.2

EXACT IDENTIFICATION

ALWAYS BY NAME OF THE MATERIAL CONTAINED

PRIMARY COLOR WARNING



WIDTH OF BAND

1"

2"

6"

OUTSIDE DIAMETER OF
PIPE OR COVERING

UNDER $3\frac{1}{2}$ "

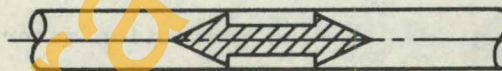
$3\frac{1}{2}$ " TO 13"

OVER 13"

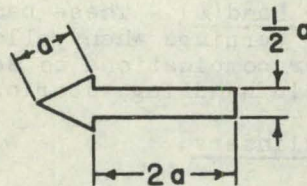
SECONDARY COLOR WARNING



DIRECTION OF FLOW



REVERSIBLE FLOW



a = APPROX $\frac{3}{4}$ OF OUTSIDE
DIAMETER OF PIPE OR
COVERING. (6" MAX)

EXAMPLE

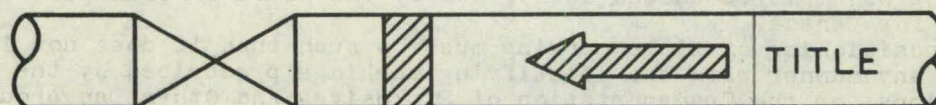


Figure 1.—Piping systems.

3. CYLINDER IDENTIFICATION

3.1 Exact Identification

3.1.1 *Title - Exact identification of any material contained in a compressed gas cylinder is mandatory and shall be made ONLY by means of the written title, as specified in Para. 1.5.7. The title shall appear in two locations diametrically opposite and parallel to the longitudinal axis of the cylinder.

3.1.1.1 On cylinders 4 inches in diameter and larger the title shall be in approximately 2-inch high letters. On cylinders less than 4 inches in diameter they may be reduced in size.

3.1.1.2 Cylinders having a background color of yellow, orange or buff shall have the title painted black. Cylinders having a background color of red, brown, blue, grey or green shall have the title painted white.

3.2 Use of Colors on Cylinders

3.2.1 Color Warnings - The appearance on the body, top or as a band(s) on compressed gas cylinders of any of the following six colors shall provide a warning from the hazard involved in handling the type of material contained in the cylinder according to the class definitions for warning colors in Para. 1.3.1.

<u>Class</u>	<u>Standard Color</u>	<u>Class of Materials</u>
1	Yellow, No. 5-2	Flammable materials
2	Brown, No. 4-2	Toxic and poisonous materials
3	Blue, No. 2-6	Anesthetics and harmful materials.
4	Green, No. 3-14	Oxidizing materials
5	Grey, No. 1-2	Physically dangerous materials
6	Red, No. 9-3	Fire protection materials.

3.2.2 Cylinder Group Color - The colors of the main portion of the body of cylinders are selected to conveniently group the materials and to simplify the code.

3.2.3 Cylinder Color Band(s) - These bands appear upon the cylinder body. They serve as color warnings when yellow, brown, blue, green, or grey and they provide color combinations to separate and distinguish cylinders for convenience in handling, storing and shipping.

3.3 Painting of Cylinders

3.3.1 Location of Cylinders - All cylinders shall be painted as specified herein to provide uniform recognition throughout government agencies. Cylinders shall be painted as shown on Figures 2 and 3.

* Title marking may be by means of stenciling; stamping the cylinder wall shall not be employed unless authorized by the Board of Transport Commissioners for Canada.

The positioning of title marking must be such that it does not interfere in any manner with the identifying markings prescribed by the Regulations for the Transportation of Explosives and Other Dangerous Articles by Freight as established by the Board of Transport Commissioners for Canada.

