ELECTROMAT®

High Voltage-Insulating Mats

Total Safety from Electrical Shocks

IS : 15652

CM / L : 8963811

PREMIER POLYFILM LTD.

40/1A, INDUSTRIAL AREA, SAHIBABAD, GHAZIABAD, U.P. INDIA
Ph. No.: (0120) 4153034, Fax: +91-11-66173349
Mobile: 9899764409, 9811467857
E-mail: info@electromat.in, Website: www.electromat.in

TÜV ISO 9001

ELECTROMAT ®

HIGH VOLTAGE – INSULATING MAT

Total Safety from Electrical Shocks

Replace Outdated Rubber Mats

The "ELECTROMAT" Insulating Mat - confirming to IS: 15652 : 2006 has superseded the rubber mats with IS: 5424 (old Std.) as per Govt. of India Gazette notification No.:- S.O. 2086 dt. 17th July, 2007

- High Voltage insulating mats confirming to new specification IS: 15652:2006
- CPRI tested
- Pastable type, permanently fixed, smooth trolley movement
- Moisture proof, fire retardant, no adverse effect of acids, alkalies and transformer oil.
- Recommended for safety of workers working on upto AC 33 KV & DC 240 V installations in all kinds of sub-stations operating HT, LT switch-gears, control panels, transformer room, battery room, generator rooms and bus bar panels etc.

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TÜV ISO 9001

PREMIER POLYFILM LTD.

❖ Company Profile

We are pleased to introduce ourselves as an ISO 9001:2000 system- approved Company**.** We are well established in Export markets of Middle East, Africa, and America & Europe. We are the winners of the coveted TOP EXPORTER AWARD consecutively for the last ten years from the Ministry of Commerce, Govt. of India.

❖ Product Profile

1. "ELECTROMAT" HIGH VOLTAGE INSULATING MATS

   ELECTROMAT High Voltage Insulating Mats having a high insulation resistance thus imparting total safety of human beings when working in and around High Voltage panels, AC & DC Electrical installation.

   We have full fledged lab to carry out the test accordance to IS: 15652:2006, our Insulating mat is ISI marked, CPRI tested & inspected by inspection Agency M/s TUV & M/s. SGS India Pvt. Ltd., Gurgaon., the approved inspection Agency by Engineer's India Ltd.

2. POLYFLOOR CHALLENGER / (Marbled Floor Covering/Contract Flooring/Embossed Flooring)

   Heavy duty Flooring for offices, Hospitals, Pharmaceutical & Food Processing Industries.

3. ANTISTATIC FLOORING

   Flexible, Durable PVC flooring helps to control the generation, accumulation and dissipation of Static charges. It is recommended for areas where sensitive electronic equipments, measuring instruments, computers etc. are being used or stores which are likely to get effected from the static charge.

4. "AQUALINING" PVC GEOMEMBRANE

   Used for all kinds of Seepage Control, Water Conservation or Containment of Effluent or Waste Containment. 'AQUALINING' manufactured by us meets the specifications as per International Standards (ASTM) as well as latest IS: 15909:2010. (BIS specifications for PVC Geomembrane lining)

5. JOE MILLARS STEEL TANKS

   Tanks are made from Zincalume/ Galvalume Steel Corrugated Sheets with Reinforced PVC liner, used for Liquid Storage like water/ effluent water/waste-water/sea-water, alkaline/acidic chemicals/ethanol, solvents and for most of liquids having different density & available capacity range varies from 50 KL to 2.50 million litres

"Electromat" means Total Safety from Electric shocks

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PREMIER POLYFILM LTD.

TECHNICAL FEATURES OF “ELECTROMAT”

- Fire Retardant.
- High Di-electric strength
- Insulation resistance up to 100000 mega ohm with 5000 V megger.
- Good mechanical properties to withstand load and movement of breaker Trolleys and associated electrical equipment.
- Manufactured without any metallic derivatives.
- Suitable for both A.C. & D.C. electrical installations
- Easy to install, can be pasted.
- Water and moisture proof, does not decay.
- High tensile strength and elongation properties.
- Tested by CPRI (The leading research and test house for Power in India)

PRODUCT PROFILE

1. Embossing : Anti- skid without metallic derivatives
2. Width 1 mtr standard & available up to 2 mtr
3. Roll Length : Maximum 20 mtrs for 2 mm & 15 mtrs for 2.5 mm & 3.0 mm
4. Recommended thickness & Voltage :

SL. NO.	Recommended Thickness	Class	User's Voltage's
1	2.0(mm)	A	Up to 3.3KV
2	2.5(mm)	B	3.3 to 11KV
3	3.0(mm)	C	11 to 33KV

SAFETY INSTRUCTIONS FOR FIXING THE INSULATING MATS

We recommend that for laying & fixing the ELECTROMAT high voltage insulating mat, ground should be cemented, smooth, free from any pitting & moisture proof. ELECTROMAT high voltage insulating mat should be installed with a combination of special adhesives, bonding agent, and hardener.
It is further recommended that the laying of “ELECTROMAT” should be done by experienced and skilled persons only.

"Electromat" means Total Safety from Electric shocks

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PREMIER POLYFILM LTD.

