

BLANK PAGE



IS 15793: 2007

भारतीय मानक

पर्यावरण, व्यावसायिक स्वास्थ्य एवं सुरक्षा विधि के अनुपालन का प्रबंधन — उत्तम रीतियों की अपेक्षाएँ

Indian Standard

MANAGING ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY LEGAL COMPLIANCE — REQUIREMENTS OF GOOD PRACTICES

ICS 13.020.10; 13.100

© BIS 2007

BUREAU OF INDIAN STANDARDS MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Occupational Health and Safety and Chemical Hazards Sectional Committee had been approved by the Chemical Division Council.

A Committee under the Chairmanship of Member (Industry), Planning Commission, recommended to put in place a mechanism for third party inspection to allow enterprises an option to get their legal compliance verified by an external organization. Accordingly this standard has been formulated with the aim to develop a system for auditing an organization by an external organization to verify the good practices established for managing compliance for all applicable legislations related to environment, occupational health and safety. This standard will help the regulators and those organizations who have some difficulties in implementing full fledged international/national management system standards (like IS/ISO 14001, IS 18001, etc) for certification. The standard would:

- a) provide an option to the industry for demonstrating compliance with the regulatory requirements related to environment, occupational health and safety by following good practices as prescribed in this standard through verification by an external organization;
- b) serve as a tool for enhancing the effectiveness of the legal compliance; and
- c) promote a system approach.

This standard is not intended to integrate IS/ISO 14001: 2004 'Environment Management System — Requirements with guidance for use (first revision)' and IS 18001: 2007 'Occupational Health and Safety (OHS) Management System — Specification with guidance for use' in totality. This is a subset of IS/ISO 14001 and IS 18001 with focus on legal compliance. At the same time this standard is neither a compilation of all the regulatory requirements related to environment, occupational health and safety nor meant to replace the regulatory requirements. This standard in fact would minimize the pressure on the regulatory agencies.

The standard is applicable to all kinds of organizations irrespective of its complexity as well as hazards associated with it and is voluntary in nature like all other management systems. A system of this kind enables an organization to demonstrate its performance and conformity to the legal requirements. Certifying organization should provide information listing all the legislations as identified by the organization and covered in the certification process.

The composition of the Committee responsible for formulation of this standard is given at Annex E.

Indian Standard

MANAGING ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY LEGAL COMPLIANCE — REQUIREMENTS OF GOOD PRACTICES

1 SCOPE

This standard specifies requirements for good practices that an organization needs to implement to demonstrate compliance with the legal requirements related to environment, occupational health and safety.

It does not itself state specific criteria related to environment, occupational health and safety performance. This standard is applicable to any organization that wishes to:

- assure itself of compliance with the applicable legal requirements related to environment, occupational health and safety;
- b) demonstrate such compliance with others;
- seek certification/registration by an external organization; and
- d) make a self-determination and self-declaration of conformance with this standard.

2 REFERENCES

The standards listed below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No. Title

IS/ISO 14001: Environmental management system
2004 — Requirements with guidance for

use (first revision)

IS/ISO/IEC 17000 : Conformity assessment — Vocabulary

and general principles

18001:2000 Occupational health and safety

(OHS) management systems — Specification with guidance for use

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS/ISO 14001, IS/ISO/IEC 17000 and IS 18001 and the following shall apply.

3.1 Legal Compliance — Conformity with the legal requirements.

3.2 Legal Requirements — Applicable provisions of all statutes (Acts, laws, rules, regulations, ordinances), Codes, or orders of any governmental authority or quasi-governmental authority of any of the same, including, but not limited to, states, departments, commissions, boards, bureaus, agencies, municipalities, and other instruments.

4 REQUIREMENTS

4.1 General Requirements

The organization shall implement and maintain good practices in accordance with the requirements of this standard to ensure that it is complying with the legal requirements. The organization shall list out its all activities and their effect on safety, health and environment.

NOTE — A typical scheme indicating the relationship between scope and activities of an organization is given in Annex A for guidance.

