

## ANNEXURE - 1, BELT TYPE &amp; QUANTITY

Sl. No.	Item Description	Parameter	Remarks
1	Overall Belt Specification	4 Ply, N / N, 1250, FR Grade & shall be as per latest BIS 1891, Pt V	Tolerances on dimensions shall be as per BIS 1891 , Pt V (latest version)
2	Grade of Belt	FR (conforming to ISO : 340, SKIM coated plies)	
3	Edge Construction	Moulded, mildew inhabited, breaker on top face	
4	Ply to ply	Carcass	
5	Belt Dimension	1800 mm width	
6	Top Cover Thickness	5 mm	
7	Bottom Cover Thickness	3 mm	
8	Total minimum thickness (mm)	15 mm	
9	Indented (PR) Quantity in mtrs	2000 Mtrs	
10	Length of Belt Rolls	300 mtrs each	
11	Tolerance on Belt length	(+ / -) 5 %	
12	Tolerance on total Belt length	(+ / -) 5 %	
13	QAP for Belt	Refer Annexure - 2	

**ANNEXURE -2, APPLICABLE STANDARDS / SPECIFICATION**

Sl. No.	Item Description	Standards	Remarks
a	Conveyor Belt	BIS 1891, Pt - I, V	The Latest version of the standards mentioned shall be applicable.  The best value of the standards / specification shall be applicable.
		CAN CSA - M 422 - M87 (type C)	
		ISO 340 (CL # 4.2.2.2)	
		QAP -	
b	Fire Resistant quality of Belt	ISO 340 (for Flame Test )	
c	Drum Friction Test	BIS 1891, Pt - V/ CAN CSA - M 422 - M87 (type C)	
d	Electrical Resistivity test	BIS 1891, Pt - V/ CAN CSA - M 422 - M87 (type C)	
e	Tear Strength of cover rubber	ASTM D624	
f	Abrasion resistance test	(160 mm3 volume loss max.)	
g	Adhesion strength (ply - ply, ply - cover)	min. 6 KN / M (warp & weft)	
h	Elongation of belt	2% max.	
i	Tensile Strength	17 mpa (minimum)	

**C. Marking on the Belt**

f	Marking on the Belt	Unique Serial No. With suffix / prefix for yr & month of Mfg.	Embossing should be at every 10 mtr distance.
---	---------------------	--	--

**D. Sampling & Acceptance test**

Sl. No.	Item Description	Parameter	Remarks
g	Sampling plan - Fabric for conveyor Belt	One sample from each fabric roll	Samples shall be drawn in presence of Third Party Inspector, OPGC Representative
		Randomly drawn from any part of the fabric roll The fabric shall bear the make mark at every 10-15 mtr length	The original invoice copy & TC from fabric manufacturer to be submitted during test.
h	Sampling plan - Ready Conveyor Belt	One sample from each belt roll	Samples shall be drawn in presence of Third Party Inspector, OPGC Representative
		Randomly drawn from any part of the belt roll	The vendor shall offer extra belt length for belt testing.
h	Testing of Sample drawn (Conveyor Belt / Fabric)  The supplier shall provide additional length of belt for test.	Vendors Lab	
		Independent NABL Laboratory	A part of the sample shall be tested at any NABL Laboratory / Govt. Lab. at purchaser's cost. The results so obtained shall be final & binding & override the test results obtained at vender's Lab. The purchaser deserve the right to waive this clause.

i	<b>Attributes of Test (this is not an exhaustive list &amp; the purchaser shall have right to ask for all the tests as per the mentioned standards) :-</b> Overall dimensions of belt Full thickness belting tensile, elongation at break Full thickness belting tensile, elongation at 10% of specified tensile strength Cover rubber tensile strength & elongation at break, before & after ageing Adhesion values between Ply - Ply & Ply - Cover Rubber Troughability Tear Strength & abrasion resistance test Flame test, Drum Friction test Electrical Resistivity test Fire Resistant Test /	Relevant Standard	As per IS-1891 latest/ CAN CSA - M 422 - M87 (type C)/ IS-340
j	<b>Repair Norms :</b> Patch Repair : Buffing : Dough Filling :	Localised rectification of surface blemishes using rubber compound similar to mother compound up to the top of carcass ply followed by hot vulcanisation Entrapped foreign material may be buffed suitably up to 1 mm depth. Buffing shall not be considered as repair, if the thickness of full belt is buffed is within tolerance. If the depth of indentation is 0.5 mm to 1.0 mm, it can be filled with rubber compound with local vulcanisation (same as patch repair)	
k	No of permissible repairs per every 100 mtr belt length	15 (cumulative total of all types of repairs) This shall be calculated randomly for any 100 mtr belt length of the belt roll.	
l	<b>Permissible repairs (Dimensions)</b> Maximum dimension : minimum : Repairs not permitted :	300 mm x 300 mm 20 mm x 20 mm (the smaller sizes of repairs shall not be counted) Repair across the full width of belt	
m	<b>Other terms</b> Jointing of Belt :	The belt shall be joined together (hot vulcanised joint) to make it full roll after the randomly drawn sample for testing. Embossing Mark shall be put at the joint area.	
n	General Requirements Visual inspection of belt	Sufficiency of testing facilities for compliance of the mentioned standards, at the vendor's premises shall be confirmed The vendor shall have facility for visual inspection of all the belts offered for inspection on both the sides.	
o	<b>Make of Fabric</b>	SRF - India / OLBO - Germany / DU PONT - USA / PERFORMANCE FIBRES ( formerly Honeywell, USA)	