LIST OF OUR ESTEEMED CLIENTS

POWER SECTOR & PSUs

1. Indian Railways
2. BARC - Bhabha Atomic Research Center
3. BHEL - Bharat Heavy Electricals Ltd.
4. Adani Power Corpn
5. Delhi Transco Limited
6. GAIL
7. Larsen & Toubro Ltd.
8. Rajasthan State Power Corporation
9. Rajasthan Rajya Vidyut Prasaran Nigam Ltd.
10. U.P. State Power Corporation
11. West Bengal Power Corporation
12. Maharashtra State Electricity Board
13. NHPC - National Hydro Power Corporation
14. NPCIL - National Power Corporation of India Ltd.
15. Power Grid Corpn of India Ltd., BINA.
16. Power Grid Corpn of India. Ltd., Bangalore.
17. Power Grid Corpn of India. Ltd., New Delhi.
18. Reliance Energy
19. Siemens
20. Tata Power
21. Tehri Hydro Development Corpn. Ltd., Tehri.
22. UPPCL
23. Uttarakhand Jal Vidyut Nigam Ltd.
24. A.P. Power Generation Corpn. Ltd.
25. Udupi Power Corporation
26. Punj Lloyd Ltd. Gurgaon.
27. Rohni Industrial Electricals Ltd., Mumbai.
28. Technimont ICB Pvt. Ltd., Mumbai.
29. Techno Electric & Engg. Co.Ltd. Jagatsingpur.
30. Areva T & D India Ltd.

REFINERIES & PETROCHEMICALS

1. CAIRN Energy
2. Indian Oil Corporation Ltd.
3. Chennai Petroleum Corporation Ltd.
4. Bharat Petroleum Corporation Ltd.
5. Hindustan Petroleum Corporation Ltd., Mumbai.
6. Mangalore Refinery & Petrochemicals Ltd., Mangalore.
7. Oil India Ltd.

GOVT ORGANIZATIONS & OTHER PRESTIGIOUS CLIENT

1. Airport Authority of India
2. Ambuja Cements Ltd.
3. American Embassy
4. Andhra Sugar
5. Antelec Limited, New Delhi.
6. Cochin Shipyard Ltd., Kochi.
7. Essar Steel Ltd.
8. Saint Gobain
9. Videocon Industries Ltd., Bharauch
10. Delhi Metro Rail Corporation, Delhi.
11. Mother Dairy
12. ABB Ltd.
13. DLF Group
14. Nirma Ltd.
15. Ranbaxy Laboratories Ltd.
16. CIPLA Ltd.
17. BOMBARDIER INC.
18. ITC LIMITED
19. Jawaharlal Nehru University.
20. NDMC

SHIPPING & FERTILISERS, STEEL & MINES SECTORS

1. Cochin Shipyard Ltd.
2. IFFCO
3. NALCO
4. Chambal Fertilizers & Chemicals Ltd.

MES

1. Garrison Engineers (AF), Tuglakabad.
2. Indian Navy (Several Location)
3. Ordnance Factory, PUNE, ITARSI.
4. Ordnance Factory, Pune

RAILWAYS

1. ICF, Chennai
2. RCF Kapurthala

COMPARISION BETWEEN
ELECTROMAT INSULATING MATS
AND
TRADITIONAL RUBBER MATS

	ELECTROMAT HIGH VOLTAGE MATS NEW *IS 15652 : 2006*	TRADITIONAL RUBBER MATS OLD *IS 5424 : 1969*
1.	Date of establishment for the use of Synthetic Insulating mat as per IS 15652 is 01 November 2007 as per the Govt. of India Gazette notification No. S.O.-2086, Elastomer is the new material for meeting high Electrical Safety requirements.	IS 5424:1969 specification for rubber mats for electrical purposes has been discarded by BIS as rubber is not a suitable material for meeting Electrical Safety requirements.
2.	Insulated mats conforming to IS: 15652:2006 shall be provided in front of main switch boards as well as other control equipment as specified in CPWD General specifications for electrical work Part IV substation 2007	No agency has specified the use of rubber mats at present.
3.	High electrical insulation resistance 10,00,000 mega ohm when measured with 500 V meggar	Poor Electrical Insulation resistance
4.	100% shock proof under leakage current 10 mA	Unsafe in case of leakage of current. Tested from small electrodes as per IS: 2584-1963 the value of the leakage current is 160 mA per sq. mtr.
5.	Fire Retardant	High fire prone & fire encouraging.
6.	No effect of (a) Transformer oil (b) Acid (c) Alkali (d) Diesel	Affected by (a) Transformer Oil (b) Acid (c) Alkali (d) Diesel
7.	The withstand voltage is 36KV for one minute for 3mm mat	The withstand voltage is 15KV for one minute
8.	High dielectric strength 65KV for 3mm mat	B.D. Voltage 40 KV
9.	Moisture proof	Absorbs moisture
10.	Pastable type permanent fixed smooth trolley movement	Cannot be fixed permanently
11.	Washable - Easy to clean	Not possible to clean
12.	High tensile & elongation properties to withstand good mechanical properties.	No such properties as mat has to be removed for movement of trolleys

"Electromat" means Total Safety from Electric shocks

IS : 15652

CM / L : 8963811

Important Govt. Document

BUREAU OF INDIAN STANDARDS

BIS on-line Catalogue (Sept 2006)

Search On Standard No.

