

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3933 (1966): Colour Identification of Gas Cylinders and Related Equipment Intended for Medical Use [MED 16: Gas Cylinders]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 3933 - 1966

Indian Standard
FOR
COLOUR IDENTIFICATION OF GAS
CYLINDERS AND RELATED EQUIPMENT
INTENDED FOR MEDICAL USE

UDC 621.642.02 : 621.777.6



© Copyright 1967

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

Price Rs 2.00
Revised Edition

August 1967

Indian Standard

FOR

COLOUR IDENTIFICATION OF GAS CYLINDERS AND RELATED EQUIPMENT INTENDED FOR MEDICAL USE

Gas Cylinders Sectional Committee, EDC 16

Chairman

SHRI S. N. LAHIRI

Representing

Ministry of Works & Housing (Department of Explosives)

Members

SHRI S. C. ROY (*Alternate to*
Shri S. N. Lahiri

SHRI R. C. AITKEN

EID—Parry Limited, Madras

SHRI GEORGE P. AROOJIS

Kosan Metal Products Ltd, Bombay

SHRI T. G. BALL

T. I. & M. Sales Ltd, Calcutta

SHRI S. C. BANERJEE

Directorate General of Technical Development (Department
of Supply & Technical Development)

DR G. P. CHATERJEE

Hindustan Steel Ltd, Ranchi

SHRI G. CODD

Lloyd's Register of Shipping, Bombay

SHRI P. K. A. NARAYANAN (*Alternate*)

SHRI L. R. GAUTAM

The DCM Chemical Works, Delhi

SHRI SATPAL (*Alternate*)

SHRI A. GHOSH

National Test House, Calcutta

DR N. K. GOPALAN

Ministry of Defence (DGI)

SHRI ALBERT JEAVONS

The Indian Sugar and General Engineering Corporation,
Yamunanagar

SHRI C. KRISHNAMURTHY

The Mysore Chemicals & Fertilizers Ltd, Belagula

SHRI T. K. LAHIRI

Indian Oil Corporation Ltd, New Delhi

DR L. S. MATHUR

Directorate General of Observatories (Instruments), Ministry
of Transport

DIRECTOR RADIO METEOROLOGY (*Alternate*)

SHRI K. K. PATHAK

Hindustan Gas & Industries Ltd, Calcutta

SHRI PRAKASH NARAIN

National Metallurgical Laboratory (CSIR), Jamshedpur

SHRI RAJENDRANATH

Gannon Dunkerley & Co Ltd, Bombay

SHRI K. RAMANATHAN

The Mettur Chemicals & Industrial Corporation Ltd, Mettur
Dam

SHRI M. PADMANABHAN (*Alternate*)

(*Continued on page 2*)

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
DR H. S. RAMASWAMI	The Industrial Gases Ltd, Kanpur
SHRI B. B. SHETH (<i>Alternate</i>)	
SHRI M. S. RAO	Fertilizer Corporation of India Ltd, Dhanbad
SHRI M. V. KRISHNAMURTHY (<i>Alternate</i>)	
SHRI G. M. SHAH	Tata Chemicals Ltd, Okhamandal
SHRI F. K. JHAVERI (<i>Alternate</i>)	
SHRI T. P. L. SINHA	The Asiatic Oxygen & Acetylene Company Ltd, Calcutta
SHRI M. MITRA (<i>Alternate</i>)	
SHRI G. N. TAGORE	The Indian Oxygen Ltd, Calcutta
SHRI D. S. MADAN (<i>Alternate</i>)	
SHRI M. V. PATANKAR, Director (Mech Engg)	Director General, ISI (<i>Ex-officio Member</i>)

Secretary

SHRI M. G. KRISHNA RAO
Deputy Director (Mech Engg), ISI

High Pressure Gas Cylinders (Including Medical Gas Cylinders)
Subcommittee, EDC 16 : 3

Convener

SHRI T. P. L. SINHA Asiatic Oxygen Ltd, Calcutta

Members

SHRI T. G. BALL	T. I. & M. Sales Ltd, Calcutta
DR G. P. CHATTERJEE	Hindustan Steel Ltd, Rauchi
SHRI G. CODD	Lloyd's Register of Shipping, Bombay
SHRI P. K. A. NARAYANAN (<i>Alternate</i>)	
SHRI K. P. GANGWAL	The Asiatic Oxygen & Acetylene Co Ltd, Calcutta
SHRI M. MITRA (<i>Alternate</i>)	
SHRI L. R. GAUTAM	The DCM Chemical Works, Delhi
SHRI SATPAL (<i>Alternate</i>)	
SHRI P. N. HANDA	Gas Cylinders (India) Ltd, New Delhi
SHRI K. K. KUDVA (<i>Alternate</i>)	
SHRI S. N. LAHIRI	Ministry of Works & Housing (Department of Explosives)
SHRI S. C. ROY (<i>Alternate</i>)	
SHRI D. S. MADAN	Indian Oxygen Ltd, Calcutta
SHRI PRAKASH NARAIN	National Metallurgical Laboratory, Jamshedpur
SHRI RAJENDRANATH	Gannon Dunkerley & Co Ltd, Bombay
SHRI K. RAMANATHAN	The Metturr Chemical & Industrial Corporation Ltd, Metturr Dam
SHRI M. PADMANABHAN (<i>Alternate</i>)	
DR H. S. RAMASWAMY	The Industrial Gases Ltd, Calcutta
SHRI S. L. ROY (<i>Alternate</i>)	
SHRI D. V. VERMA	Ministry of Defence (DGI)
SHRI A. R. DEY (<i>Alternate</i>)	

