भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

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व्यापक परिचालन मसौदा

हमारा संदर्भ : सीईडी 36/टी-08 **27 फरवरी 2024**

तकनीकी समिति: अग्नि सुरक्षा विषय समिति, सीईडी 36

प्राप्तकर्ता :

1. **सिविल अभियांत्रिकी विभाग परिषद, सीईडीसी के सभी सदस्य**
2. **अग्नि सुरक्षा विषय समिति, सीईडी 36**
3. **रुचि रखने वाले अन्य निकाय।**

महोदय/ महोदया,

निम्नलिखित मानक का मसौदा संलग्न हैं:

प्रलेख संख्या	शीर्षक
सीईडी 36(24966)WC	**औद्योगिक इमारतों की अग्नि सुरक्षा — विस्कॉस रेयॉन धागा और/या स्टेपल फाइबर फ़ैक्टरियाँ — रीति संहिता** (*आईएस 3058 का दूसरा पुनरीक्षण*) (आईसीएस: 13.220.01, 59.060.01)

कृपया इस मसौदे का अवलोकन करें और अपनी सम्मतियाँ यह बताते हुए भेजे कि यह मसौदा प्रकाशित हो तो इन पर अमल करने में आपको व्यवसाय अथवा कारोबार में क्या कठिनाइयां आ सकती हैं।

सम्मतियाँ भेजने की अंतिम तिथि: 31 मार्च 2024

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई-मेल द्वारा **ced36@bis.gov.in** पर या उपरलिखित पते पर, संलग्न फोर्मेट में भेजें। सम्मतियाँ बीआईएस ई-गवर्नेंस पोर्टल, **www.manakonline.in** के माध्यम से ऑनलाइन भी भेजी जा सकती हैं।

यदि कोई सम्मति प्राप्त नहीं होती है अथवा सम्मति में केवल भाषा संबंधी त्रुटि हुई तो उपरोक्त प्रालेख को यथावत अंतिम रूप दे दिया जाएगा। यदि सम्मति तकनीकी प्रकृति की हुई तो विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रालेख को अंतिम रूप दे दिया जाएगा।

यह प्रालेख भारतीय मानक ब्यूरो की वैबसाइट **www.bis.gov.in** पर भी उपलब्ध हैं।

धन्यवाद।

भवदीय
ह/-

द्वैपायन भद्र
वैज्ञानिक ई एवं प्रमुख
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संलग्न: उपरलिखित

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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WIDE CIRCULATION DRAFT

Our Reference: CED 36/T-08 **27 February 2024**

TECHNICAL COMMITTEE: FIRE SAFETY SECTIONAL COMMITTEE, CED 36

ADDRESSED TO:

1. All Members of Civil Engineering Division Council, CEDC
2. All Members of Fire Safety Sectional Committee, CED 36
3. All others interested.

Dear Sir/ Madam,

Please find enclosed the following draft:

Doc No.	Title
CED 36(24966)WC	**Fire Safety of Industrial Buildings — Viscose Rayon Yarn and/ or Staple Fibre Factories — Code of Practice** (*Second Revision of IS 3058*) (ICS: 13.220.01, 59.060.01)

Kindly examine the attached draft and forward your views stating any difficulties which you are likely to experience in your business or profession if this is finally adopted as National Standard.

Last Date for Comments: 31 March 2024

Comments if any, may please be made in the enclosed format and emailed at **ced36@bis.gov.in** or sent at the above address. Additionally, comments may be sent online through the BIS e-governance portal, **www.manakonline.in**.

In case no comments are received, or comments received are of editorial nature, kindly permit us to presume your approval for the above document as finalized. However, in case comments, technical in nature are received, then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website **www.bis.giv.in**.

Thanking you,

Yours faithfully,

Sd/-

Dwaipayan Bhadra
Scientist 'E' & Head
Civil Engineering Department
Email: ced36@bis.gov.in
Phone: +91-11 2323 5529

Encl: As above

FORMAT FOR SENDING COMMENTS ON THE DOCUMENT

[Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/ table/figure, etc, be stated on a fresh row. Information/comments should include reasons for comments, technical references, and suggestions for modified wordings of the clause. **Comments through e-mail to ced36@bis.gov.in shall be appreciated**.]