Enter No/Keyword 5424

(You can search **BIS** standards by entering the numeric designation of the standard that you wish to access, e.g., **456** for **IS 456**) or by entering required key word)

Submit Reset

Price Schedule

For Printed copies of Stanadards and BIS Catalogue Contact:

BUREAU OF INDIAN STANDARDS
Manak Bhavan
9 Bahadur Shah Zafar Marg
New Delhi-2

For Electronic version of standards and BIS catalaogue on CD-ROM Contact:

BOOK SUPPLY BUREAU
A-68, South Extension-I
New Delhi-49
Ph : 2461 1991, 2463 4222

Indian Standards Catalogue Search Result Page

Document Number	Standard Title	Status
IS 5424 : 1969	Specification for rubber mats for electrical purpose	Withdrawn

www.bis.org.in/bis/start.htm

रजिस्ट्री सं. डी. एल. (एन) 04/0007/2003—05 REGD. NO. D.L.-(N)04/0007/2003—05

भारत का राजपत्र
The Gazette of India

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

साप्ताहिक
WEEKLY

सं. 30] नई दिल्ली, जुलाई 22—जुलाई 28, 2007, शनिवार/आषाढ 31—श्रावण 6, 1929
No. 30] NEW DELHI, JULY 22—JULY 28, 2007, SATURDAY/ASADHA 31—SRAVANA 6, 1929

इस भाग में भिन्न पृष्ठ संख्या दी जाती है जिससे कि यह पृथक संकलन के रूप में रखा जा सके
Separate Paging is given to this Part in order that it may be filed as a separate compilation

भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

भारत सरकार के मंत्रालयों (रक्षा मंत्रालय को छोड़कर) और केन्द्रीय अधिकारियों (संघ राज्य क्षेत्र प्रशासनों को छोड़कर) द्वारा विधि के अंतर्गत बनाए और जारी किए गए साधारण सांविधिक नियम (जिनमें साधारण प्रकार के आदेश, उप-नियम आदि सम्मिलित हैं)
General Statutory Rules (Including Orders, Bye-laws etc. of a general character) issued by the Ministries of the Government of India (other than the Ministry of Defence) and by the Central Authorities (other than the Administrations of Union Territories)

वित्त मंत्रालय

(राजस्व विभाग)

केन्द्रीय उत्पाद शुल्क आयुक्त का कार्यालय, कोलकाता-VII आयुक्तालय

कोलकाता, 25 जून, 2007

संख्या-01/2007-सीमाशुल्क (एनटी)

का.आ. 2057.—सीमा शुल्क अधिनियम 1962 (1962 का 52) की धारा 9 के तहत प्रदत्त शक्तियों का प्रयोग करते हुए जिसे भारत सरकार, वित्त मंत्रालय, राजस्व विभाग, नई दिल्ली की अधिसूचना संख्या 33/94 सीमशुल्क (एनटी) दिनांक 1-7-1994 तथा एम.एफ. (डी.आर.) परिपत्र संख्या 31/2003 सीमा शुल्क दिनांक 7-8-2003 एवं अधिसूचना सं. 83/2004-सीमा (एनटी) दिनांक 30.6.2004 के साथ पढ़ा जाए, प्लॉट संख्या-2 डॉ. बी.सी.राय रोड, दाग संख्या 3195 से 3200 मौजा, जगतदल, जे.एल. संख्या 71 थाना-सोनारपुर, नगरपालिका, राजपुर, जिला-दक्षिण 24 परगना, पश्चिम बंगाल को एतद्द्वारा विकास आयुक्त, फलत विशेष आर्थिक क्षेत्र वाणिज्य एवं उद्योग मंत्रालय, भारत सरकार, कोलकाता द्वारा प्रथम अनुमोदित सीमित प्रयोजन हेतु 100 प्रतिशत निर्यातोन्मुखी उपक्रम के रूप में भंडारण केन्द्र घोषित किया जाता है।

[सी. सं. V(30)7 कें.उ.शु-एक/डब्ल्यू एस पी एल/कोल-VII/07]

एस. बी. मिश्र, आयुक्त, केन्द्रीय उत्पाद शुल्क

इस भारतीय मानक की प्रतियाँ भारतीय मानक ब्यूरो, मानक भवन, 9, बहादुर शाह जफर मार्ग, नई दिल्ली-110002, क्षेत्रीय कार्यालयों : नई दिल्ली, कोलकाता, चण्डीगढ़, चेन्नई, मुम्बई तथा शाखा कार्यालयों : अहमदाबाद, बंगलौर, भोपाल, भुवनेश्वर, कोयम्बतूर, गुवाहाटी, हैदराबाद, जयपुर, कानपुर, नागपुर, पटना, पुणे तथा तिरुवनन्तापुरम में बिक्री हेतु उपलब्ध हैं ।

[संदर्भ: ईटी 02/टी-154]

पी. के मुखर्जी, वैज्ञा. एफ एवं प्रमुख (विद्युत तकनीकी)

New Delhi, the 17th July, 2007

S. O. 2086.—In pursuance of clause (b) of sub-rule (1) of Rule 7 of the Bureau of Indian Standards Rules, 1987, the Bureau of Indian Standards hereby notifies that the Indian Standards, particulars of which are given in the Schedule hereto annexed has been issued

SCHEDULE

Sl.No.	No. and Year of the Indian Standards	No. and year of the Indian standards, if any, Superseded by the New Indian Standard	Date of Establishment
(1)	(2)	(3)	(4)
1.	IS 15652 : 2006 Insulating mats for electrical purposes —Specification	IS 5424 : 1969 Specification for rubber mats for electrical purposes	01 November, 2007

Copy of this Standard is available for sale with the Bureau of Indian Standards, Manak Bhavan, 9, Bahadur Shah Zafar Marg, New Delhi-110002 and Regional Offices : New Delhi, Kolkata, Chandigarh, Chennai, Mumbai and also Branch Offices : Ahmedabad, Bangalore, Bhopal, Bhubaneshwar, Coimbatore, Guwahati, Hyderabad, Jaipur, Kanpur, Nagpur, Patna, Pune and Thiruvananthapuram.