AMENDMENT NO. 1 JUNE 2012
TO
IS 3933 : 1966 COLOUR IDENTIFICATION OF GAS CYLINDERS
AND RELATED EQUIPMENT INTENDED FOR MEDICAL USE

(Page 4, clause 2.1.1) — Insert the following new clause at the end:

2.1.2 Aluminium Alloy Gas Cylinders — The body of the cylinder shall not be painted in case of Aluminium Alloy Cylinders as shown in Table 2. The identification colours to be applied to the valve end of the cylinder shall extend down the cylinder to the shoulder. In case of mixtures the colours for the gases constituting the mixture shall be applied in four segments, two of each colour (*see* Appendix B).

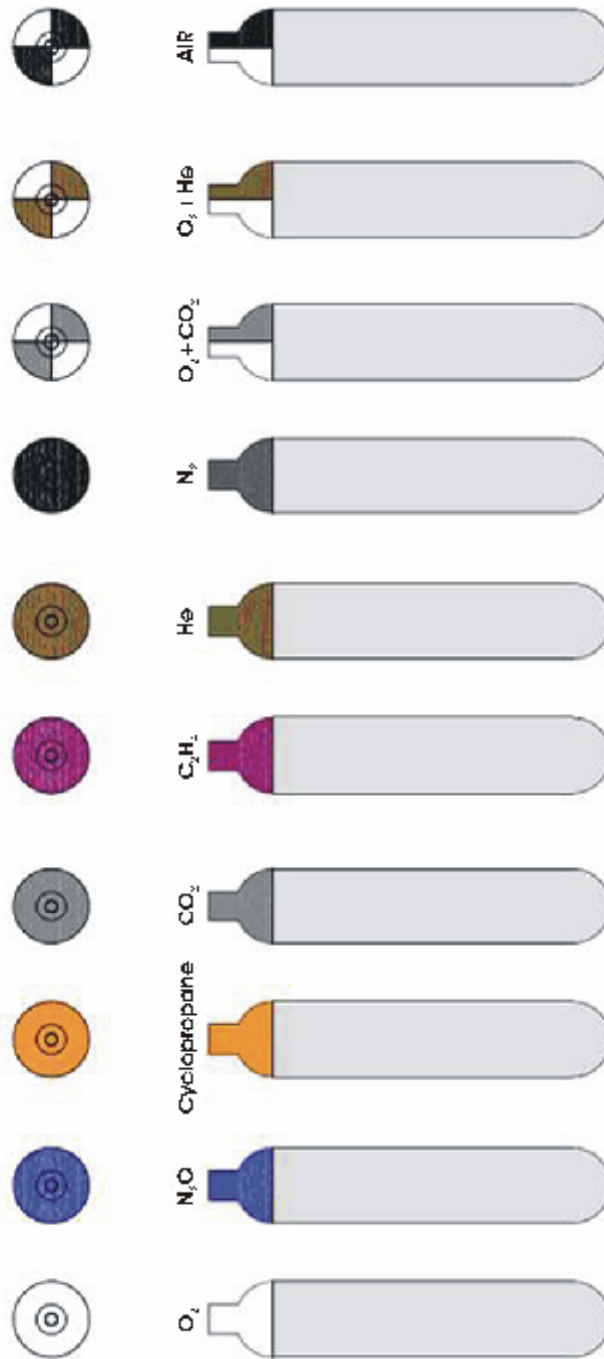
Table 2 Colour Identification of Medical Gas Aluminium Alloy Cylinders
(Clause 2.1.2)

Sl No.	Name of Gas	Symbol	Colour Identification		
			Valve End		Body Colour
			Colour	Shade No. and description according to IS 5 : 2007 ¹⁾	
i)	Air	—	White and black	—	Original Al Cylinder Colour
ii)	Carbon dioxide	CO ₂	Grey	Shade 630, French grey	—
iii)	Cyclopropane	—	Orange	Shade 557, light orange	—
iv)	Ethylene	C ₂ H ₂	Violet	Shade 796, Dark violet	—
v)	Helium	He	Brown	Shade 411, middle brown	—
vi)	Mixture of oxygen and carbon dioxide	O ₂ + CO ₂	White and grey	Shade 630, French grey	—
vii)	Mixture of oxygen and helium	O ₂ +He	White and brown	Shade 411, middle brown	—
viii)	Nitrogen	N ₂	Black	—	—
ix)	Nitrous oxide	N ₂ O	Blue	Shade 166, French blue	—
x)	Oxygen	O ₂	White	—	—

¹⁾ Colours for ready mixed paints and enamels (*sixth revision*).