Doc. No.: CED 36(24966)WC **BIS Letter Ref**: CED 36/T-08

Title: Fire Safety of Industrial Buildings — Viscose Rayon Yarn and/ or Staple Fibre Factories — Code of Practice (*Second Revision of IS 3058*) (ICS: 13.220.01, 59.060.01)

Last date of comments: **31 March 2024**

Name of the Commentator/ Organization: _____

Clause/ Para/ Table/ Figure No. commented	Type of Comment (Technical/ Editorial/ General)	Comments/Modified Wordings	Justification of Proposed Change

NOTE- Kindly insert more rows as necessary for each clause/table, etc.

BUREAU OF INDIAN STANDARDS

DRAFT INDIAN STANDARD FOR COMMENTS ONLY

(*Not to be reproduced without the permission of BIS or used as a Standard*)

Draft Indian Standard

FIRE SAFETY OF INDUSTRIAL BUILDINGS — VISCOSE RAYON YARN AND/OR STAPLE FIBRE FACTORIES — CODE OF PRACTICE

(*Second Revision of IS 3058*)

(*ICS: 13.220.01, 59.060.01*)

Fire Safety Sectional Committee, CED 36	**Last Date for Comments: 31 March 2024**

FOREWORD

(Formal clauses shall be added later)

In the entire process of rayon yarn or staple fibre manufacturing the greatest hazard lies in the handling of carbon disulphide which is one of the most dangerous of the common flammable liquids because of its low auto-ignition temperature and flash point, wide explosive range, and high volatility. The chances of outbreak of fire in a staple fibre plant are also very high in the processes connected with treatment of the staple fibre, that is, processes subsequent to the extrusion of the fibre.

The other locations where fires are likely to occur are the polymerization sections, drier rooms, yarn packaging rooms, warehouses, and open storage areas. Chances of fires in these locations can be considerably reduced or even eliminated if precautions and safety measures mentioned in this Indian Standard are followed. This Indian Standard was first published in 1965 and subsequently revised in 1990. In this second revision the provision for fire fighting arrangements have updated as per the latest practices.

Provisions of this standard are supplementary to the relevant statutory requirements as laid down in Indian Factory Act, Petroleum Rules, Gas Cylinder Rules, etc.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value observed of calculated, expressing the result of the test, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Draft Indian Standard

FIRE SAFETY OF INDUSTRIAL BUILDINGS — VISCOSE RAYON YARN AND/OR STAPLE FIBRE FACTORIES — CODE OF PRACTICE

(*Second Revision of IS 3058*)

1 SCOPE

This standard covers the essential requirements for fire safety of factories manufacturing viscose rayon yarn or staple fibre or both.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this standard, 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 in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 8757 and the following shall apply:

3.1 After Treatment Section — The section where washing, de-sulphurising, bleaching, and soaping of yarn or staple fibre is carried on.

3.2 Alkali Cellulose — The cellulose which has been treated with caustic soda solution, after disintegrating (shredding) in the manufacture of viscose rayon yarn and, staple fibre.

3.3 Auxiliary Plants — The plants which comprise carbon disulphide manufacturing plant, boiler house, water works and effluent treatment plant.

3.4 Churn Room (Xanthation Area) — The place where the orange-coloured soft sticky mass known as xanthate is obtained by mixing carbon disulphide with alkali cellulose crumbs in rotating drums known as churns.

3.5 Drier — The equipment to dry wet viscose rayon yarn and staple fibre under controlled temperature and humidity.

3.6 Finished Carbon Disulphide Plant — A process room in the carbon disulphide plant where crude carbon disulphide is purified by washing and distillation.

3.7 Main Plant — The plant for manufacturing viscose rayon yarn and staple fibre from rayon grade wood pulp or cotton linters pulp. It covers sections for viscose making, spinning of viscose filament yarn or staple fibre, after treatment, drying, winding, and packaging.

3.8 Regeneration — Conversion of the soluble chemical compound, purified

cellulose, into almost pure cellulose in the form of filaments.