[Ref.: ET 02/T-154]

P. K. MUKHERJEE, Sc. F & Head (Electro Technical)

नई दिल्ली, 17 जुलाई, 2007

का. आ. 2087.—भारतीय मानक ब्यूरो नियम 1987 के नियम 7 के उप-नियम (1) के खंड (ख) के अनुसरण में एतद्द्वारा अधिसूचित किया जाता है कि जिस भारतीय मानक का विवरण नीचे अनुसूची में दिया गया है, वह रद्द कर दिया गया है और वापस ले लिया गया है:

अनुसूची

क्रम सं	रद्द किये गये मानक की संख्या और वर्ष	भारत के राजपत्र भाग II, खंड 3, उप-खंड (ii) में का. आ. संख्या और तिथि प्रकाशित	टिप्पणी
(1)	(2)	(3)	(4)
1.	आईएस 12819:1989	0157, 19-1-1991	—

[संदर्भ : ईटी 03/टी-26]

पी. के. मुखर्जी, वैज्ञानिक एफ एवं प्रमुख (विद्युत तकनीकी)

New Delhi, the 17th July, 2007

S. O. 2087.— In pursuance of clause (b) of Sub-rule (1) of Rule 7 of the Bureau of Indian Standards Rules, it is, hereby notified that the Indian Standard, particulars of which is mentioned in the Schedule given hereafter, has been cancelled and stand withdrawn.

SCHEDULE

Sl. No.	No. and Year of the Indian Standards Cancelled	S.O. No. and Date published in the Gazette of India Part II, Section-3, Sub-section (ii)	Remarks
(1)	(2)	(3)	(4)
1	IS 12819:1989	0157, 19-1-1991	—

[Ref : ET 03/T-26]

P. K. MUKHERJEE, Scientist F & Head (Electro Technical)

3151 GI/2007—4

भारत सरकार
GOVERNMENT OF INDIA
केन्द्रीय लोक निर्माण विभाग
CENTRAL PUBLIC WORKS DEPARTMENT

सत्यमेव जयते

वैद्युत कार्यों
के लिए
सामान्य विनिर्देश
भाग – IV (उपकेन्द्र)

GENERAL
SPECIFICATIONS
FOR
ELECTRICAL WORKS
PART - IV SUB-STATIONS

2007

निर्माण महानिदेशक, के.लो.नि.वि., नई दिल्ली के प्राधिकार से प्रकाशित
Published under the Authority of Director General of Works, CPWD, New Delhi

SECTION 9

Govt. Document

SAFETY REQUIREMENTS

SCOPE

This section covers the requirements of items to be provided in the sub-station for compliance with statutory regulations, safety and operational needs.

REQUIREMENTS

Safety provisions shall be generally in conformity with appendices (A) and (C) of CPWD General Specifications of Electric Works (Part I Internal) 2005. In particular following items shall be provided:

(a) Insulation mats

Insulation mats conforming to IS:15652-2006 shall be provided in front of main switch, boards as well as other control equipments as specified.

(b) First aid charts and first aid box

Chart (one in english, one in hindi, one in regional language), displaying methods of giving artificial respiration to a recipient of electrical shock shall be prominently proved at appropriate place. Standard first aid boxes containing materials as prescribed by St. John Ambulance brigade or Indian Red Cross should be provided in each sub-station.

(c) Danger Plate

Danger Plates shall be provided on HV and MV equipments. MV danger notice plate shall be 200 mm x 150 mm made of mild steel at least 2 mm thick vitreous enameled white on both sides and with the descriptions in signal red colour on four side as required. Notice plates of other suitable material such as stainless steel, brass or such other permanent nature material shall also be accepted with the description engraved in signal red colour.

(d) Fire Extinguishers

Portable CO2 conforming to IS : 2878-1976/chemical conforming to IS : 2171-1976 extinguishers HCFC Blaend A (P-IV) shall be installed in the sub-station at suitable places. Other extinguishers recommended for electric fires may also be used.

Ref: Page No. 48 of CPWD Manual

IS 15652 : 2006
(Superseding IS 5424 : 1969)

भारतीय मानक

विद्युत प्रयोजनों के लिए विद्युतरोधी मैट – विशिष्टि

Indian Standard

INSULATING MATS FOR ELECTRICAL PURPOSES - SPECIFICATION

ICS 13.260; 29.260.99

BUREAU OF INDIAN STANDARDS
MANAK BHAWAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110 002

Solid Electrical Insulating Materials and Insulation Systems Sectional Committee, ETD 02

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Solid Electrical Insulating Materials and Insulation Systems Sectional Committee had been approved by the Electrotechnical Division Council.