3.4 Cylinder Color Code

The cylinder color code shall be as follows:

Dimension Designations	Location on Cylinder			
	Top A	Band B	Band C	Body
3.4.1 Medical anesthetic gases:				
Cyclopropane	Orange	Yellow	Blue	Blue ✓
Ethylene	Blue	Blue	Blue	Blue ✓
Nitrous oxide	Blue	Blue	Blue	Blue ✓
3.4.2 Fuel gases:				
Acetylene	Yellow	Yellow	Yellow	Yellow ✓
Hydrogen	Yellow	Black	Yellow	Yellow ✓
Manufactured gases	Brown	Yellow	Yellow	Yellow ✓
Petroleum (nonliquefied)	Yellow	White	Yellow	Yellow no
Petroleum (liquefied)	Yellow	Orange	Yellow	Yellow ✓
3.4.3 Industrial Gases:				
Butadiene	Yellow	White	Buff	Buff ✓
Ethylene oxide	Yellow	Blue	Buff	Buff ✓
Ethyl chloride	Buff	Blue	Yellow	Buff ✓
Propylene	Yellow	Grey	Buff	Buff ✓
Vinyl chloride	Yellow	Orange	Buff	Buff ✓
Vinyl methyl ether	Yellow	Black	Buff	Buff ✓
Aerosol insecticide	Buff	Buff	Buff	Buff ✓
Carboxide	Buff	Blue	Buff	Buff no
3.4.4 Toxics and poisonous materials:				
Carbon monoxide	Yellow	Brown	Brown	Brown ✓
Hydrogen sulfide	Brown	Yellow	Brown	Brown ✓
Methyl bromide	Brown	Black	Brown	Brown ✓
Boron trifluoride	Grey	Brown	Brown	Brown ✓
Chlorine	Brown	Brown	Brown	Brown ✓
Hydrogen chloride	Brown	White	Brown	Brown ✓
Phosgene	Brown	Orange	Brown	Brown ✓
Sulfur dioxide	Brown	Grey	Brown	Brown ✓
3.4.5 Refrigerants				
Ammonia	Brown	Yellow	Orange	Orange ✓
Freons	Orange	Orange	Orange	Orange ✓
Methyl chloride	Yellow	Brown	Orange	Orange ✓
3.4.6 Oxidizing gases:				
Oxygen	Green	Green	Green	Green ✓
Oxygen, aviator's	Green	White	Green	Green ✓
Air, oil pumped	Black	Green	Green	Black ✓
Air, water pumped	Black	Green	Black	Black ✓
Helium, oxygen	Buff	White	Green	Black ✓
Oxygen, carbon dioxide	Grey	Green	Black	Black ✓
3.4.7 Inert gases:				
Argon, oil pumped	Grey	White	White	Grey ✓
Argon, water pumped	Grey	White	Grey	Grey ✓
Carbon dioxide	Grey	Grey	Grey	Grey ✓
Helium, oil pumped	Grey	Orange	Grey	Grey ✓
Helium, oil free or medical	Buff	Grey	Orange	Grey ✓
Nitrogen, oil pumped	Grey	Black	Grey	Grey ✓
Nitrogen, water pumped	Grey	Black	Black	Grey ✓
3.4.8 Fire fighting gases:				
Carbon dioxide	Red	Red	Red	Red ✓
Methyl bromide	Red	Brown	Red	Red ✓

Acrolein
Boron trichloride
Bromoacetone
Bromochloromethane (fire only)

Bromotrifluoromethane (fire only)
Chloroacetone
Chlorine trifluoride
Chloropicrin
Cyanogen

Dibromodifluoromethane (fire only)
Difluorochloromethane
Difluoroethane
Dimethylamine (anhydrous)
Dimethyl ether

3.5 Additional Identification

3.5.1 Commercial Color Identification - The bottom and the lower portion of the cylinder body opposite the valve end may be used for commercial identification on cylinders not owned by or procured for the purchaser. In this area, which shall not exceed one-sixth of the overall length of the cylinder, the use of a solid color other than the body color will not be permitted.

3.5.2 Decalcomanias - Two decalcomanias may be applied on the shoulder of each cylinder and diametrically opposite and at right angles to the titles. They indicate the name of the gas, precautions for handling and use. A background color corresponding to the primary color warning of the contents should be used. (See note at bottom of page 8).

