

Guidance sheet for Inspection and testing of Polyethylene DOWEL.

The steps to be followed during Inspection and testing of Polyethylene Dowel with their references are as below-

(The following text is derived considering testing of Polyethylene Dowel RT-3002 or mentioned otherwise.)

S N	Action	Reference	Remarks / Points to take care
1	Arrival of inspecting official in the firm premises: Checking of documents	Inspection checksheet (Annexure 2)	
2	Checking of offered material, physically like whether packing is complete in all respect, packing is correct	Call letter of placed call. (Annexure 4)	Make, Marking Box details etc.
3	<p>Sample Size- Sampling size for visual and dimensional check shall be taken as below-</p> <p>One Percent of polyethylene dowel per batch shall be drawn randomly and checked for dimension in first 1,00,000 no. of dowels of one design manufactured by firm . 0.5 percent dowels per lot shall be checked for dimension consequently to 1,00,000 no. dowels of one design being found satisfactory.</p> <p>In case any lot is rejected for dimension one percent dowels per batch shall be checked from next lot onwards till 1,00,000 no. dowels are found continuously satisfactory and thereafter Sampling rate shall be 0.5 percent per lot again.</p> <p>Note- As visual and dimensional check is a non- destructive type testing, hence Polyethylene Dowel after testing may be used for supply.</p>	Para 6.3.1.1 of IRS specification for Polyethylene dowel (Provisional-1997).	
4	<p>Sampling of offered material-</p> <p>For Polyethylene Dowel to RT-3002 one Lot comprises of 5,000 Nos. or part thereof. e.g. if offered quantity is 12,000 Nos., then it will make 03 Lots.</p> <p>Few bags and 25 samples are taken per lot. These are checked for visual & dimension by RDSO approved gauges. Out of these, 3 samples per lot, are checked for physical properties, (destructive testing) as per Para 6.3.2 of IRS specification for Polyethylene Dowel (Provisional-1997)</p>	IS- 4905 and	03 No. Dowel required for destructive testing per lot
5	Dimension with approved gauge done and checksheet prepared. In respect of dimension only if the lot offered failed to meet stipulation in clause 6.3.1 the manufacturer shall offer the lot for re-inspection after shorting out the defective dowel.	Para 7.1 of IRS specification for Polyethylene Dowel (provisional-1997)	

6 Checking of physical properties:
3 samples per lot are taken for physical properties testing as per Para 6.3.2 of IRS specification for Polyethylene Dowel (Provisional-1997) as given under.

S.N.	Physical properties	Unit	No. of samples taken	Values	Test Method	Equipment used
1	Melt flow index	Gms/10min	3	0.1 (max)	ASTM-D-1238	MFI machine
2	Crystalline melting point	°C	3	135-137.5	BS:2782(pt-1)	Hot plate
3	Density	Gm/cm ³	3	0.945 min	Buoyancy method	Weighing machine
4	Ash content	%	3	0.5 max	----	Muffle furnace
5	Hardness (shore D)	----	3	65 min	ASTM-D-2240	Shore hardness tester

7 Preparations of check sheet
(a) Test result of dimension
Name of firm
M/s -----

Appendix II

Test result of dimension
(1) Railway's P.O. No.-----
(2) Dowel to Drg.No.-----
(3) Qty.on order -----

Lot No.	Lot Qty. in nos	Sample size nos	Dimension	
			As per gauge to Drg.No	Failing in dimension

Note: One percent of polyethylene dowel per batch shall be drawn randomly & checked for dimensions in first 1,00,000 nos of dowels of one design manufactured by firm.0.5 % dowels per batch shall be checked for dimension consequent to 1,00,000 dowels of one design being found satisfactory. In case ,any lot is rejected for dimension , 1% dowel per batch shall be checked from next lot onward till 1,00,000 dowels are found continuously satisfactory and then after sampling rate shall be 0.5% per lot again.

8 Name of firm M/s -----

Appendix-III

Test result of tests other than dimensions (clause6.3.2)
(1) Railway P.O. No.
(2) Dowel to Drg.no.
(3) Qty. on order.

Lot No.---- Lot qty. ----- nos.

