MANUFACTURING QUALITY PLAN -- Solid Core Insulator/ Long rod Insulator Index Sheet Page No.

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED

	Inde	x Sheet					
							Page No.
1	Notes & Cod	les					1-2
2	Process Flo	w chart					3
3	Raw Materia	I Inspection					6-9
4	In-Process I	nspection					
5	Final Accept	ance & Testin	g				10-14
6	Packing & D	ispatch					
7	List of comp	onent manufa	cturer's fo	r approv	al is en	visaged	
8	Revision his	tory					15



	Manufacturer's Name & Address	Customer	Vendor's Code:	Item: Solid Core	M.Q.P. No	. 031	Valid From: 15.01.2016		
				Insulator/ Long	Rev. No.	00	Valid Upto: Till Revision		
		BSPTCL		rod Insulator	Date:05.0	1.2016			
de 1	Indicates place where testing is planned to		Code 2	Indicates who has	to perform	n the tests	i.e. Testing Agency		
	be performed i.e. Inspection location	ı		maioatoo mile mae			l l l l l l l l l l l l l l l l l l l		
Α	At Equipment Manufacturer's works		J	The Equipment Ma	anufacturer				
В	At Component Manufacturer's works		K	The Component M					
C	At Authorised Distributor's place			The Compension is	Idilalastais				
	At Independent Lab		X	The Turnkey Cont	ractor				
	At Turn Key Contractor's location		Y	The Farmey Cont	T actor				
F	Not specified		X						
	Indicates who shall witness the tests i.e. Witnessing	Agency	Code 4	Review of Test Re	ports/Certif	icates			
Р	Component Manufacturer itself								
Q	Component Manufacturer and Equipment Manufacturer		X	By Contractor duri					
R	Component Manufacturer, Equipment Manufacturer and	d Contractor	Y		g product/process inspection				
S	Equipment Manufacturer itself		Z	By Contractor and	or BSPTCI	_ during pro	oduct/process inspection		
T	Equipment Manufacturer and Contractor								
U	Equipment Mannufacturer, Contractor and BSPTCL								
V	Third Party itself								
ode 5	Whether specific approval of sub-vendor /		Code 6	Whether test reco	rds required	to be sub	Mitted after		
	Component make is envisaged?						Clearance/ Instructions		
Е	Envisaged		Y	Yes					
N	Not Envisaged		N	No					
otes									
<u> </u>	1								
The N	MQP should be read in conjunction with BSPTCL specific	cation and shall o	leem to include addi	tional tests if any re	quired as p	er the cont	ract.		
	TCL specification shall include provisions of letter of Awa	rd , BSPTCL app	proved drawings /tec	hnical data sheet / I	BOM / test:	schedule /	test		
ocedu	re applicable to the specific contract.			ļ					
		1	1	1.5 (1.5 11.1	l	L	<u> </u>		
	se of any contradiction between the manufacturer's plant	standards , this	MQP and BSPTCL:	specification following	ng precede	nce shall be	e followed :-		
	SPTCL specification .								
	his Manufacturing Quality plan .								
M	anufacturer's plant standards .								