The objective of this standard is to take care of the technological advances and developing consumer need in the field of insulating mats for electrical purposes. While incorporating the practices and experience of Indian industry, the standard is on the lines of relevant IEC 61111-2002-06 'Matting of insulating materials for electrical purposes' and sampling plans have been adapted from therein. **This standard supersedes IS 5424 : 1969 'Specification for rubber mats for electrical purposes'.**

For the purpose of deciding whether a particular requirement of this particular standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values *(revised)'*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

INSULATING MATS FOR ELECTRICAL PURPOSES-

TECHNICAL SPECIFICATION AS PER IS 15652:2006

S.No.	CHARACTERISTICS	STANDARD VALUES		
1.	Thickness	2.0mm	2.5mm	3.0mm
2.	Roll Length	20 mtr.	15 mtr.	15 mtr.
3.	Tensile Strength (N/mm^2)	15	15	15
4.	Elongation(%)	250	250	250
5.	Insulation Resistance with water at 500 V	1,000,000 MΩ	1,000,000 MΩ	1,000,000 MΩ
6.	Leakage Current	10 mA at 3.3KV	10 mA at 11KV	10 mA at 33KV
7.	AC Di Electric Strength	30 KV	45 KV	60 KV
8.	AC Proof Voltage	10 KV should withstand for 3Min.	22 KV should withstand for 3Min.	36 KV should withstand for 3Min.
9.	Flame Retardance	5.0 Sec.	5.0 Sec.	5.0 Sec.
10.	Effect to Acid, Alkali, Diesel & Transformer Oil Acid : Tensile Strength (N/mm^2) Elongation (%) Alkali : Tensile Strength (N/mm^2) Elongation (%) Diesel : Tensile Strength (N/mm^2) Elongation (%) Transformer Oil : Tensile Strength (N/mm^2) Elongation (%)	% change from original value Tensile Strength - 20% Elongation -20%	% change from original value Tensile Strength - 20% Elongation -20%	% change from original value Tensile Strength - 20% Elongation -20%
11.	Ageing Properties at 70±1°C for 168 hrs. Tensile Strength (N/mm^2) Elongation (%)	% change from original value T.S. -25% E -25%	% change from original value T.S. -25% E -25%	% change from original value T.S. -25% E -25%

1. Embossing: Anti-Skid without metallic derivatives with Chips/without Chips.
2. Width : up to 2mtr.as per site requirement.
3. Roll length should be 15 Mtrs. or 20 Mtrs.
4. Mat should be ISI Marked at every meter.
5. Material Elastomer.
6. Mat should be Tested by CPRI for IS:15652:2006
7. Pastable type, to be fixed permanently on the front and rear side of the control panels and other electrical installations as recommended in IS 15652:2006.
8. The Mat should be welded by hot gas welding with filler material, method by making 'V' grove cut at joints with suitable welding cord of insulating material of matching color to provide a seamless jointed surface as per IS:8002 (IS:15652:2006 ANNEX A clause 1.3.1).
9. Mat should be suitable for both AC & DC electrical Installations.

SL. NO.	Recommended Thickness	Class	User's Voltage's
1	2.0(mm)	A	Up to 3.3KV
2	2.5(mm)	B	3.3 to 11KV
3	3.0(mm)	C	11 to 33KV

"Electromat" means Total Safety from Electric shocks

IS : 15652

CM / L : 8963811

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग III—खण्ड 4
PART III—Section 4
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 244] नई दिल्ली, शुक्रवार, सितम्बर 24, 2010/आश्विन 2, 1932
No. 244] NEW DELHI, FRIDAY, SEPTEMBER 24, 2010/ASVINA 2, 1932

केंद्रीय विद्युत प्राधिकरण

अधिसूचना

नई दिल्ली, 20 सितम्बर, 2010

सं. सी.ई.आई./1/59/सीईए/ई. आई.—केन्द्रीय विद्युत प्राधिकरण विद्युत अधिनियम, 2003 (2003 का 36) की धारा 177 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए सुरक्षा तथा विद्युत आपूर्ति संबंधी उपाय के लिए निम्नलिखित विनियम बनाता है :—

अध्याय I

1. **संक्षिप्त नाम और प्रारम्भ** :— (1) इन विनियमों का संक्षिप्त नाम केंद्रीय विद्युत प्राधिकरण (सुरक्षा तथा विद्युत आपूर्ति संबंधी उपाय) विनियम, 2010 है ।

(2) ये राजपत्र में इनके अंतिम प्रकाशन की तारीख से प्रवृत्त होंगे ।

2. **परिभाषाएं** :—(1) इन विनियमों में, जब तक कि संदर्भ में, अन्यथा अपेक्षित न हो,

(क) "अधिनियम" से विद्युत अधिनियम, 2003 अभिप्रेत है;

(ख) "सुगम" से किसी उपकरण का अथवा विशेष प्रयास किए बिना शारीरिक उपयोग पहुंच के भीतर अभिप्रेत है;

(ग) "एम्पीयर" से अभिप्रेत विद्युत धारा की एक इकाई है और यह ऐसा कॉन्स्टेंट करेंट है जो निर्वात में एक मीटर की समानान्तर दूरी पर रखे नगण्य अनुप्रस्थ काट वाले अनन्त लम्बाई के दो सुचालकों से गुजरने पर इन दोनों सुचालकों के बीच प्रति मीटर लम्बाई पर 2×10^{-7} न्यूटन का बल पैदा करेगा;

(घ) "उपकरण" से विद्युत उपकरण अभिप्रेत है और इसमें सभी मशीनें, फिटिंग्स, सहायक उपकरण तथा उपकरण सम्मिलित हैं, जिनमें सुचालकों का उपयोग किया जाता है;

(ङ) "अनावृत" से अभिप्रेत है जो विद्युत-रोधी पदार्थ से आवृत न हो;

