GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RDSO)

AMENDMENT - 1 OF 2024
TO
INDIAN RAILWAY STANDARDS SPECIFICATION
FOR
RAIL PADS
FOR PLACING BENEATH RAILS
SERIAL No. T- 55-2023

1. **10mm thick Nylon cord reinforced GRSP have been added in the Clause 1.0, is as under:**

1.0 Scope:

1.1 This specification covers the requirements, method of tests, sampling and scheme of testing for Rail Pads for placing beneath rails, at rail seat of the PSC sleepers i.e. Grooved Rubber Sole Plate (6mm & 10mm thick), Composite Grooved Rubber Sole plates (6.2mm & 10mm thick) & Nylon Cord Reinforced GRSP (6mm thick & 10mm thick).

2. **Acceptance value for 10mm thick Nylon cord reinforced GRSP have been added in the Table under Clause 5.3 are as under:**

PHYSICAL PROPERTIES OF FINISHED ~~6MM THICK~~ NYLON CORD REINFORCED GROOVED RUBBER SOLE PLATES

SN	Property/Test	Units	Acceptance value for 6mm thick Nylon Cord Reinforced GRSP	Acceptance value for 10mm thick Nylon Cord Reinforced GRSP	Test Method
1.	Hardness	Shore 'A'	75-85	75-85	Appendix 'A'
2.	Tensile Strength				Appendix 'B'
	a) Before ageing	Kg/cm^2	120 (min)	120 (min)	
	b)After ageing at 100±1°C for 72+0/-2 hours	Kg/cm^2	100 (min)	100 (min)	
	c)Retention after ageing	%	80 (min)	80 (min)	
6.	Elongation at break				Appendix 'B'
	a) Before ageing	%	200 (min)	200 (min)	
	b)After ageing at 100±1°C for 72+0/-2 hours	%	150 (min.)	150 (min.)	
	c)Retention after ageing	%	65 (min.)	65 (min.)	
10.	Relaxed Modulus at 100% elongation				Appendix 'C'
	a) Before ageing	Kg/cm^2	45-60	45-60	
	b)Change after ageing at 100±1°C for 72+0/-2 hours	% of actual value	+30(max) -10	+30(max) -10	
13.	Compression set subjected to 50% compression at	%	30(max)	30(max)	Appendix 'D'

	100±1°C for 24+0/-2 hours				
14.	Tension set subjected to 50% stretch at 100±1°C for 24+0/-2 hours	%	25(max)	25(max)	Appendix 'E'
15.	Load Compression Test	mm	0.3-0.5	0.6-0.9	Appendix 'F'
16.	Electrical resistance				Appendix 'G'
	a) Before immersion	Mega Ω	100(min)	100(min)	
	b) After immersion	Mega Ω	100(min)	100(min)	
19.	Ash content	%	Approved value ± 5 Subject to not exceeding 27%	Approved value ± 5 Subject to not exceeding 27%	IS: 3400 (Part 22)
20.	Specific gravity	-	Approved value ± 0.03, Subject to not exceeding 1.27	Approved value ± 0.03, Subject to not exceeding 1.27	IS:3400 (Part IX)

Note: i) Hardness, Load-compression, Electrical Resistance shall be carried out on the finished pad. All other tests shall be carried out from the prepared test slabs 6+ 0.5/-0.0mm thick and of size 200 x 130 mm using the same compound and vulcanized to the same degree. General procedures and conditions of the tests shall be as per IS:3400 without any infringement upon special conditions laid down in the respective appendices of this specification.

For the purpose of confirming/co-relating the composition of the rubber test slabs with that of the finish product, Inspecting/Purchasing authorities may at their discretion shall perform the following tests both on the test slabs and the products, and shall comply with the requirements as given under:-

Polymer identification:	Identical
Specific Gravity:	The results shall be within ±0.02
% Ash Content:	The results shall be within ±5%

3. The existing Clause 5.3.1 have been modified and shall be read as under:

5.3.1 PHYSICAL PROPERTIES OF NYLON CORD:

The cords shall be suitably treated to ensure proper adhesion between the rubber and Cord as specified in this standard.

The Nylon Cord shall be of style 1260/2 and the physical properties of the treated Cord shall conform to the following requirements:-

SN	Properties	Values	Method of Tests
1	Denier(gms/9000meters), Min	2400	IS:4910 Part I:1989 (Reaffirmed 2018)
2	No. of ends/inch	24±2	IS:1963 (Reaffirmed 2004)
3	Thickness(mm), min	~~0.75~~ 0.68 ±0.03	IS 4910 Part VIII: 1989 (Reaffirmed 2018)
4	Load at Break(Kg), min	16	IS 4910 Part II:1989 (Reaffirmed 2018)
5	Elongation at break(%), max	20	IS 4910 Part II:1989 (Reaffirmed 2018)
6	No. of twists/m	~~380/400~~ 385±15	ASTM-D-885M

4. The packing provision for 10mm thick Nylon Cord Reinforced GRSP has been added in the existing Clause 14.1(c) are as under:

14.1 C) 50 pads for 6mm or 25 pads for 10mm or part thereof for Nylon Cord Reinforced GRSP, the rail pads for one set turnout should preferably be packed suitably for easy identification.

5. Load compression test procedure on 10mm thick Nylon Cord Reinforced GRSP has been added in Appendix-'F' at Clause F.4.3 and F.5.3

F.4.3 For Composite GRSP (10mm thick) & Nylon Cord Reinforced GRSP (10mm thick):

Two consecutive loading of $\frac{27 \times A}{260}$ t shall be applied before any deformations Reading are taken. A load of $\frac{A}{260}$ t shall be then applied and the dial gauges shall be adjusted for '0' reading. Loads in tonnes for 2, 3, 5,10,15 & 20 then applied and when each load is static for one minute, the dial gauge readings shall be recorded at load corresponding to 20 tonne. The deformation to be considered for report shall be the average of the readings taken from 2 dial gauges at each load, which shall not differ more than 0.3 mm for a given load.

F.5.3 For Composite GRSP (10mm thick) & Nylon Cord Reinforced GRSP(10mm thick):

F.5.3.1: Compression (mm) at a load $\frac{20 \times A}{260}$ t for the two sole plates.

6. The following physical properties of existing 'APPENDIX-K' have been corrected as under:

Scheme of Testing for Pre-Acceptance/ Acceptance Tests for Rail Pads

Property	No of samples to be tested	Criteria value for acceptance/ rejection	No. of samples to be drawn
2. Tensile strength (Kg/cm^2)			
(a) Before ageing	5	Individual	5
(b) After ageing ~~at 100± 1°C for 96 + 0/-2 hours~~	5		
(c) Retention after ageing (%),			
3. Elongation at break (%)			
(a) Before ageing	5	Individual	-
(b) After ageing ~~at 100 ± 1°C for 96+ 0/-2 hours~~	5		
(c) Retention after ageing (%)			
4. Modulus (relaxed) at 100% elongation			
(a) Before ageing (kg/cm^2)	3	Individual	3
b) Change after ageing ~~at 100 ± 1°C for 96+ 0/-2 hours~~	3	-	
5. Compression set ~~subjected to 50% compression at 100± 1°C for 24+ 0/-2 hours~~.	3	Individual	3
6. Tension set ~~subjected to 50% stretch at 100 ± 1°C for 24 + 0/-2 hours~~	3	Individual	3

Sd/-
for Director General/Track-

II
Lucknow
Dated: