उत्पाद मानुयल

Plastics – Acrylonitrile Butadiene styrene (ABS) Moulding and Extrusion Materials Part 1 Designation System and Basis for Specifications

IS 17077(Part 1): 2019 के अनुसार

PRODUCT MANUAL FOR
Plastics – Acrylonitrile Butadiene styrene (ABS) Moulding and Extrusion Materials Part 1 Designation System and Basis for Specifications According to IS 17077(Part 1): 2019

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification license/certificate.

1.	**उत्पाद** **Product**	**:**	IS 17077 (Part1) : 2019
	शीर्षक **Title**	:	Plastic - Acrylonitrile Butadiene styrene (ABS) Moulding and Extrusion Materials Part 1 Designated System and Basis for Specification
	संशोधन संख्या **No. of amendments**	**:**	NIL
2.	**नमुनाकरण दिशा निर्देश** **Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	**:**	No specific requirement

b)	**समूहिकरण दिशा निर्देश** **Grouping Guidelines**	:	कृपया Annex-A देखें Please refer Annex - A
c)	**नमूने का परिमाण** **Sample Size**	:	2 kg granules for preparing test specimen for all tests
3.	**परीक्षण उपकरणो की सूची** **List of Test Equipment**	:	कृपया Annex-B देखें Please refer Annex - B
4.	**निरीक्षण व परीक्षण स्कीम** **Scheme of Inspection and Testing**	:	कृपया Annex-C देखें Please refer Annex - C
5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day**	:	Melt mass-flow rate Note: Above test can be done in a day, considering time taken for pre-conditioning of the samples
6.	**लाइसेन्स का कार्यक्षेत्र / Scope of the Licence :**		
	Licence is granted to use Standard Mark as per IS 17077 (Part1) : 2019 with the following scope:		
	उत्पाद का नाम **Name of the product**		Plastic - Acrylonitrile Butadiene styrene (ABS) Moulding and Extrusion Materials Part 1 Designated System and Basis for Specification
	Designation/ **Classification**		Designation of thermoplastic material as per Cl. 3.1 of IS 17077 Part 1 For Ex – Thermoplastics ISO 19062-ABS-1P,,MCZ,125-04-16-25,,

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ANNEX A
GROUPING GUIDELINES

1) The manufacturer shall declare, in their application for considering grant of licence and/or change in scope of licence, each designation code which they intend to cover in the scope of the licence.

2) For considering grant of licence and/or change in scope of licence, the following grouping shall be considered:

Data Block	Details of data block	Sample to be drawn/tested pertaining to each data block
Data Block 1	Type and composition of monomer	(a) Manufacturer shall declare code no for each type of composition intended to be covered in the scope of licence as per Table 1. (b) Manufacturer shall declare code letter for each type of additional monomer intended to be covered in the scope of licence as per Table 2. One sample of **each type of composition and any additional co monomer as per data block 1** shall be tested to cover the code(s) in scope of licence
Data Block 2	Type of filler and/or reinforcing material	Manufacturer shall declare type of filler and/or reinforcing material intended to be covered in the scope of licence as per Table 3 for each combination. Samples of material with **each type of filler or reinforcing material in any one physical form** intended to be covered in the scope of licence shall be tested
Data Block 3	Method of processing, additives, supplementary information, and other characteristics	Manufacturer shall declare Method of processing, additives, supplementary information, and other characteristics intended to be covered in the scope of licence as per Table 4 for each combination.
Data Block 4	Vicat softening temperature	Manufacturer shall declare the Vicat softening temperature ranges (≤90℃ to >130℃) code number as per Table 5 being manufactured and intended to be covered in the licence. One sample of highest and lowest range of Vicat softening temperature against code

		number as per table 5 shall be tested to cover the entire range of Vicat softening temperature ranges in the scope of licence.
	Melt mass-flow rate	Manufacturer shall declare the range of Melt mass-flow rate (≤5 g/10 min to > 40 g/10 min) code number as per Table 6 being manufactured and intended to be covered in the licence. One sample of highest and lowest range of Melt mass-flow rate against code number as per table 6 shall be tested to cover the entire range of Melt mass-flow rate in the scope of licence.
	Charpy notched impact strength	Manufacturer shall declare the range of Charpy notched impact strength (≥3 but ≤7 kj/m^2 to > 35 kj/m^2) code number as per Table 7 being manufactured and intended to be covered in the licence. One sample of highest and lowest range of Charpy notched impact strength against code number as per table 7 shall be tested to cover the entire range of Charpy notched impact strength rate in the scope of licence.
	Tensile modulus	Manufacturer shall declare the range of Tensile modulus (≤1800 MPa to > 2800 MPa) code number as per Table 8 being manufactured and intended to be covered in the licence. One sample of highest and lowest range of Tensile modulus against code number as per table 8 shall be tested to cover the entire range of Tensile modulus in the scope of licence.
Data Block 5	Additional requirements	Manufacturer shall declare additional requirements intended to be covered in the scope of licence as per clause 3.6 of IS 17077 (Part1): 2019 for each combination. (This is only to be provided only as information to BIS and has no bearing on the testing)