(च) "केबल" से अभिप्रेत है, ऐसा एकल सुचालक (ठोस या तन्तुरूपी) अथवा दो या दो से अधिक ऐसे सुचालक जिन्हें अलग-अलग विद्युतरोधी पदार्थ से आवृत किया गया हो और साथ-साथ बिछाया गया हो। ऐसे सुचालक या सुचालकों को यांत्रिक सुरक्षा कवच उपलब्ध कराया जा सकता है, या नहीं भी कराया जा सकता है;

(छ) "परिपथ (सर्किट)" से अभिप्रेत है, विद्युत प्रवाह के लिए सुचालक अथवा सुचालकों का एक व्यवस्थित क्रम जो एक विद्युत व्यवस्था या इस व्यवस्था का एक अंग निर्मित करते हैं;

(ज) "परिपथ भंजक (सर्किट ब्रेकर)" से ऐसा उपकरण अभिप्रेत है, जो सभी परिस्थितियों में परिपथ बना सकता है या ब्रेक कर सकता है, और जब तक इसे अन्यथा विनिर्दिष्ट न किया गया हो, यह इस प्रकार डिजाइन किया गया है कि असाधारण परिस्थितियों में यह स्वत: ही विद्युत प्रवाह रोक देता है ;

CENTRAL ELECTRICITY AUTHORITY

NOTIFICATION

New Delhi, the 20th September, 2010

No. CEI/1/59/CEA/EI.—In exercise of the powers conferred by section 177 of the Electricity Act, 2003 (36 of 2003), the Central Electricity Authority hereby makes the following regulations for Measures relating to Safety and Electric Supply, namely:-

Chapter I

1. **Short title and Commencement.-** (1) These regulations may be called the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010.

(2) They shall come into force on the date of their final publication in the Official Gazette.

2. **Definitions.-** (1) In these regulations, unless the context otherwise requires,

(a) "Act" means the Electricity Act,2003;

(b) "accessible" means within physical reach without the use of any appliance or special effort;

(c) "ampere" means a unit of electric current and is a constant current which, flowing in two parallel straight conductors of infinite length of negligible cross section and placed at a distance of one meter apart in a vacuum will produce a force of $2x10^{-7}$ Newton per meter length between the conductors;

(d) "apparatus "means electrical apparatus and includes all machines, fittings, accessories and appliances in which conductors are used;

(e) "bare" means not covered with insulating materials;

(f) "cable" means a length of insulated single conductor(solid or stranded) or of two or more such conductors each provided with its own insulation, which are laid up together. Such insulated conductor or conductors may or may not be provided with an overall mechanical protective covering;

(g) "circuit" means an arrangement of conductor or conductors for the purpose of conveying electricity and forming a system or a branch of a system;

(h) "circuit breaker" means a device, capable of making and breaking the circuit under all conditions, and unless otherwise specified, so designed as to break the current automatically under abnormal conditions;

(i) "concentric cable" means a composite cable comprising an inner conductor which is insulated and one or more outer conductors which are

principal office or place of business within the area of supply, and shall at all reasonable times be open to the inspection of all applicants, and copies thereof shall be supplied.

Provided that existing and old plans and sections and underground distribution network shall be converted to electronic form within three years from the date of commencement of these regulations.

(4) Global Positioning System (GPS) mapping or mapping through any other latest technology, of existing and old plans and sections shall be completed within five years from the date of commencement of these regulations and new plans and sections shall be compatible to the Global Positioning System mapping or mapping through any other latest technology.

(5) The licensee shall, if required by an Electrical Inspector, and, where the licensee is not a local authority, by the local authority, if any, concerned, supply free of charge to such Electrical Inspector or local authority a duplicate copy of every such plan or section or a part of the same duly corrected.

(6) The copies of plans and sections under this regulation shall be supplied by the licensee to every applicant on the payment of such fee as the Appropriate Commission may, by regulation, specify.

Chapter III

General safety requirements

12. **General safety requirements pertaining to construction, installation, protection, operation and maintenance of electric supply lines and apparatus.-** (1) All electric supply lines and apparatus shall be of sufficient rating for power, insulation and estimated fault current and of sufficient mechanical strength, for the duty cycle which they may be required to perform under the environmental conditions of installation, and shall be constructed, installed, protected, worked and maintained in such a manner as to ensure safety of human beings, animals and property.

(2) Save as otherwise provided in these regulations, the relevant code of practice of the Bureau of Indian Standards or National Electrical Code, if any, may be followed to carry out the purposes of this regulation and, in the event of any inconsistency, the provisions of these regulaions shall prevail.

(3) The material and apparatus used shall conform to the relevant specifications of the Bureau of Indian Standards or International Elelctro-Technical Commission where such specifications have already been laid down.

(4) All electrical equipment shall be installed above the Mean Sea Level (MSL) as declared by local Municiple Authorities and where such equipment is to be installed in the basement, consumer shall ensure that the design of the basement

(b) provide in readily accessible position switches for rendering them dead whenever necessary; and

(c) take such other safety measures as are specified in the relevant Indian Standards.