	MANUFACTURIN	NG QUALITY PI	_AN Solid C	ore Insulator/ L	ong rod	Insulator		
	Manufacturer's Name & Address	Customer	Vendor's Code:	Item: Solid Core	M.Q.P. No	o. 031	Valid From: 15.01.2016	
				Insulator/ Long	Rev. No.	00	Valid Upto: Till Revision	
		BSPTCL		rod Insulator	Date:05.0	1.2016		
								<u> </u>
المائلة	a war and it ilities of the magnetic at over to an account that this	do a como a másica ma a dila	, available at their .	warden on wall on a		af 4h ain a ch	vendere in	-
	ne responsibility of the manufacturer to ensure that this	document is readily	avallable at their	works , as well as a	t the works	or their suc	vendors in	├
order to	avoid any delay at the time of inspection.							₩
E Thor	I nanufacturer shall ensure that their as well as their sub	uandara control m	otoring & tooting in	atrumanta ara dulu	colibrated	and should	have calibration	₩
	tes traceable to Indian / International standards . Calibra							
	rated only by NABL accredited laboratories.	The cords should	De avaliable dulli	Ig inspection by bo	FICE. NO	l resulting it is	l struments will	
Je calib	rated only by NABL accredited laboratories.							
6 In cas	ı se of any tests being carried out at third party lab , such	lah / facility should	he NARL accredite	ad / accented by RS	PTCI			
J. III Cac	se of any tests being earned out at time party lab, such	lab / lability should	DC TVADE accredit	Taraccepted by Be	JI TOL.			
7. Witne	essing of Acceptance Tests by BSPTCL shall be on 25%	of the number of s	samples for accept	ance test. The Con	tractor or E	auipment M	Manufacturer	
	m in advance the serial number of equipment/items bei							
	rspection samples ready for witnessing.	ing onerod for more	1	10200		1		
<u></u>	loposition campios roady for manocomig.							
8. The r	nanufacturer shall maintain the proper co-relation of tes	t certificates from ra	aw material stage t	o finished product s	stage and t	he records :	should be available	
by BSP					lange amie a			
<i>y</i> , 20.								†
9. Manu	facturer shall show the approval of BSPTCL engineering	g for all contract sp	ecific type tests . ir	ncludina specific tyr	e tests if a	ny as per th	e BSPTCL	
	cation, at the time of final inspection.		, , , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,		1		
	, , , , , , , , , , , , , , , , , , , ,							
10. All p	acking cases should be marked with BSPTCL LOA deta	ails . name of project	ct . item description	and Dispatch Clea	rance/ Inst	ructions nu	mber	
	ch material has been cleared for dispatch).	,						
	,							
11. One	copy of test report, Dispatch Clearance/ Instructions s	hall also be sent ald	ong with consignme	ent .				
12. Insp	ection of spare items ordered by BSPTCL shall also be	governed by the pr	ovisions of this MC	QP . Items if not gov	erned und	er MQP sha	all be offered for	
	on as per BSPTCL specifications / Relevant-Indian / Into							
13. Any	material rejected during BSPTCL inspection shall be dis	sposed off with app	roval of BSPTCL.	In case the materia	is to be re	turned to th	e component	
Manufa	cturer, all such items shall be indebly marked (to preven	t mixing) at the wor	ks of the manufact	turer and offered to	BSPTCL ir	nspection er	ngineer for	
verificat	ion of marking.							
14. The	manufacturer shall align their quality system and that of	their sub-vendors	to the requirement	s of latest ISO 9000	quality sta	andards in a	time bound manner.	
15. The	list of component manufacturers for which sub-vendor a	approval are envisa	iged is enclosed he	erewith.				
17. BSF	TCL may review the effective implementation of the pro	cesses during the	product-inspection	/ process-inspection	n.			
In case	any violation in process or process parameters are obs	erved, the reason	along with corrective	ve & preventive mea	asures sha	III be convey	yed to BSPTCL	
within 2	weeks.							
		omponent Manufac	turer	TC : Test Cert	ificates			
	EMR : Equipment Manufacturer's Record							



	Manufacturer's Name & Address		ustomer 3SPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016						.2016 evision
Sr. No.	Components / Operations & Description of Test	Type of check	Quantum of Check / Sampling with basis	Reference document for Testing	Acceptance Norms	Format of Record	1	App 2	icab	le Co	odes 5	REMARKS
A1	RAW MATERIAL - BODY		Cambinia With Dasis	restina			+	Ť	Ŭ	_	Ŭ	<u> </u>
1.0	Alpha Alumina										N	
	Alpha content	Physical	BSPTCL Specification	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	В	K	P	W		N
	Residue on 63 micron	Chemical	100 g/bag	"		"	Α	J	S	W		N
	Loss on Ignition	Chemical	5 bag/ lot	"		"	A	J	S	W		N
	Soluble Soda	"	"	"		"	Α	J	S	W		N
2.0	Feldspars Powder										N	
	Visual appearance of fired sample	Physical	100 g/bag,	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α	J	S	W		N Two types of
	Potash	Chemical	5% of bag/lot	n n	•	"	Α	J	S	W		N feldspar pink &
l	Soda	"	"	"		"	Α	J	S	W		N white used
3.0	China Clays										N	
1	Visual appearance of fired sample	Physical	I	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α		S	W		N Three types of
	Residue on 38 micron.	"	Approx 30 kg from 5% of	"		"	Α	J	S	W		N China clays viz.
	Free iron content	"	bags/ lot/ each type of clay	"		"	Α	J	S	W		N Bageshpur/
	Particle size distribution	"	"	"		"	A	J	S	W		N DM/NC-II
	Extrusion moisture	"	"	"		"	A	J	S	W		N
	Fired shrinkage	"	"	"		"	A	J	S	W		N
	Dry bending strength	"	"	"		"	A	J	S	W		N
	Water absorption	"	"	"		"	A	J	S	W		N
	Loss on ignition	Chemical	"	"		"	Α	J	S	W		N
	Silica, alumina, potash, soda	"	"	"		"	Α	J	S	W		N
4.0	Ball Clays										N	
	Visual appearance of fired sample	Physical		BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α		S	W		N Four types of
	Residue on 63 micron.	"	Approx 30 kg from 5% of	"	"	"	Α	J	S	W		N ball clays are
	Particle size distribution	"	bags/ lot/ each type of clay	"	"	"	Α	J	S	W		N used: Than/
	Extrusion moisture	"	"	"	"	"	Α	J	S	W		N Santalpur/
	Fired shrinkage	"			" "		A	J	S	W		N Htmod KC/
	Dry bending strength				"	"	A	J	S	W		N Bikaner clay
	Water absorption	_ "			"	"	A	J	S	W		N
	Loss on ignition Silica,alumina,potash,soda	Chemical "	"	"	" "	"	A A	J J	S S	W W		N N
,,												
A2 1.0	RAW MATERIAL-GLAZE Ouartz										N	
1.0	Visual appearance of fired sample	Physical	100 g/bag,	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α	J	s	w		N
	Residue on 63 micron.	riiysicai "	5% of bag/lot	BSI TCL Specification	BSI TCL Specification	"	A	J	S	w		N
	Silica	Chemical	370 OF bag/ for	"	п	"	A	-	S	w		N
2.0	Iron Oxide										N	
	Visual appearance of fired sample	Physical	100 g sample	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α	J	S	w		N
	Residue on 63 micron.	"	from each bag of each lot	" "	"	" "	A		S	w		N
	Visual appearance of fired glaze	"	"	"	"	"	A		S	w		N
	colour & glossyness.						1	1	-			
	Purity	Chemical	"	"	"	"	Α	J	S	W		N
	Loss on ignition	"	"	"	"	"	Α	J	S	W		N