4.2 Legal Requirements

4.2.1 The organization shall establish, implement and maintain a procedure to identify and have access to the applicable legal requirements related to environment, occupational health and safety. The organization shall maintain a register of applicable legal requirements which shall be kept updated.

NOTES

1 A list of the major Indian legal requirements related to environment, occupational health and safety is given in Annex B for guidance.

2 A typical format for maintaining the legal register is shown in Annex C for guidance.

4.3 Roles, Responsibilities and Authorities

The organization shall define, document and communicate the roles, responsibilities and authorities for personnel involved in managing activities related to environment, occupational health and safety legal compliances. The organization shall also define interrelationships for all levels of functionaries and interested parties including subcontractors and visitors for effective management of compliance with legal requirements related to environment, occupational health and safety.

The organization's top management shall appoint from amongst its member a specific Nodal Officer(s), who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for:

- ensuring that various requirements are established, implemented and maintained in accordance with this standard; and
- b) reporting on compliance with legal requirements to top management for review and as a basis for improvement.

The ultimate responsibility for compliance with the legal requirements related to environment, occupational health and safety shall rest with the top management, or as specified in the applicable statute.

4.4 Communication

4.4.1 Internal Communication

The organization shall ensure that appropriate communication processes are established within the organization so that effective communication takes place for the various activities pertaining to management of compliance with legal requirements related to environment, occupational health and safety.

4.4.2 External Communication

The organization shall ensure that appropriate communication processes are established for communicating the relevant information pertaining to compliance with legal requirements related to environment, occupational health and safety to the concerned regulatory authority. The organization shall establish, implement and maintain a procedure(s) for receiving, documenting and responding to communication from external parties pertaining to the legal requirements related to environment, occupational health and safety.

4.5 Resource Management

4.5.1 Provision of Resources

The organization shall determine and provide the resources needed to implement and maintain the good practices for effective management of compliance with legal requirements related to environment, occupational health and safety.

4.5.2 Human Resources

4.5.2.1 General

Personnel performing work affecting compliance with legal requirements related to environment, occupational health and safety, shall be competent on the basis of appropriate education, training, skills and/or experience.

4.5.2.2 Competence, awareness and training

The organization shall:

- a) determine the necessary competence for personnel performing work for it or on its behalf affecting compliance with legal requirements related to environment, occupational health and safety,
- b) provide training or take other actions to satisfy these needs.
- c) evaluate the effectiveness of the actions taken,
- d) ensure that any person(s) performing tasks for it or on its behalf are aware of,
 - the significant hazards, risks and impacts, actual or potential, of their work activities;
 - 2) the importance of conformance with the requirements of this Indian Standard;
 - their roles and responsibilities in achieving conformance with the requirements of this Indian Standard; and
 - 4) the potential consequences of departure from specified procedures.
- e) maintain the associated records.

4.5.3 Infrastructure

The organization shall determine, provide and maintain the infrastructure needed to achieve compliance with legal requirements related to environment, occupational health and safety.

4.5.4 Work Environment

The organization shall determine and maintain the work environment needed to achieve compliance with legal requirements related to environment, occupational health and safety.

4.6 Document and Control of Documents

4.6.1 Documentation

Documentation shall include:

- a) Description of the scope of activity covered by legal requirements related to environment, occupational health and safety; and
- b) Documents, including records, required by this Indian Standard.

NOTES

- 1 Many organizations prefer to have a documented policy on Safety, Health and Environment (SHE).
- 2 Records that may be included among others as needed under the good practices for compliance with the legal requirements related to environment, occupational health and safety are given in Annex D.

4.6.2 Control of Documents

All the documents required by this standard shall be:

- a) approved for adequacy prior to issues;
- b) periodically reviewed, revised as and when necessary and reapproved for adequacy by authorized personnel and the changes made shall be identifiable; and
- legible, dated (with dates of revision, where applicable) and readily identifiable.

NOTE — Control at (c) above applies to both documents and records while (a) and (b) only apply to documents.

