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IS 11433-1 (1985): Specification for one part gun-grade polysulphide- based joints sealants, Part 1: General requirements [CED 13: Building Construction Practices including Painting, Varnishing and Allied Finishing]



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**( Reaffirmed 1995 )**

*Indian Standard*

**SPECIFICATION FOR  
ONE-PART GUN-GRADE POLYSULPHIDE-BASED  
JOINT SEALANTS**

**PART 1 GENERAL REQUIREMENTS**

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# *Indian Standard*

## SPECIFICATION FOR ONE-PART GUN-GRADE POLYSULPHIDE-BASED JOINT SEALANTS

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# *Indian Standard*

## SPECIFICATION FOR ONE-PART GUN-GRADE POLYSULPHIDE-BASED JOINT SEALANTS

### PART 1 GENERAL REQUIREMENTS

#### 0. FOREWORD

**0.1** This Indian Standard (Part 1) was adopted by the Indian Standards Institution on 23 December 1985, after the draft finalized by the Building Construction Practices Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** One-part gun-grade polysulphide-based sealant contains a polysulphide polymer and a curing system which is activated by exposure to moisture and cures to a rubber like solid.

**0.3** This standard is based on BS 5215 : 1975 'Specification for one-part gun-grade polysulphide-based sealants', issued by the British Standards Institution.

**0.4** The standard for one-part gun-grade polysulphide-based joint sealants is being formulated in two parts as follows:

Part 1 General requirements, and

Part 2 Methods of tests.

**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 ( Part 1 ) covers general requirements of one-part gun-grade polysulphide-based sealants used in some sealing or glazing applications in buildings and structures.

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

## 2. SELECTION OF MATERIAL

**2.1** The selection of base polymer fillers and other ingredients shall be as suggested by the manufacturer. The sealant shall cure at ambient temperature and humidity when applied as per manufacturer's instructions. Where a particular primer is recommended by the manufacturer for a specific surface, that surface shall be treated with that primer as per the manufacturer's instructions. The report of result shall indicate whether or not primer was used.

## 3. TEST CONDITIONS

**3.1 General** — All tests shall be carried out on material obtained from previously unopened containers.

**3.2 Curing Conditions** — Standard cure conditions shall be  $40 \pm 2^{\circ}\text{C}$  temperature and  $95 \pm 5$  percent relative humidity.

**3.3 Storage Life** — The sealant shall be capable of meeting the requirements of this standard at any time up to the expiry date as declared by the manufacturer. The sealant shall be stored under the conditions stated on the package by the manufacturer.

## 4. TEST REQUIREMENTS

**4.1** The material shall meet the requirements as given in 4.1.1 to 4.1.7. The methods of tests have been given in Part 2 of this standard.

**4.1.1 Rheological Properties** — The flow of the sealant shall be such that it shall not slump or sag in vertical or horizontal displacement or slip from the channel when tested in accordance with 2 of Part 2 of this standard.

**4.1.2 Recovery** — The cure of the sealant shall be considered satisfactory if it exhibits recovery of not less than 75 percent, and if the tensile force required to extend the specimen is not less than 25 N or greater than 300 N when tested in accordance with 3 of Part 2 of this standard.

After the test the sealant shall be cut open with a clean sharp knife; there shall be no substantial transfer of the sealant onto the knife blade.

**4.1.3 Mass Loss After Heat Ageing** — The mass loss, which includes volatile content, shall not exceed 10 percent. The sealant shall exhibit no cracks, bubbles or chalking, when tested in accordance with 4 of Part 2 of this standard.

**4.1.4 Staining** — There shall be no staining on the test mortar when tested in accordance with 5 of Part 2 of this standard.



**4.1.5 Test for Cyclic Adhesion** — Adhesion and cohesion shall be considered satisfactory if after three cycles the total area (length  $\times$  depth) of failure does not exceed 100 mm<sup>2</sup> per specimen when tested in accordance with 6 of Part 2 of this standard.