ANNEX B
List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	**Vicat Softening Temperature** As per IS 17077 (Part 1) : 2019 Clause 3.5.1	A) Liquid filled Heating bath i) Vernier calliper ii) Liquid paraffin or iii) Transformer or iv) Glycerol or v) Silicon oil vi) Stirrer **Or** B) Direct contact heating unit i) Heater ii) Blocks **Or** C) Fluidized Bed i) Aluminium oxide powder ii) Vernier calliper iii) Stirrer D) Cooling device E) Test frame assemblies i) Rod and frame ii) Indenting tip iii) Weights iv) Penetration measuring device v) Dial gauge F) Temperature measuring device i) Thermometer
2	**Melt Mass Flow Test** (Extrusion Plastometer) As per IS 17077 (Part 1): 2019 Clause 3.5.2	A) MFR Tester i) Cylinder ii) Piston iii) Barrel Heater iv) Load (10kg) v) Packing rod vi) Die vii) Go-No go gauge viii) Hot Air oven/Drying equipment ix) Cleaning Equipment

		B) Micrometre C) Vernier Calliper D) Timer Device E) Weighing Balance F)Moisture Analyser
3	**Charpy Notched Impact Test** As per IS 17077 (Part1): 2019 Clause 3.5.3	A) Charpy Impact Test i) Charpy Impact tester ii) Micrometre iii) Thickness gauge
4	**Tensile Modulus Test** As per IS 17077 (Part1): 2019 Clause 3.5.4	A) Universal testing machine i) Grips ii) Force indicator iii) Strain indicator iv) Extensometers v) Strain Gauges B) Vernier Calliper C) Micrometre
5	**Preparation of Test Specimens** As per IS 17077 (Part 2) : 2020 Clause 3	A) Injection moulding (Clause 3.4) or compression moulding machine (Clause 3.4) with sample moulds B) Hot air oven
6	**Conditioning Requirements** As per IS 17077 (Part 2) : 2020 Clause 4 & Table 3	A) Hot Air Oven B) Humidity Chamber with relative humidity and temperature indicator C) Hygrometer D) Thermometer E) Stop Watch F) Air Conditioner

The above list is indicative only and may not be treated as exhaustive.

ANNEX C
Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 2) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare and implement a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING, LABELLING AND MARKING – The Standard Mark, as given in the Schedule of the licence, shall be marked on each bag and/or unit package that is being delivered to the customer provided always that material so marked conform to requirements of the specification.

3.1 The material shall be packed in suitable form of packing as agreed to between the purchaser and supplier.

3.2 Each bag and/or unit package that is being delivered to the customer shall be clearly marked with the following

a) Name of the material,
b) Designation Code,
c) Net Mass of the material
d) Batch Number/Lot Number
e) Month and year of manufacture of the material and
f) Name of the manufacturer and trade mark; if any

3.3 In addition, the following shall be incorporated on each bag and/unit package:

i) BIS Licence Number CM/L - and
ii) BIS website details i.e. - For details of BIS certification please visit www.bis.gov.in"

4. CONTROL UNIT - For the purpose of this scheme, the total quantity of product of the same designation code produced from the same type of raw materials in similar condition shall constitute one control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

7. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1: LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl.	**Requirement**	**Test Method**			**No. of Sample**	**Frequency**	**Remarks**
		Clause	**Reference**				
3.5.1	Vicat Softening temperature	Clause 5 Table3	IS 17077 (Part 2) : 2020*	**R**	One	Each Control Unit	In case of failure one more sample shall be taken for testing from the same lot. If sample fails in retesting the control unit shall be rejected.
3.5.3	Charpy Notched Impact Strength	Clause 5 Table3	IS 17077 (Part 2) : 2020*	**R**	One	Each Control Unit	
3.5.2	Melt Mass Flow Rate	Clause 5 Table3	IS 17077 (Part 2) : 2020*	**R**	One	Each Control Unit	
3.5.4	Tensile Modulus	Clause 5 Table3	IS 17077 (Part 2) : 2020*	**R**	One	Each Control Unit	

**IS 17077 (Part 1): 2019 refers to ISO 2580-2 for test methods (which has been superseded by ISO 19062-2:2019). However, there is an Indian Standard available i.e. IS 17077 (Part 2): 2020 which prescribes testing procedures for ABS moulding and extrusion materials also. Test methods prescribed under IS 17077 (Part 2): 2020 are similar to those given in ISO 19062-2:2019 for the requirements in IS 17077 (Part 1): 2019. It has been decided that PCD shall take up an early amendment to IS 17077 (Part 1): 2019 to add IS 17077 (Part 2): 2020 as a test method reference, accordingly the test method reference given in the Product Manual is to IS 17077 (Part 2): 2020.*

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note–2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.