18. Danger Notices.- The owner of every installation of voltage exceeding 250 V shall affix permanently in a conspicious position a danger notice in Hindi or English and the local language of the District, with a sign of skull and bones of a design as per IS -2551 on-

(a) every motor, generator, transformer and other electrical plant and equipment together with apparatus used for controlling or regulating the same;

(b) all supports of overhead lines of voltage exceeding 650 V which can be easily climbed upon without the aid of ladder or special appliances;

(c) luminous tube sign requiring supply, X-ray and similar high frequency installations of voltage exceeding 650 V but not exceeding 33 kV:

Provided that where it is not possible to affix such notices on any generator, motor, transformer or other apparatus, they shall be affixed as near as possible thereto, or the word 'danger' and the voltage of the apparatus concerned shall be permanently painted on it:

Provided further that where the generator, motor, transformer or other apparatus is within an enclosure one notice affixed to the said enclosure shall be sufficient for the purposes of this regulation.

Explanation- For the purpose of clause (b) rails, tubular poles, wooden supports, reinforced cement concrete poles without steps, I-sections and channels, shall be deemed as supports which cannot be easily climbed upon

19. Handling of electric supply lines and apparatus.- (1) Before any conductor or apparatus is handled, adequate precautions shall be taken, by earthing or other suitable means, to discharge electrically such conductor or apparatus, and any adjacent conductor or apparatus if there is danger therefrom, and to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon.

(2) Every person who is working on an electric supply line or apparatus or both shall be provided with tools and devices such as gloves, rubber shoes, safety belts; ladders, earthing devices, helmets, line testers, hand lines and the like for protecting him from mechanical and electrical injury and such tools and devices shall always be maintained in sound and efficient working condition.

(3) No person shall work on any live electric supply line or apparatus and no person shall assist such person on such work, unless he is designated in that behalf, and takes the safety precautions given in Schedule-III.

(4) Every telecommunication line on supports carrying a line of voltage exceeding 650 V but not exceeding 33 kV shall, for the purpose of working thereon, be deemed to be a line of voltage exceeding 650 V.

(5) All non-current carrying metal parts of switchgear and control panels shall be properly earthed and insulating floors or mat conforming to IS-15652: 2006, of appropriate voltage level shall be provided in front of the panels for the safety of operating personnel.

(6) All panels shall be painted with the description of its identification at front and at the rear.

20. Supply to vehicles and cranes.- Every person owning a vehicle, travelling crane, or the like to which electricity is supplied from an external source shall ensure that it is efficiently controlled by a suitable switch enabling all voltage to be cut off in one operation and, where such vehicle, travelling crane or the like runs on metal rails, the owner shall ensure that the rails are electrically continuous and earthed.

21. Cables for portable or transportable apparatus.- (1) Flexible cables shall not be used for portable or transportable motors, generators, transformers, rectifiers, electric drills, electric sprayers, welding sets or any other portable or transportable apparatus unless they are heavily insulated and adequately protected from mechanical injury.

(2) Where the protection is by means of metallic covering, the covering shall be in metallic connection with the frame of any such apparatus and earthed.

(3) The cables shall be three core type and four core type for portable and transportable apparatus working on single phase and three phase supply respectively and the wire meant to be used for ground connection shall be easily identifiable.

22. Cables protected by bituminous materials.- (1) Where the supplier or the owner has brought into use an electric supply line, other than an overhead line, which is not completely enclosed in a continuous metallic covering connected with earth and is insulated or protected *in situ* by composition or material of a bituminous character,-

(i) any pipe, conduit, or the like into which such electric supply line may have been drawn or placed shall, unless other arrangements are approved by the Electrical Inspector in any particular case, be effectively sealed at its point of entry into any street box so as to prevent any flow of gas to or from the street box, and;

(ii) such electric supply line shall be periodically inspected and tested where accessible, and the result of each such inspection and test shall be duly recorded by the supplier or the owner.

(2) The supplier or the owner after the coming into force of these regulations, shall not bring into use any further electric supply line as aforesaid which is insulated or

FORM II

(Installations of voltage level more than 250V up to and including 650V)

Report No. _____ Date of Inspection _____

Date of last Inspection _____

1. Consumer No. _____
2. Voltage and system of supply:

(i) Volts _____(ii) No. of Phases _____ (iii) AC/DC _____

3. Name of the consumer or owner _____
4. Address of the consumer or owner _____
5. Location of the premises _____
6. Particulars of the installations

(a) Motors:

Make	No.	H.P.	Amps.	Voltage

(i)_____

(ii)_____

(b) Other equipment (complete details to be furnished):

(i)_____

(ii)_____

Total connected load h.p./KVA

_____

(c) Generators details i.e. Make, S. No, KVA rating and Voltage:

(i) _____

(ii) _____

General condition of the installation:

Sl. No.	Regulation Nos.	Requirements	Report
7.	Regulation-3	Is the register of designated persons properly made and kept up to date duly attested ?	Yes/No
8.	Regulation-12	(i) Is/Are there any visible sign(s) of overloading in respect of any apparatus wiring? (ii) Whether any unauthorised temporary installation exist?. (iii) Are the electric supply lines and apparatus so installed, protected, worked and maintained as to prevent danger ? (iv) Any other general remarks.	Yes/No Yes/No Yes/No
9.	Regulation-13	Give report on condition of service lines, cables, wires, apparatus and such other fittings placed by the supplier or owner of the premises. If not satisfactory give details.	Satisfactory/Not Satisfactory