**4.1.6 Test for Adhesion in Peel**

**4.1.6.1 Adhesion to aluminium, stainless steel and cement mortar** — For each of the test surfaces, that is aluminium, stainless steel and cement mortar, the average peel strength shall be not less than 25 N and the material shall not fail in adhesion over more than 25 percent of the area of the test surface when tested in accordance with 7 of Part 2 of this standard. For each test surface four strips shall be tested and the average peel strength recorded. If all strips meet the requirements stated in the preceding paragraph, the sealant shall be deemed to comply the test.

**4.1.6.2 Adhesion to glass after sunlamp exposure through glass** — For each of the test strips the average peel strength shall be not less than 25 N and the material shall not fail in adhesion over more than 25 percent of the area of the test surface when tested in accordance with 8 of Part 2 of this standard.

**4.1.7 Adhesion After Heat Ageing** — The sealant shall be considered satisfactory if the force required to extend the specimen is not less than that required to extend the specimen in 4.1.2 and not greater than 300 N when tested in accordance with 9 of Part 2 of this standard. Adhesion and cohesion shall be considered satisfactory if the total area of failure does not exceed 100 mm<sup>2</sup> per specimen.

## **5. MARKING**

**5.1** The sealant shall bear the manufacturer's name or his trade-mark, if any.

**5.2** The sealant may also be marked with the Standard Mark.

**5.2.1** The use of the Standard Mark is governed by the provision of Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## **6. PACKING**

**6.1** The sealant shall be suitably packed. Each package shall indicate the following:

- a) Manufacturer's name or trade-mark, if any;
- b) Quantity; and
- c) Instructions for use and storage.

## **7. SAMPLING**

**7.1** Representative samples of the material shall be taken and conformity of the material to the requirements of this standard shall be determined according to the procedure given in Appendix A.

# **A P P E N D I X   A**

*( Clause 7.1 )*

## **SAMPLING OF ONE-PART GUN-GRADE POLYSULPHIDE-BASED JOINT SEALANTS**

### **A-1. SCALE OF SAMPLING**

**A-1.1 Lot**—All the packages of the same type, same grade, and belonging to the same batch of manufacture shall be grouped together to constitute a lot.

**A-1.2** For ascertaining the conformity of the material in the lot to the requirements of this standard, samples shall be tested from each lot separately.

**A-1.3** The number of packages to be selected from the lot shall depend on the size of the lot and shall be according to Table 1.

**A-1.3.1** These packages shall be selected at random from the lot. In order to ensure the randomness of selection, procedures given in IS : 4905-1968\* may be followed.

### **A-2. TEST SAMPLES AND REFEREE SAMPLES**

**A-2.1** From each of the packages selected according to **A-1.3** approximately equal quantity of material shall be taken by the suitable

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\*Methods for random sampling.

sampling instrument and shall be mixed thoroughly so as to constitute the composite sample. The quantity of material in the composite sample shall be sufficient for making triplicate determinations for all the requirements given in this standard.

TABLE 1 SCALE OF SAMPLING

NO. OF PACKAGES IN THE LOT			SAMPLE SIZE
(1)			(2)
Up	to	25	2
26	to	50	3
51	to	150	5
151	and above		8

**A-2.2** The composite sample shall be divided into three equal parts, one for the purchaser, another for the supplier and the third for the referee. Each of these parts shall be transferred to thoroughly dried sample containers which are then sealed air-tight and labelled with all the particulars of sampling.

**A-2.3 Referee Sample** — Referee sample shall bear the seals of the purchaser and the vendor. This shall be kept in a cool and dry place as agreed to between the purchaser and the vendor so as to be used in case of dispute between the two.

### A-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

**A-3.1** All the characteristics given in the specification shall be tested on the composite sample.

**A-3.2** The lot shall be declared as conforming to the requirements of this standard if all the test results on the composite sample meet the relevant specification requirements.

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