3.9 Services Building — Engineering workshops attached to the chemical processing plants for maintenance purposes (mechanical workshop, electrical workshop, automobile workshop, power truck maintenance shop, air conditioning plant, carpentry workshop, etc).

3.10 Spinning Recovery — A unit in the viscose rayon and staple fibre manufacturing process, attached to spinning section used for concentrating the spent spinning acid and recovering sodium sulphate as a bye product. This also covers purification and processing of sodium sulphate to make a marketable anhydrous product.

3.11 Staple Fibre — Rayon fibres of spinnable length manufactured directly or by cutting continuous filaments. It does not include rayon waste.

3.12 Viscose Rayon — Filaments of regenerated cellulose from a solution of cellulose xanthate.

4 LOCATION

4.1 The viscose rayon factories shall be located in their own compound which shall be very spacious (*see* **5.1**).

4.2 The exact location of the plant shall be governed by various aspects, but it shall be preferably in mofussil districts outside the limit of municipal areas and in close proximity of an abundant source of perennial water supply, such as a river, etc.

4.3 The problems of effluent disposal also govern to a large extent the location of a rayon plant.

5 COMPOUNDS

5.1 The compound shall be of sufficient areas to house main plant, service buildings and auxiliary plants at distances not less than those stipulated hereinafter, leaving sufficient open space for storage of charcoal, coal, and sulphur and also for future expansion of the plant.

5.2 In no case shall be built-up plinth area, allowing for all future expansions, exceed half of the area of the compound.

5.3 PUCCA roadways not less than 6 m in width shall be constructed within the compound to facilitate the passage of fire engines.

5.4 The main gate for entry to or exit from the factory compound shall be such that clear width and head room of at least 4.5 m are available. At least one additional gate of similar dimensions shall also be provided for use in the event of the main gate getting blocked during an emergency.

6 STORAGE ARRANGEMENTS

6.1 General

6.1.1 Storage of material in general shall comply with the provision of IS 3594.

6.1.2 Mixed storage, particularly of hazardous chemicals shall be in a separate shed located away from surrounding structures at distance specified in **9.4**.

6.2 Coal Storage

Coal shall be stored in the open in an area cleaned of all vegetable growth and foreign matters such as leaves, weeds, rags, wastes, etc. The storage area shall preferably have a hard base of brick or concrete.

6.3 Sulphur Storage in the Open

The storage of sulphur shall be in accordance with the IS 13911.

6.4 Carbon Disulphide Storage

The storage of carbon disulphide shall be in accordance with the IS 5685.

6.5 Fuel Oil Storage

Fuel oil storage shall be in accordance with the provisions of IS 12056 and IS 3594.

7 CONSTRUCTION

7.1 The constructional features of all buildings within the compound shall comply with the requirements of IS 1642.

7.2 The buildings housing the xanthation areas or churn room shall be of Type 1 as specified in IS 1642.

7.3 Building housing the main plant where the process of rayon yarn and/or staple fibre manufacture is carried on shall be of not less than Type 2 as specified in IS 1642.

7.4 Buildings used as warehouses shall be of Type 1 as specified in IS 1642.

7.5 The spinning recovery area auxiliary service buildings shall be of not less than Type 3 as specified in IS 1642.

7.6 Adequate venting arrangements shall be provided for the working and storage blocks to minimize smoke logging during a fire. For mechanical venting IS 941 may be referred.

7.7 The entire building shall preferably be protected by automatic sprinkler system. The plinth area of any single building (without compartmentation) shall not exceed 10 000 m^2. In case of non-sprinkled buildings/compartments, plinth area shall not exceed 5 000 m^2. However, in no case, any point in the building or compartment shall be at a distance of more than 30 m from a fire hydrant. Where this distance exceeds,

an internal hydrant system shall be provided.

8 SEPARATING WALLS

8.1 The building or portion of building housing the xanthation areas (churn room) shall be segregated from all adjoining blocks by separating walls complying with IS 1642.

8.2 Separating walls shall be provided between viscose section, spinning section, after-treatment section, packaging section and warehouses.

8.3 Boiler houses and transformer houses shall have similar separating walls if they adjoin the rayon yarn or staple fibre manufacturing plant.