4.7 Operational Control

The organization shall define and maintain appropriate controls for its activities relevant to legal requirements in order to ensure compliance with the legal requirements.

4.8 Monitoring and Measurement

4.8.1 The organization shall monitor, measure and regularly evaluate compliance with applicable legal requirements as given in **4.2**. The organization shall keep records of the results of the periodic evaluations.

NOTES

- 1 The operations of an organization may have a variety of characteristics. For example, characteristics related to monitoring and measurement of wastewater discharge may include biological and chemical oxygen demand, temperature and acidity. Monitoring the environment at workplace may include noise level, vibration, illumination, chemical contaminants, toxic vapours, high temperature, etc.
- 2 The organization needs to consider those characteristics which determine how it is managing its good practices for compliance with legal requirements related to environment, occupational health and safety.
- 3 Data collected from monitoring and measurement may be analysed to identify patterns and obtain information. Knowledge gained from this information may be used to implement corrective and preventive action.
- **4.8.2** The organization shall ensure that calibrated or verified monitoring and measurement equipment are used.

NOTE — When necessary to ensure valid results, measuring equipment should be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards. If no such standards exist, the basis used for calibration should be recorded.

4.9 Internal Audit

The organization shall carry out periodic internal audits at scheduled intervals in order to determine whether or not the good practices:

a) conform to planned arrangements including the requirements of this Indian Standard and relevant legal requirements, and b) have been properly implemented and maintained.

The organizations audit programme, including any schedule, shall be based on the importance of the activity concerned and the results of previous audits. In order to be comprehensive, the audit procedures shall cover the audit scope, frequency and methodologies, as well as the responsibilities and requirements of conducting audit and reporting results. Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process. The organization shall maintain the associated records.

NOTE — Normal frequency of internal audit is once in six months. Further, organizations define the competency of the personnel for audit.

4.10 Non-conformity, Correction, Corrective Action and Preventive Action

The organization shall take immediate action to correct the observed non-conformance and then take further action to eliminate causes for any non-conformity and potential causes in order to prevent occurrence and recurrence respectively. Any corrective and preventive action taken to eliminate the causes of actual and potential non-conformances shall be appropriate to the magnitude of problems encountered. Records of action taken and improvements effected shall be maintained. The organization shall report non-compliance with any legal requirement to the concerned regulatory authority as required under the applicable legal requirements.

4.11 Management Review

Top management shall review the organization's practices for compliance with the legal requirements related to environment, occupational health and safety, at planned intervals, to ensure their continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to good practices. Records of the management reviews shall be retained. Input to management reviews shall include:

- a) results of internal audits,
- b) evaluations of compliance with legal requirements applicable to the organization,
- c) communication(s) from external interested parties, including complaints, relating to environment, occupational health and safety matters covered under legal compliance,
- d) status of corrective and preventive actions,
- e) follow-up actions from previous management reviews,
- f) changing circumstances, including developments in legal requirements related to environment, occupational health and safety, and

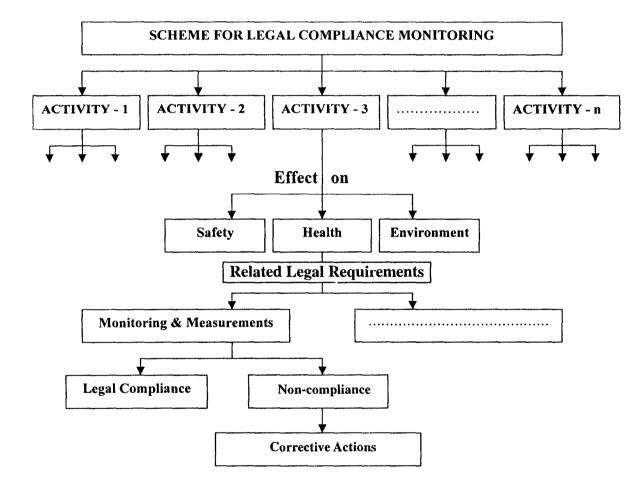
g) recommendations for improvement.

