



QAP NO: QA/TCB/BO/02 Rev 00 Dated 14/09/2015

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QA- TCB, BHEL BHOPAL
REFERENCE QUALITY PLAN

ITEM :- **Aircell**

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Sl.#	Components and Operation	Characteristics	Class	Type of check	Quantum of check	Reference Document	Acceptance Norms	Format of records	AGENCY			Remark
					M				M	C	N	
1	2	3	4	5	6	7	8	9	10			11
2	Process Control											
2.1	Acrylonitrile Butadiene Rubber compound for oil side coating			BS: 2751 BA 70				TC	P	V	V	
2.1.1		Hardness, Shore A		IS:3400 (part2)	1 sample/ Batch	AS PER BHEL SPEC. TR10150A	65 +5/-4 Shore A					
2.1.2		Specific gravity		IS:3400 (part9)	1 sample/ lot		1.33 ± 0.04					
2.1.3		Tensile strength		IS:3400 (part2)			12.6 Mpa min.					
2.1.4		Elongation at break, %		IS:3400 (part1)			250%, min					
2.1.5		C. Set, at 70°C for 24 +0 / -2hrs		IS:3400 (part10) (Large type test specimen)			20% max					
2.1.6		Adhesion to & corrosion of metal at 70°Cfor 168 hrs		Method A 37 BS 903 using carbon steel	once in 3 years		pitting of the metal. Comp shall not adhere to metal					
2.1.7		Adhesion to polyamide fabric		IS:3400 (part 5)			45 N/2.5 cm width of the strip					
2.1.8		Resistance to heat Ageing in Air at 100°C for 168 hrs										
		1) Change in Hardness		IS:3400 (part2)			+ 10% max					
		2) Change in T. S.		IS:3400 (part1)			- 25 % max					
		3) Change in E.B.		IS:3400 (part1)			- 40 % max					
2.1.9		Ageing in Transformer oil at 100°C for 168 hrs										
		1) Change in mass, %		IS:3400 (part9)			+ 3% max					
		2) Change in Volume, %		IS:3400 (part6)			+ 10% max					
		3) Change in Hardness shore A		IS:3400 (part2)			+ 3 max					
		4) Change in T. S., %		IS:3400 (part1)			- 15 % max					
		5) Change in E.B. %		IS:3400 (part1)			- 35 % max					
LEGEND : ** M: MANUFACTURER / SUB SUPPLIER, C:- MAIN SUPPLIER, N:- CUSTOMER, P:- PERFORM, W:- WITNESS AND V:- VERIFICATION, AS APPROPRIATE, CHP:- CUSTOMER SHALL IDENTIFIED IN COLUMN "N" AS "W", TC:- TC:- TEST CERTIFICATE.												

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1	2	3	4	5	6	7	8	9	10			11
2.2	Polychloroprene Rubber compound for air side under coating			BS: 2752 C-60		AS PER BHEL SPEC. TR10150A		TC	P	V	V	
2.2.1		Hardness, shore A		IS:3400 (part 2)	1 sample/ Batch		60 +5 / - 4 IRHD					
2.2.2		Specific gravity		IS:3400 (part 9) Method B	1 sample/ lot		1.36 ± 0.04					
2.2.3		Tensile strength		IS:3400 (part1)			13 Mpa min.					
2.2.4		Elongation at break, %		IS:3400 (part1)			250%, min					
2.2.5		C. Set, at 70°C for 24 +0/-2hrs		IS:3400 (part10)			25% max					
2.2.6		Adhesion to & corrosion of metal at 70°Cfor 168 hrs		Method A 37 BS 903	once in 3 years		No corrosion or pitting of the metal. Comp shall not adhere to metal					
2.2.7		Adhesion to polyamide 6 fabric		IS:3400 (part 5)			45 N/2.5 cm width of the strip					
2.2.8		Resistance to heat Ageing in Air at 100°C for 168 hrs										
		1) Change in Hardness		IS:3400 (part2)			± 10% max					
		2) Change in T. S., %		IS:3400 (part1)			- 25 % max					
		3) Change in E.B. %		IS:3400 (part1)			- 40 % max					
2.2.9		Flexibility at low Temp (-10°C)		Sample kept in cold chamber for 5 hrs & bent to 180° on 3 mm Dia mandrel.				Shall not crack or become brittle				
2.2.10		Colour		Visual	100%			Black				

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2.4	Coated Fabric							TC	P	V	V		
2.4.1		Thickness		IS:7016 (part 1)	Each Roll	AS PER BHEL SPEC. TR10150A	1.25 ± 0.1 mm						
2.4.2		Mass of coated fabric					455 gm/m ² , min						
		1) Oil side coating					615 gm/m ² , min						
		2) Air side under & outer coating comp.					1400 +200/-80 gm/m ²						
		3) Coated Fabric		Visual inspection			Air side - Olive green						
2.4.3		Colour					Oil side - black						
2.4.4		Tear strength along warp & weft		IS:7016 (part 3)			300 N (min)						
2.4.5		Breaking strength along warp & weft		IS:7016 (part 2)			3 KN/50 mm width min						
2.4.6		Elongation at specified load											
		(1) Along warp					25% (min)						
		(2) Along weft					30% (min)						
2.4.7		Low temp. bend test at - 20°C		Sample kept in cold chamber for 5 hours & bent to 180° on 3mm dia mandrel	Once in 3 years			Shall not crack or become brittle					
2.4.8		Resistance to perforation		Mfg. method			390 N min.						
2.4.9		Resistance to damage by flexing		IS:7016 (part 4)			shall withstand 1 lakh cycles with out damage						
				specimen size									
				(25mm X 150mm)									
2.4.10		Blocking resistance		IS:7016 (part 9)			No blocking						
2.4.11		Measurement of cut growth		Mfg. method			shall pass the test						
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2.4	Coated Fabric							TC	P	V	V	
2.4.12		Bursting strength		IS:7016 (part 6)	Once in 5 years	AS PER BHEL SPEC. TR10150A	7 Mpa (min)					
2.4.13		Air permeability		ASTM D 1334	Once in 5 years		5 X 10 ¹² cm ³ .cm/ cm ² .5Hg max					
2.4.14		Surface Finish		Visual	100%		Shall have reasonable surface finish free from deep lines, pits , uncoated areas, pin holes, cracks, dropping of compound, paint marks, & such other defects.					
							Surface shall be clean and free from soil, dust swab marks & other extraneous matter.					
							Coating shall be uniform & shall not have any patch work.					
							Fabric weaving finish formed at the time of vulcanisation shall be permitted					

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