# QUALITY ASSURANCE PLAN - MANUFACTURING & TESTING OF CONVEYOR BELT



OPGC - ITPS, Banharpali

OPGC - ITPS, Banharpali															
Sl. No	Component / Operation	Charecterstics	Class	Type of Check	Quantum of check		Reference document	Acceptance Norms	Format of Record		Inspection Agency			Remarks	
					M	C / O				D	M	C	A		
1	2	3	4	5	6		7	8	9	D	10			11	
1.1	Finished Conveyor Belt	Width	Critical	Physical	as per BIS 1891		Tech. Spec	Tech. Spec	Inspection Report	Y	P	---	W		
		Length	Critical	Measure						Y	P	---	W		
		Total Thickness	Critical	Measure						Y	P	---	W		
		Rubber Cover (Top & Bottom)	Critical	Measure						Y	P	---	W		
		Min. Tensile strength	Critical	Measure	DIN 53516		DIN 53516 / Tech. Spec.	DIN 53516 / Tech. Spec.		Y	P	---	W		
		Abrassion Loss	Critical	Measure						Y	P	---	W		
		Breaking Strength	Critical	Measure	as per BIS 1891		BIS 1891			Y	P	---	W		
		Adhesion Tests (in wrap & weft)	Critical	Measure						Y	P	---	W		
		Troughability	Critical	Measure						Y	P	---	W		
		Elongation (%) at Break & at Ref. Load	Critical	Measure						Y	P	---	W		
		No. Of Plies	Critical	Visual	100%	10%	Tech. Spec	Tech. Spec		Y	P	---	W		

PR No. :

## Legends :

M : Manufacturer sub supplier, C : Supplier , O : OPGC

P : Perform, W : Witness, V : Verify as appropriate

Y : Yes for documentation / Records

## Note :

All standards are to be considered as their latest version

Any specific property check not covered in this QAP shall be as per relevent BIS standard.

DOCUMENT NO : QAP / CHP / CONVEYOR BELT - 01.00

PREPARED

REVIEWED

APPROVED



# **QUALITY ASSURANCE PLAN - MANUFACTURING & TESTING OF CONVEYOR BELT**



OPGC - ITPS, Banharipali

Sl. No	Component / Operation	Charecterstics	Class	Type of Check	Quantum of check		Reference document	Acceptance Norms	Format of Record		Inspection Agency			Remarks
					M	C / O					M	C	A	
1	2	3	4	5	6		7	8	9	D	10			11
1.2	Properties of Cover Rubber	Tensile Strength before & after ageing	Critical	Measure	as per BIS 1891		BIS 1891	BIS 1891 & Tech. Spec.	Inspection Report	Y	P	---	W	
		Elongation at break before & after ageing	Critical	Measure						Y	P	---	W	
		Drum Friction test (top & bottom cover)	Critical	Measure						BIS 1891, Part - V		Y	P	---
		Flame Resistivity test	Critical	Measure	ISO - 340		ISO - 340	ISO - 340		Y	P	---	W	
		Surface Resistivity test (Top & bottom)	Critical	Measure	as per BIS 1891		BIS 1891	BIS 1891		Y	P	---	W	
		Abrasion Resistance Test	Critical	Measure	DIN 53516		DIN 53516 / Tech. Spec.	DIN 53516 / Tech. Spec.		Y	P	---	W	
		Hardness test Shore scare - A)	Critical	Measure	Randomly at every 100 mtrs		Tech. Spec.	65 +/- 5 A		Y	P	---	W	
		Tear Strength (Angular & cresent)	Critical	Measure	ASTM D 624		ASTM D 624	ASTM D 624 Tech. Spec.		Y	P	---	W	

PR No. :	<b>Legends :</b> M : Manufacturer sub supplier, C : Supplier , O : OPGC P : Perform, W : Witness, V : Verify as appropriate Y : Yes for documentation / Records <b>Note :</b> All standards are to be considered as their latest version Any specific property check not covered in this QAP shall be as per relevent BIS standard.	DOCUMENT NO : QAP / CHP / CONVEYOR BELT - 01.00		
		PREPARED	REVIEWED	APPROVED

# **QUALITY ASSURANCE PLAN - MANUFACTURING & TESTING OF CONVEYOR BELT**



OPGC - ITPS, Banharpali

Sl. No	Component / Operation	Charecterstics	Class	Type of Check	Quantum of check		Reference document	Acceptance Norms	Format of Record		Inspection Agency			Remarks
					M	C / O				D	M	C	A	
1	2	3	4	5	6		7	8	9	D	10			11
1.3	Fabric	width	Critical	Measure	one sample from every 10 roll / or one mother roll		Tech. Spec.	QAP	Inspection Report	---	P	---	W	
		Breaking Strength (wrap & Weft)	Critical	Measure						---	P	---	W	
		Adhesion strength Ply to Ply (wrap & weft)	Critical	Measure						---	P	---	W	
		Elongation at Break (wrap & weft)	Critical	Measure						---	P	---	W	
										---	P	---	W	

PR No. :	<b>Legends :</b> M : Manufacturer sub supplier, C : Supplier , O : OPGC P : Perform, W : Witness, V : Verify as appropriate Y : Yes for documentation / Records <b>Note :</b> All standards are to be considered as their latest version Any specific property check not covered in this QAP shall be as per relevent BIS standard.	DOCUMENT NO : QAP / CHP / CONVEYOR BELT - 01.00		
		PREPARED	REVIEWED	APPROVED