S.no.	Tests	Specified value	Observed value
1	Melt flow index (gm/10 min)	0.1 (max)	
2	Crystalline melting point (°C)	135 -137.5	
3	Density (gm/cm ³)	0.945 (min)	
4	Ash content (%)	0.5 (max)	
5	Hardness (Shore D)	65 (min)	

9	<p>Retest- In respect of dimensions only if the lot offered failed to meet the stipulations in clause 6.3.1 the manufacturer shall offer the lot for reinspection after sorting out the defective dowel.</p> <p>Should any of tests mentioned in the clause 6.3.2.1 failed to meet specific requirements double number of samples from same lot shall be drawn at random for retesting in respect of each failure. Should pass in retesting the lot of dowel represented by the test sample shall be deemed to comply with the requirement of that particular test. Should the retest sample fail the entire lot shall be treated as rejected.</p>	Para 7.1 of IRS specifications for polyethylene dowel (provisional) 1997).	
10	<p>Disposal Of Rejected Dowels- Rejected dowels shall be cut into pieces in such a manner as to render them unusual</p>	Para 11 of IRS specifications for polyethleyne Dowel (provisional 1997)	

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Document Title: INSPECTION PLAN FOR POLYETHYLENE DOWEL FOR CONCRETE SLEEPER IRS SPECIFICATION PROVISIONAL 1997.			

FOLLOWING POINTS ARE CHECKED AT THE TIME OF INSPECTION OF
POLYETHYLENE DOWEL

1	Records and Test results of raw materials	
2	Production records	
3	Cooling arrangement	
4	Calibration of laboratory equipments and gauges	
5	Validity of ISO Certificate	
6	QAP implementation	
7	Purchase order and modification advice, if any	
8	D.P extension letter, if any	
9	Call letter No.	
10	Internal test report	
11	Random sampling of offered lots as per specification No. IRS Specification for Polyethylene Dowel (Provisional)1997	
12	Checking of dimensions by RDSO approved gauges as per format	

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4. CHECK SHEET FOR POLYETHYLENE DOWEL FOR CONCRETE SLEEPERS IRS SPECIFICATION PROVISIONAL 1997.

1. Firm's Name :
2. Description of material : Polyethylene Dowel
3. Date (period) of inspection :
4. Contract Details :
 - a. Contract no. and date :
 - b. Order placing authority : .
 - c. Delivery period :
 - d. Specification no. : Provisional - 1997
(as mentioned in contract)
 - e. Drawing no. : RT – 3002, Alt. 4
(as mentioned in contract.)
5. Quantity on order :
6. Quantity passed earlier :
7. Quantity now offered :
8. Quantity consumed in testing :
9. Quantity Accepted :
10. Quantity Rejected :
11. Consignee :

12. i) No of boxes offered :
- ii) Continuous Sl. No. of Boxes :

A. This is guaranteed by M/s. that reconstituted/recovered materials have not been used for manufacturing of the above items offered for inspection.	B. The dowels have been packed in poly bags which in turn shall be sturdy / stout boxes and sealed
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Quality Control Manager, of
M/s

Inspecting officials of
RDSO

5. TEST RESULTS OF POLYETHYLENE DOWELS.

LOT SIZE:- 4,997 NOS.

SN	Parameter	Specified Value	Lot Number				
1	Visual Observation.	Free from moulding defects such as bubbles, splash marks, burn marks, voids, surface sinking, crazing and blistering of surface, warping, laminations, cracks etc.					
2.	Marking	Manufacturers initials, last two digit of year of manufacture and part no. as shown in RDSO drawing.					
3.	* MFI at 190 Degree C	0.1 gms/10 minutes, (max)	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.
4.	Crystalline Melting Point	135-137.5 degree C	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.
5.	Density	0.945 gms/cm ³ (min)	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.
6.	Ash Content	0.5 % (max)	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.
7.	Hardness (Shore D)	65 (min)	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.

* One composite sample shall be made by mixing approximately equal quantity of sample from each of three dowels & 3 reading shall be recorded during the test run.

Quality Control Manager, of
M/s

Inspecting officials of
RDSO

**6. DIMENSION REPORT OF POLYETHYLENE DOWEL TO DRG. NO. RT-3002
AS PER GAUGE DRAWING NO. RT-3545.**

Name of Firm :

Date of Inspection :

Lot No :

S N	Dimension	Gauge No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	Internal Thread	1,2																									
2	Outer Thread profile	3,13 &18																									
3	Top pin Gauge-25φ	4																									
4	Pin Gauge for Bottom Int.Dia.13 φ	5																									
5	Top Dia.34φ at 30 °	6																									
6	Pin Gauge 16φ	7,8																									
7	Outer Dia at Bottom 31φ	9,10																									
8	Outer Dia at Top 30 φ	11																									
9	Length 165 ± 0.5	12																									
10	Disc Gauge for 2 mm High	14																									
11	Top Plug Gauge 25 φ & 9 mm Depth.	19																									

Marking on Dowel

Inspected by-
RDSO Officials/LUCKNOW.