

**INSPECTION CHECK SHEET**

**FOR**

**6.2 MM THICK**

**COMPOSITE GRSP** (Along with Annexure-A & B)

INSPECTION CHECK SHEET FOR 6.2 MM CGRSP			
NAME OF FIRM			
PURCHASER RAILWAY			
QUANTITY			
CALL LETTER NUMBER			
CONTRACT DETAILS			
S.N.	Reference	Item	Yes/No
1		Whether Original Copy of Purchase Order available?	
2		Whether delivery period available?	
3		Whether consignee details available?	
INSPECTION GAUGES			
S.N.	Reference	Item	Yes/No
4		Whether working gauges approved by RDSO is available?	
5		Whether approval certificate for inspection gauges issued by RDSO is available and valid?	
QUALITY ASSURANCE PLAN			
S.N.	Reference	Item	Yes/No
6		Whether approved copy of Quality Assurance Programme (QAP) is available?	
7		Whether Firm is following approved QAP (To be verified from the records)?	
AVAILABILITY OF DRAWING & SPECIFICATION			
S.N.	Reference	Item	Yes/No
8		Whether all the relevant drawings are available?	
9		Whether all BIS code and IRS specification mentioned in IRS RDSO/M&C/RP-198/2006 and QAP are available?	
PROCESS			
S.N.	Reference	Item	Yes/No
10	3.1.1 of specification No. RDSO/M&C/RP-198/2006	Whether the natural rubber is being used in grade RSS-I to RSS-IV?	
11	Para 2.1 of STR	Whether storage area is covered and free from dampness and humidity?	
13	Para 2.3 of STR	Whether storage of mixed rubber compound is done, batch-wise?	

14	Para 2.4 of STR	Whether facilities for mixing of rubber compound at a temperature below the oxidation temperature (150 °C) is available?	
15	Para 4.1 of STR	Whether there is a system to ensure the traceability of the product from raw material sample to finished product stage?	
16	Para 3.1.1 of specification IRS T-47/2006	Whether Each mix/batch testing is being done for relaxed modulus and electrical resistance and records made for same is available?	
17	Desirable Practice	Whether pilot study test is being done for change in Raw material and record is being made?	
18	Desirable Practice	Whether expiry date has been mentioned near storage for product with limited shelf life (Accelerator, activator, plasticizer etc)?	
PLANT, MACHINERY & TESTING INSTRUMENT			
S.N.	Reference	Item	Yes/No
19	Para 3.0 of STR	Whether all the testing instruments (tensile testing machine, compression testing machine, portable hardness tester etc.) are available and having valid calibration?	
20	Para 3.6 of STR	Whether Shore A hardness testing machine has been cross checked with standard piece and found suitable?	
21	Para 3.3 of STR	Whether Tensile testing machines capable to read the load and elongation as per the requirement of the product?	
		Whether machine is calibrated and the load from standard weight giving same reading?	
22	Para 3.14 of STR	Whether Go and No Go gauges are calibrated on due date and the record of calibration maintained?	
23	Para 3.1 of STR	Whether kneader having temperature and timer control/warning system is working properly?	
24	Para 3.1 of STR	Whether Mixing Mill having temperature and timer control/warning system is working properly?	
25	Para 2.6.1 of STR	Whether hydraulic press having temperature and timer	

		control/warning system is working properly?	
26	Para 2.6.1 of STR	Whether cross checking of temperature of mould during curing was satisfactory?	
27	Para 2.6.2 of STR	Whether moulds are being checked on regular basis and record being maintained?	
28		Whether all the temperature & time control system are having valid calibration?	
TESTING			
S.N.	Reference	Item	Yes/No
29	Internal test report	Whether internal test report is having all the details and is satisfactory?	
30	Internal test report	Whether sample used in preparation of internal test report are available?	
31	Display	Whether testing procedure has been displayed at every test instrument?	
32	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether Hardness of compound A of Pad is within $\pm 2$ unit of Hardness on test pad A?	
33	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether Hardness of compound B of Pad is within $\pm 2$ unit of Hardness on test pad B?	
34	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether specific gravity of compound A of Pad is within $\pm 0.02$ of specific gravity on test pad A?	
35	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether specific gravity of compound B of Pad is within $\pm 0.02$ of specific gravity on test pad B?	
36	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether ash content of compound A of Pad is within $\pm 1$ of ash content of test pad A?	
37	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether ash content of compound B of Pad is within $\pm 1$ of ash content of test pad B?	
38	Para 3.2 of specification RDSO/M&C/RP-198/2006	Whether tensile strength of pad before aging, after aging and % retention is within limit? (Limit given in Annexure A)	
39	Para 3.2 of specification	Whether tensile strength of test pad A before aging, after aging and %	