9 DISTANCES

9.1 A minimum distance of 75 m shall be maintained between the main plant and carbon disulphide and sulphuric acid plants.

9.2 A minimum distance of 30 m shall be maintained between the carbon disulphide plant and sulphuric acid plant.

9.3 Coal storage areas shall be located at a distance of not less than 30 m from all other storage areas or from surrounding structures except boiler house from which it shall be at a distance of not less than 15 m.

9.4 Sulphur storage areas shall be similarly located at distance of not less than 30 m from all other storage areas or from surrounding structures except carbon disulphide and sulphuric acid plants from which it shall be at a distance of not less than 15 m.

9.5 Warehouses for storage of extra hazardous chemicals shall be located not less than 15 m away from all surrounding structures.

9.6 Boiler houses, fire pump rooms and transformer houses shall be located at a distance of 15 m from all surrounding blocks.

10 MACHINERY

10.1 Main Plant

10.1.1 *Xanthation Area*

10.1.1.1 Explosion venting shall be provided as per the provisions of SP 7 (Part 4).

10.1.1.2 Vacuum exhausting systems shall be provided in the churns from removing excess and unreacted carbon disulphide and care shall be taken to see before unloading xanthate from the churn that the same is at a pressure lower than the room pressure.

10.1.1.3 The pipe conveying carbon disulphide shall be adequately lagged, care being taken to *see* that flange joints are not left unlagged.

10.1.1.4 Carbon disulphide shall be conveyed by means of pipes as described in **10.1.1.3** and shall be fed into the churn from a metering equipment by water

displacement method, the metering equipment being preferably located inside the churn room.

10.1.1.5 Carbon disulphide in excess of the quantity held in metering tanks and conveying pipes shall be strictly prohibited in the main plant. For this purpose, pumps of canned type shall be used.

10.1.1.6 Suitable arrangements for leakage detections shall be provided in the pipe carrying carbon disulphide to the metering tanks. All joints in such pipes shall be protected by steam lances.

10.1.1.7 The drains in the metering equipment shall be of the closed type and adequate traps shall be provided in the drains for trapping carbon disulphide carried over in the water.

10.1.2 Transformers if installed in working blocks shall be of the non-flammable liquid filled or dry type.

10.1.3 The spacing of spinning frames shall be such as to provide a clear distance of at least 3 m between rows of frames (that is, between the ends of any two frames) and also between the frames and the walls. The working space between two frames shall be not less than 1.5 m.

10.1.4 *Yarn or Staple Fibre Driers*

10.1.4.1 A clear space of 3 m shall be provided between any two driers or between a drier and any other equipment or a wall.

10.1.4.2 All driers shall be provided with automatic control to cut off the steam or electric supply at a pre-determined temperature.

10.2 Boiler Plants

10.2.1 *The Coal-Fired Installations* — Coal fired installations shall comply with the provisions of IS 3034.

10.2.2 *The Oil-Fired Installations* — Oil fired installations shall also comply with the provisions of IS 3034.

10.3 Carbon Disulphide Plant

The machinery of the carbon disulphide plant shall comply with the IS 5685.

10.4 Sulphuric Acid Plant

The machinery of the sulphuric acid plant shall comply with the IS 4262.

11 ELECTRICAL INSTALLATION

11.1 The electrical installation shall be in accordance with IS 1646.

11.2 All electrical equipment in the xanthation area and carbon disulphide plant shall be of the flame-proof type.

11.3 Vapour-proof lighting fittings shall be installed in all areas where corrosive gases are evolved during the process.

11.4 All electrical current-carrying parts, contacts, and hardware liable to corrosion shall be preferably cadmium plated or suitably protected against corrosion and cables shall be laid according to IS 12459.

11.5 Maintenance of Equipment

11.5.1 All motors shall be maintained and checked at regular intervals.

11.5.2 The bearings shall be checked and overhauled every year.

11.5.3 All switchgear contacts shall be thoroughly checked at regular intervals as recommended by manufacturers.

11.5.4 The overhauling and checking all flameproof electrical equipment shall be carried out in consultation with the manufacturers or their representatives and put into use only after suitable test.