The outputs from management reviews shall include any decisions and actions related to possible changes to the good practices for compliance to legal requirements and where possible continual improvement.

ANNEX A

(Clause 4.1)

LEGAL COMPLIANCE MONITORING RELATED TO ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY



ANNEX B

(Clause 4.2.1)

RELEVANT INDIAN LEGISLATION ON OS&H AND THE ENVIRONMENT (IT IS ONLY ILLUSTRATIVE AND NOT EXHAUSTIVE)

- The Factories Act, 1948 (Amended 1987 & 2001) and the State Factories Rules of respective States
- 2. The Mines Act, 1952 (Amended 1984)
- 3. The Mines Rules, 1955 (Amended 1989)
- 4. The Coal Mines Regulations, 1957
- 5. The Metallic-Ferrous Mines Regulation, 1961
- 6. Mines Vocational Rules, 1966
- 7. The Oil Mines Regulations, 1984 (Amended 1996)
- 8. The Mines Rescue Rules, 1985
- 9. The Dock Workers (Safety, Health and Welfare) Act, 1986
- 10. The Dock Workers (Safety, Health and Welfare) Regulations, 1989
- 11. Building and Other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996
- 12. Building and Other Construction Workers (Regulation of Employment & Conditions of Service) Central Rules, 1998
- 13. The Plantation Labour Act, 1951 & the Rules & Regulations
- 14. The Building and Other Construction Workers' Welfare Cess Act, 1996 and Rules 1998
- 15. Indian Port Act, 1908 and Rules thereunder
- 16. The Shops and Commercial Establishment Acts enacted by respective State Governments
- 17. The Workmen's Compensation Act, 1923 & Rules 1924
- 18. The Maternity Benefit Act, 1961
- 19. The Employees' State Insurance Act & Rules
- 20. The Motor Transport Workers Act, 1961 & Rules, 1964
- 21. The Electricity Act, 2003
- 22. The Indian Electricity Rules, 1956
- 23. The Indian Boilers Act, 1923 (Amended 1960)
- 24. The Indian Boilers Regulations, 1950 (Amended 1997)
- 25. Boilers Rules of various States
- 26. The Dangerous Machines (Regulation) Act, 1983
- 27. The Fatal Accidents Act, 1855
- 28. The Explosives Act, 1884 (Amended 1983)

- 29. The Explosives Rules, 1983 (Amended 2002)
- 30. The Gas Cylinders Rules, 2004
- 31. The Static and Mobile Pressure Vessels (Unfired) Rules, 1981 (Amended 2002)
- 32. The Petroleum Act, 1934
- 33. The Petroleum Rules, 2002
- 34. The Calcium Carbide Rules, 1987
- 35. The Insecticides Act, 1968 & Rules, 1971
- 36. The Poison's Act, 1919 & Rules, 1972
- 37. The Environment (Protection) Act, 1986 (Amended 1991)
- 38. The Environment Protection Rules, 1986 (Amended 2006)
- 39. The Hazardous Wastes (Management and Handling) Rules, 1989 (Amended 2003)
- 40. The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (Amended 1994/2000)
- 41. The Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms, Genetically Engineered Micro-organisms or Cells Rules. 1989
- 42. Environmental (Protection) Rules-"Environmental Statement" 1992/1993
- 43. Environmental (Protection) Rules-"Environmental Standards" 1993
- 44. Environmental (Protection) Rules-"Environmental Clearance" 1994
- 45. Environment (Protection) Rules-"Environmental Standards" 1996
- 46. Prohibition on the Handling of Azodyes, 1997
- 47. Amendments in the Environment (Protection) Rules, 1994 — "Public Hearing", 1997
- 48. The Environment (Protection) Rules Coal Beneficiation, 1997
- 49. Environment (Protection) Second Amendment Rules — "Environmental Standards" 1999
- 50. The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
- 51. Major Accidents Hazard Control Rules, 1997
- 52. The Bio-medical Waste (Management and Handling) Rules, 1998
- 53. The Noise (Regulation and Control) Rules, 2000