3.5.3 Shatterproof Designation - Shatterproof cylinders shall be stenciled with the phrase "Non-Shat" longitudinally and 90° from titles. Letters shall be black or white and approximately 1 inch in size.

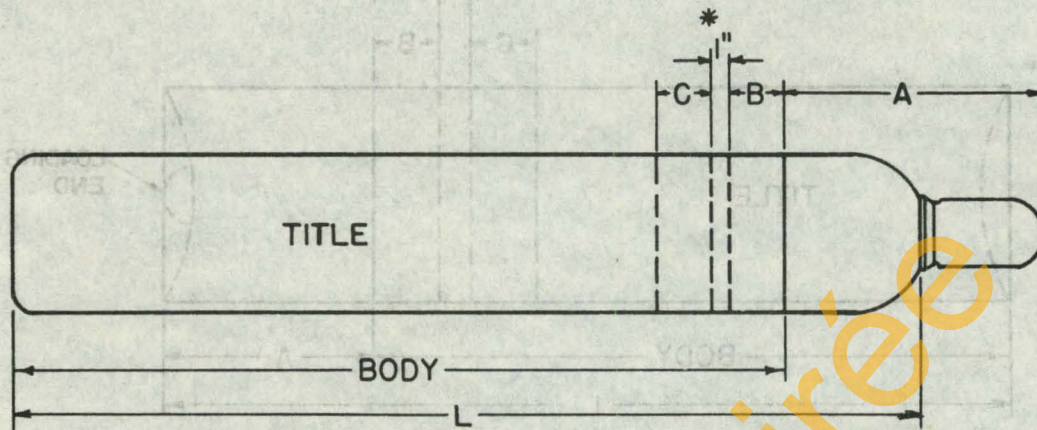
4. NOTES

4.1 This code is based on United States Military Standard, MIL-STD-101: Color Code for Compressed Gas Cylinders and Pipelines.

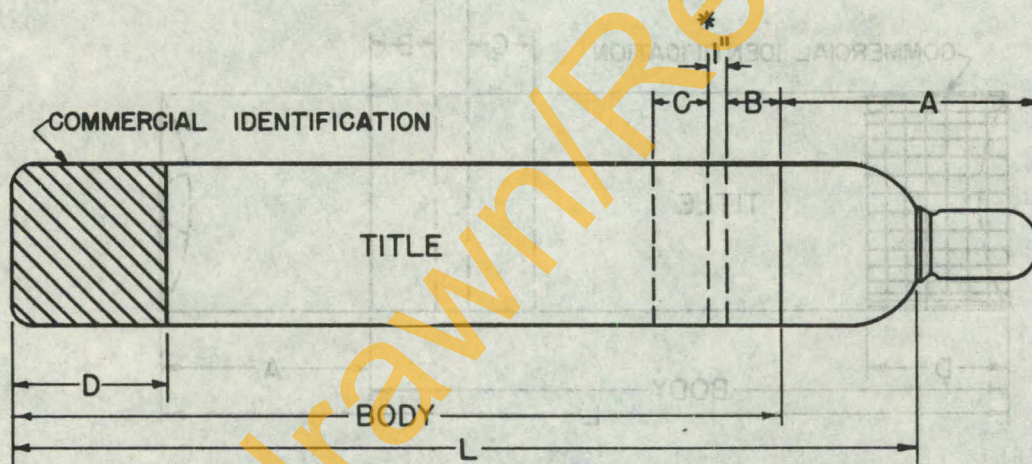
4.2 Appendix A, giving reference to color coding of important piping in HMC Ships, has been included with this code at the request of the Naval Service, and with approval of the Committee on Color Coding of Compressed Gas Cylinders and Pipelines.

4.3 Information regarding Schedule 1-GP-12a: Standard Paint Colors, may be obtained from the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa, Canada.