11.5.5 Electric wiring shall be periodically inspected.

12 ILLUMINATION

12.1 For effective fire fighting purposes the minimum illumination required for the various blocks of the factory shall be as follows:

a) Warehouses — 100 LUX
b) Rayon plant — 100 LUX
c) Carbon disulphide and sulphuric acid plants — 100 LUX
d) Open compound under use — 50 LUX

12.2 There shall be provision of emergency lightings of adequate capacity. [*see* SP 7 (Part 4)]

13 FIRE FIGHTING ARRANGEMENTS

13.1 Fire and Gas Detection System

Hydrocarbon, toxic gas detectors, fire and smoke detectors shall be installed as per IS 2189 in all process and non-process areas based on the identified risks.

13.2 Fire Water Storage and Pumping

13.2.1 Reservoir capacity shall be sufficient for minimum 2 h aggregate pumping capacity of main pumps (excluding standby pumps). Storage reservoir shall be in two equal interconnected compartments to facilitate cleaning and repairs. In case of aboveground steel tanks there shall be minimum two tanks each having 50 percent of required capacity.

13.2.2 The capacity of fire-water pumps shall be in accordance with IS 13039.

13.2.3 The fire water pumps shall be centrifugal type or vertical turbine submersible type. Fire-water pumps shall be of such a capacity that it will continue to supply water for fire fighting at the rated capacity without any interruption at a minimum pressure of 5.25 kg/cm^2 even to the farthest point,

13.2.4 All pumps shall be identical with respect to capacity and head characteristics.

13.2.5 Each pump shall be capable of discharging 150 percent of its rated capacity at a minimum of 65 percent of the rated head.

13.2.6 Storage reservoir shall be in two equal interconnected compartments to facilitate cleaning and repairs. In case of aboveground steel tanks there shall be minimum two tanks each having 50 percent of required capacity.

13.2.7 The minimum number of standby fire water pumps shall be as follows:

a) In case total number working pumps are up to 2, standby pumps shall be at least one.
b) In case number of working pumps are between 3 to 4 , the number of standby pumps shall be at least 2.
c) for more than 4 working pumps, number of standby pumps shall be suitably added based on reliability study.

Minimum 50 percent pumps shall be diesel engine pumps.

13.2.8 *Jockey Pumps*

The fire water network shall be kept pressurized at minimum 7.0 kg/cm^2 at hydraulically remotest point by jockey pumps. Two jockey pumps (one working plus one standby) shall be provided. The capacity of the pump shall be sufficient to maintain system pressure in the event of leakages from network.

13.2.9 Fire-water mains shall be designed of sufficient size not less than 120 percent of fire water demand with velocity not exceeding 5 m/s. Mains shall be designed to deliver rated fire water pumping capacity to the main process area at a residual pressure of 5.25 kg/cm^2. Fire mains shall be a minimum of 150 mm in diameter.

13.2.10 All fire mains within the plant battery limit shall be underground. However, in exceptional cases it would be permissible to lay such portions of the main above ground which are at least 15 m away from plant battery limit or hazardous equipment.

13.3 The selection, installation, and maintenance of fire extinguishers shall be in accordance with IS 2190.

13.4 A hydrant service shall be designed and laid in accordance with IS 3844 and IS 13039.

13.4.1 The requirement of water monitors shall be established based on hazard involved and layout considerations. Especially elevated structures shall be protected by monitors where it is difficult to reach by handlines. Monitors shall be located to

direct water on the object as well as to provide water shield to firemen approaching a fire. The monitors shall not be installed less than 15 m from hazardous equipment. Also, the location of water monitors shall not exceed 30 m from the hazard to be protected.

13.5 Sprinkler installation shall preferably be installed to protect the rayon plant and the warehouses etc based on the risk involved. Design and installation of fixed automatic sprinkler fire extinguishing systems shall be done in accordance with IS 15105.

13.6 In the absence of a sprinkler installation, driers shall be provided with automatic water spray nozzles capable of opening at a predetermined temperature.

13.7 The procedure to be followed in the event of a fire by the operators working in the plant and those comprising the fire fighting squad shall be strictly laid down and observed.

13.8 Spray or fog type nozzles shall be provided near the hydrants protecting carbon disulphide plants, sulphur and oil storage areas and extra hazardous chemicals warehouses.