- 54. The Ozone Depleting Substance (Regulation and Control) Rules, 2000
- 55. Battery Management and Handling Rules, 2001
- 56. The Public Liability Insurance Act, 1991 & Rules, 1991
- 57. The National Environment Tribunal Act, 1995
- 58. National Environmental Appellate Authority Act, 1998

- 59. The Water (Prevention and Control of Pollution) Act, 1974 & Rules, 1975
- 60. The Water (Prevention and Control of Pollution) Cess Act, 1977 & Rules, 1978
- 61. The Air (Prevention and Control of Pollution) Act, 1981 & Rules, 1982/1983
- 62. Drugs & Cosmetics Acts & Rules, 1995
- 63. Motor Vehicles Act, 1988
- 64. Motor Vehicles (Central) Rules, 1989

ANNEX C

(*Clause* 4.2.1)

TYPICAL FORMAT OF LEGAL REGISTER

SI No.	Products, Processes or Services	Legislation on OHS	Date of Effect	Validity Date From To	Reference of Applicable Chapter/ Sec./Rule	Person Responsible for Compliance Monitoring	Frequency of Reporting	Reference to Procedures and Control	Record to be Submitted to External Agency
									<u> </u>
			;						
									
									
				1	· · · · · · · · · · · · · · · · · · ·				

ANNEX D

(Clause 4.6.1)

TYPICAL RECORD OF GOOD PRACTICES RELATED TO ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY

- D-1 Records under the good practices for compliance with the legal requirements related to environment, occupational health and safety can include, among others:
 - 1. Safety organization chart
 - 2. Training records
 - 3. Record of plant safety inspections
 - 4. Accident investigation reports
 - 5. Accidents and dangerous occurrencesstatistics and analysis
 - 6. Record of tests and examinations of equipment and structures as per statutes
 - 7. Safe operating procedures for various operations
 - 8. Record of work permits
 - 9. Record of monitoring of flammable and explosives substances at workplace
 - 10. Maintenance and testing records of fire detection and fire-fighting equipment
 - 11. Medical records of employees
 - 12. Material safety data sheets
 - 13. On-site emergency plans and record of mock drills

- 14. Records of waste disposal
- 15. Housekeeping inspection records
- 16. Minutes of safety committee meetings
- 17. Records of any modifications carried out in plant or process
- 18. Calibration and testing records
- 19. Inspection books and other statutory records
- 20. Records of previous audits
- 21. Complaint records
- 22. Process monitoring records
- 23. Pertinent contractor and supplier records
- 24. Management review results
- 25. External communications
- 26. Records of applicable legal requirements
- 27. Statutory licenses, consents and approvals
- 28. Legal compliance records
- 29. Communications with interested parties
- 30. Water consumption record
- 31. Tree plantation record
- 32. Environmental statement
- 33. Records of ambient air quality and stack monitoring
- 34. Environment management plan

ANNEX E

(Foreword)

COMMITTEE COMPOSITION

Occupational Health and Safety and Chemical Hazards Sectional Committee, CHD 8

Organization

National Safety Council, Navi Mumbai

Airport Authority of India, New Delhi

Alkali Manufacturers' Association of India, Delhi

Atomic Energy Regulatory Board, Mumbai

Bhabha Atomic Research Centre, Mumbai

Central Boiler Board, New Delhi

Central Leather Research Institute, Chennai

Central Mining Research Institute, Dhanbad

Central Warehousing Corporation, New Delhi

Representative(s)

SHRI K. C. GUPTA (Chairman)

SHRI A. N. KHERA

SHRI M. DURAIRAJAN (Alternate)

DR Y. R. SINGH

SHRI P. K. GHOSH

SHRI S. SOUNDARARAJAN

SHRI S. D. BHARAMBE (Alternate)

REPRESENTATIVE

SHRI G. SWAMINATHAN

SHRI J. K. PANDEY

SHRI F. C. CHADDA

SHRI S. C. GUPTA (Alternate)