	RDSO/M&C/RP-198/2006		retention is within limit? (Limit given in Annexure A)	
40	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether tensile strength of test pad B before aging, after aging and % retention is within limit? (Limit given in Annexure A)	
41	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether elongation at break of pad before aging, after aging and % retention is within limit? (Limit given in Annexure A)	
42	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether elongation at break of test pad A before aging, after aging and % retention is within limit? (Limit given in Annexure A)	
43	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether elongation at break of test pad B before aging, after aging and % retention is within limit? (Limit given in Annexure A)	
44	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether relaxed modulus of pad before aging, & change in relaxed modulus after aging is within limit? (Limit given in Annexure A)	
45	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether relaxed modulus of test pad A before aging, & change in relaxed modulus after aging is within limit? (Limit given in Annexure A)	
46	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether relaxed modulus of test pad B before aging, & change in relaxed modulus after aging is within limit? (Limit given in Annexure A)	
47	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether compression set of pad is within limit? (Limit given in Annexure A)	
48	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether compression set of test pad A is within limit? (Limit given in Annexure A)	
49	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether compression set of test pad B is within limit? (Limit given in Annexure A)	
50	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether tension set of pad is within limit? (Limit given in Annexure A)	
51	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether tension set of test pad A is within limit? (Limit given in Annexure A)	

52	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether tension set of test pad B is within limit? (Limit given in Annexure A)	
53	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether load deflection of pad is within limit? (Limit given in Annexure A)	
54	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether load deflection of test pad A is within limit? (Limit given in Annexure A)	
55	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether load deflection of test pad B is within limit? (Limit given in Annexure A)	
56	Para 3.2 of specification RDSO/M&C/RP-198/2006	No.	Whether electrical resistance of pad before and after immersion is within limit? (Limit given in Annexure A)	
57	Para 4.0 of specification RDSO/M&C/RP-198/2006	No.	Whether random samples picked up from premises are dimensionally OK?	
58	Para 5.0 of specification RDSO/M&C/RP-198/2006	No.	Whether random samples picked up from premises are having no visual defect?	
59	Para 6.0 of specification RDSO/M&C/RP-198/2006	No.	Whether random samples picked up from premises are having proper marking?	
PACKING , STORAGE & DISPATCH				
S.N.	Reference		Item	Yes/No
60	Para 11.1 and 11.2 of specification No. RDSO/M&C/RP-198/2006		Whether the packing of pads are being done in wooden box/corrugated box suitable for para dropping?	
61	Para 11.3 of specification No. RDSO/M&C/RP-198/2006		Whether boxes have been sealed and labeled bearing: a) Name of supplier b) Purchase order number and date c) Quantity d) Consignee	
62	Para 14 of specification No. RDSO/M&C/RP-198/2006		Whether rejected material has been disposed of by cutting into pieces?	
63	System process for checking traceability		Whether bond room is adequate for storage and free from moisture?	
64	System process		Whether Daily production record is	

	checking traceability	for	being maintained by firm?	
65	System checking traceability	process for	Whether there is separate space to collect rejected material?	