13.9 Additional large capacity fire extinguishers of dry powder type (*see* IS 16018) shall be provided in the areas where chances of outbreak of fire are high.

14 GENERAL SAFETY HOUSE KEEPING PROVISIONS AND HOUSE KEEPING

14.1 General

14.1.1 Open fires and naked lights in any working or storage building or within 15 m of sulphur, be charcoal and coal storage areas shall be prohibited.

14.1.2 The use of welding sets and blow lamps inside working or storage blocks shall be carried out in the presence of the fire or safety officer and after all precautions are taken.

14.1.3 Carbon disulphide and hydrogen sulphide evolved in the regeneration process shall be designed exhausted through exhaust system designed according to machinery manufacturer's specification.

14.1.4 Self-closing waste bins shall be provided near machinery and all oily waste shall be kept in them until removed from the premises.

14.1.5 Smoking shall preferably be prohibited throughout the compound of the factory. However, where so desired, smoking may be permitted in specified areas provided such areas are separated enclosed and made dust proof. Smoking shall be prohibited in locker rooms.

14.1.6 Fire safety requirements and orders shall be prominently displayed at conspicuous places.

14.2 The areas where carbon disulphide is handled, the following shall be applicable:

14.2.1 The soles of shoes of all those entering these areas shall be checked to *see* that they are fastened with sewing and not nail. Similarly steel toe or heal plates shall not be permitted.

14.2.2 Use of ferrous metal implements shall be strictly forbidden. Only beryllium-copper alloy or similar tools shall be used.

14.2.3 The wearing apparel of those working or new entrants shall be of type which will not accumulate sufficient static electricity so as to be a source of sparks. Use of garments made from nylon, terylene or similar materials shall be prohibited.

14.3 Compound

14.3.1 All roads within the compound shall be kept clear and in good motorable condition. Further a clear headroom of 4.5 m shall be available on the roads for passage of fire engines.

14.3.2 Stacking of materials in the open shall be done in an orderly manner 15 m away from all working blocks and warehouses.

14.3.3 Car and truck parking shall be confined to parking lots only.

14.3.4 Movement of all locomotives and motor vehicles without spark arrestors of an approved type and cooling system (for motor vehicles only) for exhaust pipe shall not be permitted within the danger area.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
941 : 1985	Blower and exhauster for fighting (*second revision*)
1642 : 2013	Fire safety of buildings (general): Details of construction — Code of practice (*second revision*)
1646 : 2015	Fire Safety of Buildings (General): Electrical Installations — Code of Practice (*third revision*)
2189	Selection, installation and maintenance of automatic fire detection and alarm system — Code of practice (*fifth revision*) (*under revision*), *Doc: CED 22(14626)*
2190	Selection, installation, and maintenance of first-aid fire extinguishers — Portable and mobile — Code of practice (*fifth revision*) (*under revision*) *Doc: CED 22(21197)*
3034 : 1993	Fire safety of industrial buildings: Electrical generating and distributing stations — Code of practice (*second revision*)
3594	Fire safety of general storage and warehousing including cold storages — Code of practice (*second revision*) (*under revision*), *Doc: CED 36(23084)*
3844 : 1989	Code of practice for installation and maintenance of internal fire hydrants and hose reels on premises (*first revision*)
4262 : 2022	Sulphuric acid — Code of safety (*second revision*)
5685 : 1970	Code of safety for carbon disulphide
8757 : 2021	Glossary of terms associated with fire safety (*second revision*)
12056: 1987	Recommendations for safety requirements for fuel tank assembly of automotive vehicles
12459	Fire safety of cable runs — Code of practice (*first revision*) (*under revision*), Doc: CED 36(20349)
13039 : 2014	External hydrant systems — Provision and maintenance — Code of practice (*first revision*)
13911 : 1993	Sulphur — Code of safety
15105 : 2021	Design, installation and maintenance of fixed automatic sprinkler fire extinguishing systems — Code of practice (*first revision*)
16018 : 2012	Wheeled fire extinguishers — Performance and construction — Specification
SP 7 : 2016 Part 4	National Building Code of India 2016 Part 4: Fire and Life Safety

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