Organization

Century Rayon, Thane

Confederation of Indian Industries, New Delhi

Consumer Education & Research Centre, Ahmedabad

Department of Industrial Policy and Promotion, New Delhi

Department of Space (ISRO), Sriharikota

Directorate General Factory Advice Service and Labour Institute, Mumbai

Directorate General of Health Services, New Delhi

Directorate General of Mines Safety, Dhanbad

Directorate of Industrial Safety and Health, Mumbai

Directorate of Standardization, Ministry of Defence, New Delhi

Employees State Insurance Corporation, New Delhi

Hindustan Aeronautics Limited, Bangalore

Hindustan Lever Limited, Mumbai

Indian Association of Occupational Health, Bangalore

Indian Chemical Manufacturers Association, Mumbai

Indian Institute of Chemical Technology, Hyderabad

Indian Institute of Safety and Environment, Chennai

Indian Petrochemical Corporation Ltd, Vadodara

Indian Toxicological Research Centre, Lucknow

Ministry of Defence (DGQA), New Delhi

Ministry of Defence (R&D), Kanpur

Ministry of Environment & Forests, New Delhi

Ministry of Home Affairs, New Delhi

National Institute of Occupational Health, Ahmedabad

National Safety Council, Navi Mumbai

NOCIL, Mumbai

Office of the Development Commissioner (SSI), New Delhi

Oil Industry Safety Directorate (Ministry of Petroleum & Natural Gas), Delhi

Ordnance Factory Board, Kolkata

Petroleum & Explosives Safety Organization, Nagpur

Representative(s)

SHRI H. G. UTTAMCHANDANI
SHRI S. K. MISHRA (Alternate)

SHRI A. K. GHOSE
SHRI ANIK AJMERA (Alternate)

DR C. J. SHISHOO SHRI S. YELLORE (Alternate)

DR D. R. CHAWLA

SHRI K. VISHWANATHAN
SHRI V. K. SRIVASTAVA (Alternate)

Dr A. K. Majumdar Shri H. Vishwanathan (Alternate)

Dr P. H. Anathanarayanan Dr A. N. Sinha (Alternate)

DIRECTOR OF MINES (MSE)

DEPUTY DIRECTOR OF MINES SAFETY (HQ) (Alternate)

SHRI S. D. JAGTAP

Shri P. S. Ahuja

LT-COL TEJINDER SINGH (Alternate)

Dr A. M. PATIL

DR G. N. BANKAPUR (Alternate)

SHRI S. V. SURESH

SHRI B. B. DAVE

SHRI ADITYA JHAVAR (Alternate)

REPRESENTATIVE

SHRI PRAKASH WAGLE

SHRI A. A. PANJWANI (Alternate)

SHRI K. V. RAMANAYYA

Dr M. Rajendran

Dr G. Venkatarathnam (Alternate)

SHRI P. VIJAYRAGHAVAN

SHRI M. R. PATEL (Alternate)

Dr Virendra Mishra

Dr V. P. Sharma (Alternate)

Shri M. S. Sultania

SHRI SUJIT GHOSH (Alternate)

DR A. K. SAXENA

Dr Rajindra Singh (Alternate)

REPRESENTATIVE

Shri Om Prakash

SHRI D. K. SHAMI (Alternate)

Dr H. R. Rajmohan

Dr A. K. Mukherjee (Alternate)

SHRI P. M. RAO

SHRI D. BISWAS (Alternate)

Dr B. V. Bapat

SHRI V. R. NARLA (Alternate)

Shri Mathura Prasad

SHRIMATI SUNITA KUMAR (Alternate)

Shri Shashi Vardhan

SHRI S. C. GUPTA (Alternate)

DR D. S. S. GANGULY

SHRI R. SRINIVASAN (Alternate)

