

IS : 6407 - 1971

*Indian Standard*  
SPECIFICATION FOR  
RUBBER APRONS FOR HOSPITAL USE

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

Rs 2·50

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# *Indian Standard*

## SPECIFICATION FOR RUBBER APRONS FOR HOSPITAL USE

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*Indian Standard*  
SPECIFICATION FOR  
RUBBER APRONS FOR HOSPITAL USE

0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 18 November 1971, after the draft finalized by the Rubber Products Sectional Committee had been approved by the Chemical Division Council.

**0.2** Different types of aprons are used in hospitals depending on the nature of the job. In order that these aprons effectively protect the clothings or skin, the requirements of the material need to be defined and established. Further, the general design of these aprons should be such as not to restrict the movement of the worker, and allow a comfortable wear.

**0.3** In the preparation of this standard, assistance has been derived from BS 2507:1964 Rubber aprons for hospital use, issued by the British Standards Institution.

**0.4** This standard contains clauses 3.1.2 and 3.3.5 which call for agreement between the purchaser and the supplier.

**0.5** For the purpose of deciding whether a particular requirement of this 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\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This standard prescribes requirements, methods of sampling and test for rubberized waterproof aprons for use in the hospitals.

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\*Rules for rounding off numerical values (*revised*).

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### 2. TYPES

2.1 The following types of aprons are covered by this specification:

- a) Surgical apron,
- b) Post-mortem apron, and
- c) Sterilizers' apron.

### 3. REQUIREMENTS

3.1 **Material** — The aprons shall be made from double faced rubberized waterproof fabric of Type 2 and of the following grades and qualities as prescribed in IS: 5915 - 1970\*:

Type of Apron	Rubberized Waterproof Fabric (see IS: 5915 - 1970*)	
	Grade	Quality
a) Surgical apron	A	1
b) Post-mortem apron	A	2
c) Sterilizers' apron	B	2

3.1.1 The proofing material shall be free from grit and coarse particles and shall contain no ingredients known to be injurious to persons with whom it may come in contact.

3.1.2 **Colour** — The proofing shall be in white, red or any other colour, as may be specified by the purchaser. If organic pigments are used, these shall be non-bleeding under normal conditions of use.

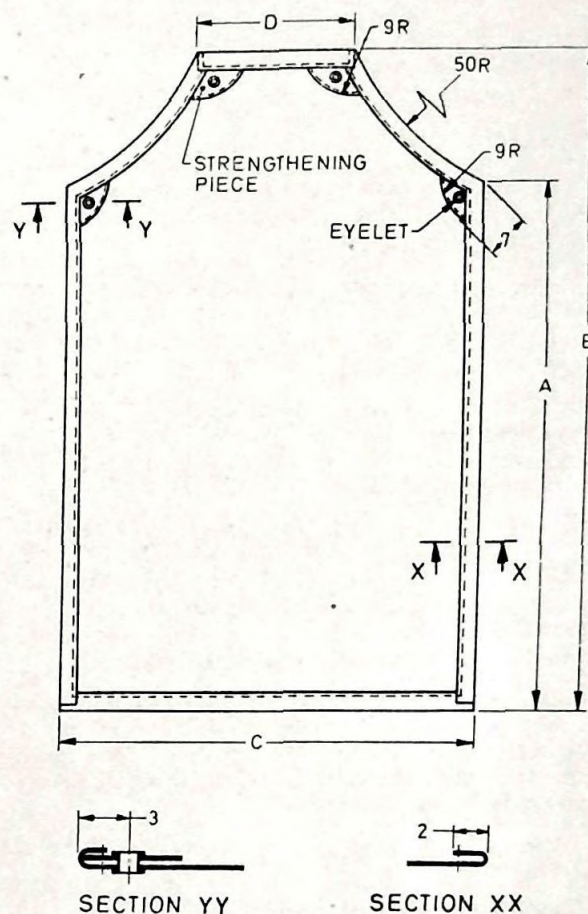
3.2 **Immersion Test** — Three test pieces ( $10 \times 5$  cm) of the body material of the aprons shall be taken and immersed, one in each of the following solutions at the temperature and for the duration of time specified against each. After the prescribed immersions, usefulness of the proofed rubberized fabric shall not be visibly impaired.

Solution	Time, Minutes	Temperature, °C
Phenol (saturated aqueous solution)	15	} $27 \pm 2$
10 percent solution (v/v) of ammonia (relative density 0.880) in water	30	
Boiling aqueous soap solution, 5 percent (w/v) (soap conforming to type I Grade 2 of IS: 285-1964†)	10	At boil

\*Specification for single texture rubberized waterproof fabrics.

†Specification for laundry soaps (revised).

**3.3 Construction**—The aprons shall be made to the design conforming generally to Fig. 1.



All dimensions in centimetres.