4.4 Information regarding Regulations of the Board of Transport Commissioners for Canada may be obtained on application to the General Secretary, Railway Association of Canada, 1520 Mountain St., Montreal, Canada.



LOCATION OF COLORS ON GOVERNMENT-OWNED CYLINDERS



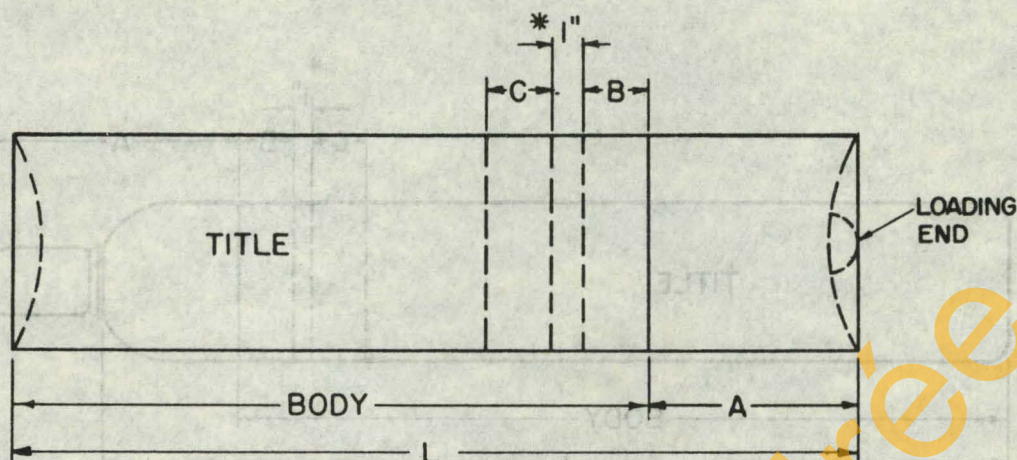
LOCATION OF COLORS ON COMMERCIAL-OWNED CYLINDERS

LOCATION DIMENSIONS

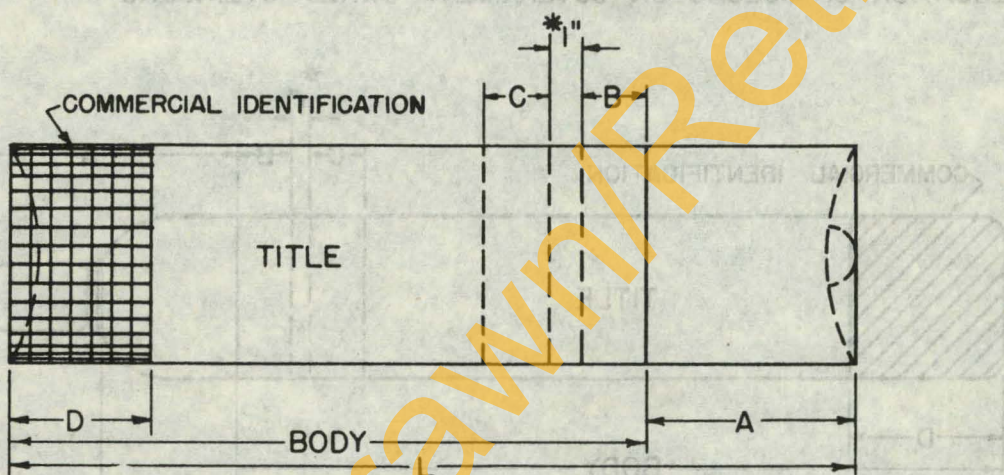
OVERALL LENGTH	CAP AND SHOULDER COLOR	CYLINDER COLOR BAND (S)	COMMERCIAL IDENTIFICATION
L	A	B & C	D
OVER 30"	$\frac{1}{4}$ OF (L + CAP)	3"	$\frac{1}{6}$ OF L
30" AND UNDER	$\frac{1}{4}$ OF (L + CAP)	2"	$\frac{1}{6}$ OF L

* 1" SPACE TO BE OMITTED IF BANDS B & C ARE OF DIFFERENT COLORS.