JOINT CHIEF CONTROLLER OF EXPLOSISE

Organization

Safety Appliances Manufacturers Association, Mumbai

SIEL Chemical Complex, New Delhi

Southern Petrochemical Industries Corporation Ltd, Chennai

Steel Authority of India Ltd, Ranchi

Tata AIG Risk Management Services Ltd, Mumbai

Tata Chemicals Ltd, Mithapur, Dist Jamnagar

BIS Directorate General

Representative(s)

SHRI M. KANT

SHRI KIRIT MARU (Alternate)

SHRI N. S. BIRDIE

SHRI RABINDRA NATH SAHU (Alternate)

SHRI V. JAYARAMAN

SHRI S. MURUGANANDAM (Alternate)

SHRI V. K. JAIN

SHRI URMISH D. SHAH

SHRI SANJIV LAL

SHRI M. C. AGRAWAL (Alternate)

SHRI E. DEVENDAR, Scientist 'F' & Head (CHD) [Representing Director General (Ex-officio)]

Member Secretary
SHRI N. K. PAL
Scientist 'E' (CHD), BIS

Panel for Development of Integrated SHE Standard, CHD 8: P1

National Safety Council, Navi Mumbai

Association of Certification Bodies in India, Mumbai

ASSOCHAM, New Delhi

Bureau of Indian Standards, New Delhi Central Pollution Control Board, Delhi

Confederation of Indian Industry, New Delhi

Directorate General Factory Advice Service & Labour Institute,

Federation of Indian Chambers of Commerce & Industry, New Delhi

Federation of Indian Micro and Small & Medium Enterprises, New Delhi

Ministry of Environment & Forests, New Delhi

Ministry of Labour, New Delhi

Petroleum and Explosives Safety Organization, Nagpur

Quality Council of India, New Delhi

SHRI P. M. RAO (Convener)

SHRI PRODIPTO BASU ROY

SHRI MANU MAUDGAL (Alternate)

REPRESENTATIVE

SHRI N. K. PAL

DR B. SENGUPTA

DR M. Q. ANSARI (Alternate)

SHRI D. E. BYRAMJEE

SHRI SHIKHAR JAIN (Alternate)

Dr A. K. Majumdar

SHRI H. VISHWANATHAN (Alternate)

SHRI S. C. ARORA

Shri Neeraj Kedia

SHRI ANIL BHARDWAJ (Alternate)

DR JAG RAM

Dr A. K. Majumdar

SHRI H. VISHWANATHAN (Alternate)

SHRI D. K. GUPTA

SHRI B. VENKATARAMAN

SHRI ANIL JAUHRI (Alternate)

Bureau of Indian Standards

BIS is a statutory institution established under the Bureau of Indian Standards Act, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. CHD 8 (1541).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected
	BUREAU OF INDIAN STANDARDS	
Headquarters:		
Manak Bhavan, 9 Bahadur Shah Telephones: 2323 0131, 2323 33	Telegrams: Manaksanstha (Common to all offices)	
Regional Offices:		Telephone
Central : Manak Bhavan, 9 E NEW DELHI 110 (Bahadur Shah Zafar Marg 2002	$ \begin{cases} 2323 & 7617 \\ 2323 & 3841 \end{cases} $
Eastern : 1/14 C.I.T. Scheme KOLKATA 700 05-	VII M, V. I. P. Road, Kankurgachi	$\begin{cases} 2337 8499, 2337 8561 \\ 2337 8626, 2337 9120 \end{cases}$
Northern : SCO 335-336, Sect	or 34-A, CHANDIGARH 160 022	$ \begin{cases} 260 & 3843 \\ 260 & 9285 \end{cases} $
Southern : C.I.T. Campus, IV	Cross Road, CHENNAI 600 113	{ 2254 1216, 2254 1442
Western : Manakalaya, E9 M MUMBAI 400 093	IDC, Marol, Andheri (East)	$\begin{cases} 2832\ 9295,\ 2832\ 7858 \\ 2832\ 7891,\ 2832\ 7892 \end{cases}$
Branches: AHMEDABAD. B.	ANGALORE. BHOPAL. BHUBANESHWA	AR. COIMBATORE. FARIDABAD.

GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.