# ANNEXURE -A

LIMITS OF TEST RESULTS OF INSPECTION				
(RDSO/M&C/RP-198/2006 (Provisional) )				
S.N.	Characterstics	Specified Value	Specified Value	Specified Value
		COMPOSITE PAD	COMPOUND A	COMPOUND B
1	Hardness, Shore A	for A side $\pm 2$ of hardness of test pad A, for B side $\pm 2$ of hardness of test pad B	75 min.	60 min.
2	<b>Tensile strength</b>			
	a) Before Ageing (Kg/cm <sup>2</sup> )	120 min	120 min	150 min
	b) After ageing (Kg/cm <sup>2</sup> ) 100 $\pm$ 1°C for 96 +0/-2 hrs.	100 min	100 min	125 min
	c) Retention After ageing (%)	80 min	80 min	80 min
3	<b>Elongation at Break</b>			
	a) Before Ageing (%)	250 min	200 min	350 min
	b) After ageing (%) 100 $\pm$ 1°C for 96 +0/-2 hrs.	180 min	150 min	270 min
	c) Retention After ageing (%)	60 min	65 min	70 min
4	<b>Relaxed Modulus at 100% elongation</b>			
	a) Before Ageing (Kg/cm <sup>2</sup> )	25 - 45	45 - 60	20 -35
	b) % Change after ageing at 100 $\pm$ 1°C for 96+0/-2 hrs.	(+30/-10)	(+30/-10)	(+30/-10)
5	<b>Compression Set. (%)</b> Subject to 50% compression at 100+/-1 deg.C for 24 +0/-2 hrs.	30 max	30 max	25 max
6	<b>Tension Set. (%)</b> Subject to 50% stretch at 100+/-1 deg.C for 24 +0/-2 hrs.	25 max.	25 max.	20 max.
7	<b>Load Compression</b> at 15 t. Load (mm)	0.60 to 0.9	0.40 to 0.6	0.80 to 1.2
8	<b>Electrical Resistance (Mega Ohms)</b>			





	81	82	83	84	85	86	87	88	89	90
	91	92	93	94	95	96	97	98	99	100
	101	102	103	104	105	106	107	108	109	110
	111	112	113	114	115	116	117	118	119	120

**Quality Control Manager of Firm**

**Inspecting official**

CHECK LIST FOR SSE/IN-CHARGE OF P-WAY DEPOT WHERE THE MATERIAL IS RECEIVED AFTER INSPECTION.

FOR 6.2 mm thick COMPOSITE GRSP

S.N.	Item	Yes/No
1	Whether dispatch memo is available with proper signature of inspecting official and impression of pliers?	
2	Whether PO issued is matching with that given in dispatch memo?	
3	Whether the outer seal on box is intact?	
4	Whether the outer seal on the box bear impression of plier?	
5	Whether these details are matching with the details given in dispatch memo?	
6	Whether the inside plastic packing has been done by reversing the plastic bag.	
7	Are there any isolated stitching/tearing mark on plastic bag indicting tempering?	
8	Whether the slip inside plastic packing is available.	
9	Whether the slip contains signature of inspecting official?	
10	Whether the hologram as mentioned in the dispatch memo is fixed on the slip?	
11	Are two lines of stitching being observed on the slip?	

12	Whether fresh chalk/soap stone/mica has been applied on the surface of pads?	
13	Is there any moisture present inside packing	
14	Whether the numbers of pads in each box are available as mentioned in dispatch memo?	
15	Whether testing samples have been received along with material?	
16	On Random visual inspection from each box, whether the pads are having any visual defects?	
17	In case of visual defects please give detail	

#### GUIDELINES FOR HANDLING AND STORAGE OF CGRSP/GRSP

(Ref: Annexure-J of IRS T-47/2006)

The rubbers whether under storage or in use continue to deteriorate and ultimately may become unserviceable. The deterioration may be the result of one particular factor or a combination of factors viz. The action of oxygen, ozone, light, heat, humidity etc. The deleterious effects of these factors may , however, be minimised by adopting appropriate conditions of storing and duration of storage. This guide line proves suitable conditions for the storage of rubbers in all forms.

- (i) The rubber components should be stored in a cool place as far as practicable, preferably below 30 deg.C.
- (ii) They should be kept away from direct sunlight preferably in a dark place. Direct sunlight causes much faster degradation of the rubber components.
- (iii) The humidity of the storage condition should not be such that condensation of moisture takes place on the surface of the components.
- (iv) In the vicinity of these components, any loose electrical connections should be avoided, as these cause production of ozone, which adversely affects rubber.
- (v) They should be stored away from contact with materials containing copper and manganese, which act as poisoning agents and resulting in their faster degradation.
- (vi) Under no circumstances rubber components should be stressed during storage. The portion under stress undergoes deformation with permanent set and leading to degradation. They should be stacked in such a way so that any super imposed stresses are substantially avoided.

- (vii) Any contact with grease or oil should be avoided as these cause swelling, softening and deterioration of rubbers.
- (viii) French chalk or soapstone or mica should liberally be applied on the surface of rubber components.
- (ix) Great care is to be exercised so that the material is used in the order of their receipt in the stores i.e. 'First-come-first issue bases. The rubbers whether under storage or in use continue to deteriorate. The only difference is that under service condition, deterioration is much faster. Every moment of storing is at the cost of useful life and prolonged storage of the material may render it unserviceable due to progressive deterioration.