Figure 2.—Bottle-type cylinders.



LOCATION OF COLORS ON GOVERNMENT-OWNED CYLINDERS



LOCATION OF COLORS ON COMMERCIAL-OWNED CYLINDERS

LOCATION DIMENSIONS

OVERALL LENGTH	CAP AND SHOULDER COLOR	CYLINDER COLOR BAND (S)	COMMERCIAL IDENTIFICATION
L	A	B & C	D
OVER 30"	$\frac{1}{4}$ OF L	3"	$\frac{1}{6}$ OF L
30" AND UNDER	$\frac{1}{4}$ OF L	2"	$\frac{1}{6}$ OF L

*1" SPACE TO BE OMITTED IF BANDS B & C ARE OF DIFFERENT COLORS.

Figure 3.—Tube-type cylinders.

APPENDIX A

24-GP-1

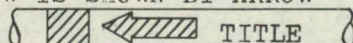
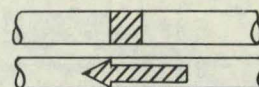
COLORS & MARKING FOR IMPORTANT PIPING IN HMC SHIPS.

EXACT IDENTIFICATION IS BY TITLE

PRIMARY COLOR WARNING IS BY BAND

DIRECTION OF FLOW IS SHOWN BY ARROW

EXAMPLE-



SERVICE	ILLUSTRATION	COLOR OF BAND	COLOR OF ARROW
FIRE MAIN AND HANGER SPRAY	TITLE	RED	BLACK
MAIN SUCTION	TITLE	BLACK	BLACK
SALT WATER SERVICES INCL. CIRC.	TITLE	BLACK	BLACK
FLOODING&DRAINING	TITLE	BLACK	BLACK
DOMESTIC WATER -HOT	TITLE	GREY	BLACK
HYDRAULIC SUPPLY	TITLE	GREY	BLACK
TELEMOTOR	TITLE	BLACK	BLACK
VENTILATION	TITLE	GREEN	BLACK
AIR LINES	TITLE STATE SUPPLY OR EXHAUST	GREY	BLACK
OIL FUEL LINES	TITLE STATE PRESSURE	YELLOW	BLACK
LUB.OIL LINES	TITLE STATE SUCT. FILLING DISCH. OR SUPPLY	YELLOW	BLACK
DIESEL OIL LINES	TITLE STATE SUCT. FILLING SUPPLY OR RETURN	YELLOW	BLACK
GASOLINE LINES	TITLE STATE SUCT. FILLING DISCH. OR SUPPLY	YELLOW	BLACK
THERMOGRAPH PIPING	TITLE STATE SUCT. FILLING SUPPLY OR RETURN	BLACK	BLACK
STEAM LINES	TITLE	GREY	BLACK
FEED WATER LINES	TITLE STATE PRESS. & TEMP.	GREY	BLACK
CARBON DIOXIDE -FIRE	TITLE	RED	BLACK
CARBON DIOXIDE	TITLE	GREY	BLACK
FREON	TITLE STATE SUPPLY OR RETURN	GREY	BLACK
FOAM	TITLE STATE SUPPLY OR RETURN	RED	BLACK
DOMESTIC WATER -COLD	TITLE	PIPE PAINT-ED WHITE	BLACK
STEAM SMOTHERING	TITLE	RED	BLACK

REMEMBER - COLORS DO NOT IDENTIFY THE MATERIAL BUT INDICATE THE FOLLOWING -

- * RED - FIRE PROTECTION MATERIAL
- GREY - PHYSICALLY DANGEROUS MATERIAL
- YELLOW- INFLAMMABLE MATERIAL
- GREEN - OXIDIZING MATERIALS OR THOSE THAT SUPPORT COMBUSTION
- BLACK - NO PARTICULAR DANGER

* Number symbols in blocks refer to color numbers in 1-GP-12a: Standard Paint Colors.