10.	Regulation-14	Whether suitable cut-outs provided by the supplier at the consumer's premises are within enclosed fire proof receptacle?	Yes/No
11.	Regulation-15	(i) Whether switches are provided on live conductors?. (ii) Whether indication of a permanent nature is provided as per Regulation so as to distinguish neutral conductor from the live conductor?. (iii) Whether a direct line is provided on the neutral in the case of single phase double pole iron clad switches instead of fuse ?	Yes/No Yes/No Yes/No
12.	Regulation-16	(i) Whether earthed terminal is provided by the supplier?. (ii) General visible condition of the earthing arrangement.	Yes/No Satisfactory/Not Satisfactory
13.	Regulation-17	(i) Are bare conductors in building inaccessible? (ii) Whether readily accessible switches have been provided for rendering them dead ?	Yes/No Yes/No
14.	Regulation-18	Whether "Danger Notice" in Hindi and the local language of the district and of a design as per relevant Indian Standard is affixed permanently in conspicuous position?.	Yes/No
15.	Regulation-19	(i) Whether insulating floor or mats conforming to IS-15652:2006 have been provided? (ii) Whether identification of panel has been provided on the front and the rear of the panel?	Yes/No Yes/No
16.	Regulation-21	Whether flexible cables used for portable or transportable equipment covered under the Regulation, are heavily insulated and adequately protected from mechanical injury?.	Yes/No
17.	Regulation-22	State the condition of metallic coverings provided for various conductors.	Satisfactory/Not Satisfactory
18.	Regulation-24	Whether the circuits or apparatus intended for operating at different voltage(s) are distinguishable by means of indication(s) of permanent nature?.	Yes/No
19.	Regulation-26	Whether all circuits and apparatus are so arranged that there is no danger of any part(s) becoming accidentally charged to any voltage beyond the limits of voltage for which it/they is/are intended ?	Yes/No
20.	Regulation-27	(i) In the case of generating stations, whether fire-buckets filled with clean dry sand have been conspicuously marked and kept in convenient situations in addition to fire-extinguishers suitable for dealing with electric fires ?	Yes/No

FORM III

(Installations of voltage exceeding 650V)

Report No. _____ Date of Inspection _____

Date of Last iinspection _____

Sl. No.	Regulation Nos	Requirements	Report
1.	Regulation-3	Is the register of the designated persons properly made and kept up to date duly attested?	Yes/No
2.	Regulation-12	(i) Is/Are there any visible sign(s) of overloading in respect of any apparatus?	Yes/No
		(ii) Whether any unauthorised temporary installation exist?	Yes/No
		(iii) Whether the motors and controlling equipment are being over hauled periodically and record kept of the same in a register?	Yes/No
		(iv) Whether the transformer oil samples are being tested periodically and results recorded in a register?	Yes/No
		(v) Whether suitable lightning arrestors have been provided near the transformers for protection against lightning?	Yes/No
		(vi) Whether earth resistance is being measured periodically and results recorded in a register?	Yes/No
		(vii) Any other defect or condition which may be a source of danger. If Yes please explain?	Yes/No
		(viii) Whether operation and maintenance data has been clarified, categorized and computerized for prompt and easy retrieval?	Yes/No
		(ix) Whether predictive maintenance is being performed for installation of voltage exceeding 650V?	Yes/No
		(x) Whether residual life assessment and life extension programmes are being undertaken for installations or equipment of voltage exceeding 650V (applicable for installations or equipment more than 15 years old)?	Yes/No
		(xi) Whether all required type and routine tests at factory done for equipments. Deficiencies and Discrepancies in above test report and results, if any, shall be reported?	Yes/No
		(xii) Are there deficiencies in construction with	Yes/No

		reference to Indian Standard requirements. Please specify.	
3.	Regulation-13	Give report on condition of service lines, cables, wires, apparatus and such other fittings placed by the supplier or owner of the premises. If not satisfactory give details.	Satisfactory/Not Satisfactory
4.	Regulation-14	Whether suitable cut-outs provided by the supplier at the consumer's premises are within enclosed fire proof receptacle?	Yes/No
5.	Regulation-15	(i) Whether switches are provided on live conductors?. (ii) Whether indication of a permanent nature is provided as per Regulation so as to distinguish neutral conductor from the live conductor?. (iii) Whether a direct line is provided on the neutral in the case of single phase double pole iron clad switches instead of fuse ?	Yes/No Yes/No Yes/No
6.	Regulation-16	(i) Whether earthed terminal is provided by the supplier?. (ii) General visible condition of the earthing arrangement.	Yes/No Satisfactory/Not Satisfactory
7.	Regulation-17	(i) Are bare conductors in building inaccessible? (ii) Whether readily accessible switches have been provided for rendering them dead?	Yes/No Yes/No
8.	Regulation-18	Whether "Danger Notice" in Hindi and the local language of the district and of a design as per relevant Indian Standard is affixed permanently in conspicuous position?.	Yes/No
9.	Regulation-19	(i) Whether the practice of working on live lines and apparatus is adopted ? If so, have the safety measure been adopted as per Schedule-III ? (ii) Whether insulating floor or mats conforming to IS-15652:2006 have been provided? 14. (iii) Whether identification of panel has been provided on the front and the rear of the panel?	Yes/No Yes/No Yes/No
10.	Regulation-21	Whether flexible cables used for portable or transportable equipment covered under the Regulation, are heavily insulated and adequately protected from mechanical injury?.	Yes/No
11.	Regulation-22	State the condition of metallic coverings provided for various conductors.	Satisfactory/Not Satisfactory
12.	Regulation-24	Whether the circuits or apparatus intended for operating at different voltage(s) are distinguishable by means of indication(s) of permanent nature?.	Yes/No