(Page 6, Appendix A) — Insert the following new Appendix B at the end:

APPENDIX B
(Clause 2.1.2)
COLOUR IDENTIFICATION OF MEDICAL GAS ALUMINIUM ALLOY CYLINDERS



Indian Standard

FOR

COLOUR IDENTIFICATION OF GAS CYLINDERS AND RELATED EQUIPMENT INTENDED FOR MEDICAL USE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 24 November 1966, after the draft finalized by the Gas Cylinders Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Gases of different chemical composition and in various combinations are widely used in the medical profession for the production of anaesthesia and for the treatment of certain pathological conditions. To ensure the administration of these gases in a safe and a satisfactory manner it is essential that proper identification practice is followed. This standard deals with the code of identification of gas cylinders based on various colour combinations for different gases.

0.3 The connecting yoke and flush type non-interchangeable valve connections for use in medical gas cylinders have been covered in IS : 3745-1966*. Also the code of practice for handling gas cylinders and related equipment intended for medical use has been covered in IS : 3870-1966†.

0.4 In the preparation of this standard assistance has been derived from the following:

ISO/R32-1957 Identification of medical gas cylinders. International Organization for Standardization.

Gas cylinder rules — 1940. Government of India.

B.S. 1319 : 1955 Medical gas cylinders and anaesthetic apparatus. British Standards Institution.

*Specification for yoke type valve connections for medical gas cylinders.

†Code of practice for handling gas cylinders and related equipment intended for medical use.

1. SCOPE

1.1 This standard applies to the identification of the contents of gas cylinders intended for medical use.

2. COLOUR MARKING

2.1 Gas Cylinders — Each cylinder shall be painted externally in the colours corresponding to its gaseous contents as shown in Table 1.

2.1.1 The identification colours to be applied to the valve end of the cylinder shall extend down the cylinder to the shoulder. In case of mixtures the colours for the gases constituting the mixture shall be applied in four segments, two of each colour (*see Appendix A*).

TABLE 1 COLOUR IDENTIFICATION OF MEDICAL GAS CYLINDERS

(Clauses 2.1, 2.2 and 3.1)

NAME OF GAS	SYMBOL	COLOUR IDENTIFICATION			
		Valve End		Body	
		Colour	Shade No. and description according to IS : 5-1961*	Colour	Shade No. and description according to IS : 5-1961*
Air	—	White and black	—	Grey	Shade 630, French grey
Carbon dioxide	CO ₂	Grey	Shade 630, French grey	Grey	Shade 630, French grey
Cyclopropane	—	Orange	Shade 557, light orange	Orange	Shade 557, light orange
Ethylene	C ₂ H ₄	Violet	Shade 796, dark violet	Violet	Shade 796, dark violet
Helium	He	Brown	Shade 411, middle brown	Brown	Shade 411, middle brown
Mixture of oxygen and carbon dioxide	O ₂ +CO ₂	White and grey	Shade 630, French grey	Black	—
Mixture of oxygen and helium	O ₂ +He	White and brown	Shade 411, middle brown	Black	—
Nitrogen	N ₂	Black	—	Grey	Shade 630, French grey
Nitrous oxide	N ₂ O	Blue	Shade 166, French blue	Blue	Shade 166, French blue
Oxygen	O ₂	White	—	Black	—

* Colours for ready mixed paints (*second revision*).

2.2 Pipelines and Tubing — The pipelines for distribution of medical gases in hospitals and visible connecting tubing of anaesthetic apparatus

shall be marked with bands at least at each end and at every joint by the colour appropriate for the gases, as shown in Table 1. The first colour band shall correspond to the appropriate colour under valve end colour and the second colour band to the appropriate colour under body colour as indicated in Table 1.

3. MARKING

3.1 Each cylinder shall be marked with the name of the gas it contains and with the chemical formula as shown in Table 1 (except in the case of cyclopropane). The marking shall be at the valve end of the cylinder, and as close to the neck as possible, and not on the cylindrical part of the body and in characters as large as possible but not smaller than 5 mm in height.

3.1.1 The stamps used shall have a concave surface and the indentation shall be neither too sharp nor of excessive depth.

APPENDIX A

(Clause 2.1.1)

COLOUR IDENTIFICATION OF MEDICAL GAS CYLINDERS