	A	B	C	D
Size No. 1	85	110	80	30
Size No. 2	100	125	80	30

FIG. 1 RUBBER APRON WITH EYELETS



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**3.3.1 Dimensions** — The dimensions of the aprons shall conform to those given in Fig. 1.

**3.3.2 Sewings** — The aprons shall be stitched with lock stitch, regulated at 30 to 40 stitches/dm. The stitching thread shall conform either to variety 22 (15 tex  $\times$  4) or variety 31 (9.8 tex  $\times$  6) of IS: 1720-1969\*. The sewings shall be of even tension throughout and all loose ends shall be securely fastened off.

**3.3.3 Eyelets** — The apron shall be provided with four eyelets as shown in the figure. The eyelets shall be made from aluminium alloy NS 3 or NS 4 of size No. 24 conforming to IS: 4084-1967†.

**3.3.4 Strengthening Pieces** — The points of eyelet insertion shall be reinforced with a strengthening piece, consisting of one or more layers of body material of the apron. These strengthening pieces shall be of shape and size as shown in Fig. 1. The sides of the strengthening piece towards the hem shall be caught under the hem and stitched.

**3.3.5 Tying Tape** — Each eyelet shall be fitted with a tying tape, being tied with a reef knot through the eyelets. The tying tape shall be 12.5 mm wide and 45 cm long conforming to IS: 1895-1961‡, or any other suitable tape approved by the purchaser.

**3.4 Workmanship** — The finished apron shall be free from broken stitches, from surface imperfections in the proofing, like pin holes, cuts, and other defects likely to affect its usefulness or durability.

## 4. SAMPLING

**4.1 Lot** — All the aprons of the same type and construction offered by the manufacturer in a single batch shall be grouped together to constitute a lot.

**4.1.1** Each lot shall be inspected separately for the requirement of this specification. For this purpose, a number of aprons shall be drawn from each lot at random in accordance with the col 1 and 2 of Table 1.

**4.1.1.1** The number of aprons required in col 2 of Table 1 shall be taken equally from as many bundles as possible. The aprons to be taken from a bundle shall be chosen at random.

**4.1.1.2** In case the aprons are packed individually, the selection shall be made with the help of random number tables. Guidance in random selection procedures may be obtained from IS: 4905 - 1968§.

\*Specification for cotton sewing thread (first revision).

†Specification for eyelets and washers.

‡Specification for cotton tape NEWAR, grey or dyed.

§Methods for random sampling.

## 4.2 Number of Tests and Criteria for Conformity for Aprons

**4.2.1 Requirements of Construction and Workmanship**—Each one of the aprons drawn in 4.1 shall be inspected for all the requirements specified in 3.3 and 3.4. An apron failing in one or more of these requirements shall be regarded as defective. The lot shall be considered as conforming to these requirements if the number of defectives in the sample does not exceed the number given in col 3 of Table 1.

**TABLE 1 SCALE OF SAMPLING OF STITCHED APRONS**

(Clause 4.1.1)

No. OF APRONS IN THE LOT	FOR VISUAL AND DIMENSIONAL EXAMINATIONS PRESCRIBED IN 3.3 AND 3.4		No. TO BE SELECTED FOR TESTING OF MATERIALS AS PRESCRIBED IN 3.1
	No. to be Selected	Permissible No. of Defectives	
(1)	(2)	(3)	(4)
Up to 50	8	0	1
51 to 100	13	1	1
101 to 300	20	2	2
301 and above	32	3	3

**4.2.2 Requirements for Finished Fabric and Proofing**—The number of aprons to be tested for proofing compound and finished fabric (3.1) shall be as given in col 4 of Table 1. The lot shall be declared satisfactory only when each of the tested aprons passes the test.

## 5. PACKING AND MARKING

**5.1** The aprons shall be dusted with talc and packed suitably as agreed to between the purchaser and the supplier.

**5.2** Each apron shall be clearly and indelibly marked inside at one of the bottom corners with the manufacturer's name, or trade-mark, if any. The marking ink shall be non-irritating to skin and shall not impair the quality of aprons.

**5.2.1** The aprons may also be marked with the ISI Certification Mark.

**NOTE**—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.



# **I N D I A N   S T A N D A R D S**

## **ON**

### **Medical Rubber Goods**

**IS:**

- 3692-1965 Rubber closures ( pharmaceutical )
- 3701-1966 Rubber protective sheaths ( condoms )
- 3867-1966 Rubber ice bags
- 4135-1967 Hospital rubber sheetings
- 4148-1967 Surgical rubber gloves
- 4149-1967 Post-mortem rubber gloves
- 5193-1969 Rubber sealings rings for domestic fruit and vegetable preserving jars
- 5680-1969 Rubber tubings for medical use
- 5783-1970 Rubber ward-dressing and porter's gloves