	Manufacturer's Name & Address		ustomer SPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016						.2016 evision
Sr.	Components / Operations & Description	Type of check	Quantum of Check /	Reference document for	Acceptance Norms	Format of Record				le Co		REMARKS
No.	of Test		Sampling with basis	Testina			1	2	3	4		6
3.0	Manganese Carbonate Visual appearance of fired sample Residue on 63 micron.	Physical "	100 g sample from each bagof each lot	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	A A	J J	S S	W W		N N
	Visual appearance of fired glaze colour & glossyness.	"	"	"	"	"	Α	J	S	W		N
	Purity Loss on ignition	Chemical "	"	" "	" "	"	A A	J	S S	W W		N N
4.0	Chrome Oxide Visual appearance of fired sample	Physical	100 g sample	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	A	J	s	w	N	N
	Residue on 63 micron. Visual appearance of fired glaze colour & glossyness.	"	from each bagof each lot	n n	" "	"	A A	J J	S S	W W		N N
	Purity Loss on ignition	Chemical	"	п	" "	"	A A	J J	s s	W W		N N
5.0	Dolomite/Wollastonite Visual appearance of fired sample Residue on 63 micron. Loss on ignition Calcia,magnesia,silica	Physical " Chemical	100 g/bag, 5% of bag/ lot	BSPTCL Specification	BSPTCL Specification	BSPTCL Records " " "	A A A	J J J	S S S	W W W		N N N N
6.0	(silica for wollastonite only) Barium Carbonate Visual appearance Residue on 63 micron. Visual appearance of fired glaze colour & glossyness. Purity	Physical " " Chemical	100 g sample from each bagof each lot "	BSPTCL Specification " "	BSPTCL Specification " "	BSPTCL Records	A A A	1 1 1	S S S	W W W		N N N
A3 1.0	Acid insolubles BOUGHT OUT MATLS. Ordinary Portland Cement/	Chemical	"		"	"	A	J	S	W	N	N Use within six
	Mortar for Assembly Visual appearance Initial setting time Final setting time Soundness (Lechetalier method) Compressive strength (3 cubes, 5 days) Loss on ignition	Physical " " " " Chemical	100 g/bag, 5% of bag/lot "	BSPTCL Specification IS 12269/4032	BSPTCL Specification IS 12269/4032	BSPTCL Records " " " "	A A A A A	1 1 1 1 1	S S S S S	W W W W W/Z		months N N N N N N N N N 2 days steam cure
2.0	Quartz Sand for Assembly Appearance Dry sieve analysis Dimensions of cut cork sheet	Physical "	100 g/bag, 5% of bag/lot	BSPTCL Specification " "	BSPTCL Specification " "	BSPTCL Records " "	A A A	J J	S S S	W W W		N N N



	Manufacturer's Name & Address		ustomer 3SPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016						1.201 Revis	
Sr. No.		Type of check	Quantum of Check / Sampling with basis	Reference document for Testing	Acceptance Norms	Format of Record		App 2		ole C			REMARKS
	Cork Sheet Appearance Thickness Density Dimensions of cut cork sheet	Physical " " "	5% / lot " "	BSPTCL Specification	BSPTCL Specification " " "	BSPTCL Records " "	A A A	J J	S S S	W W W	Z	N N N	
4.0	Bituminous Paint Appearance Density Viscosity (B4 Cup) Drying time	Physical " " "	100ml /container " " "	BSPTCL Specification " " "	BSPTCL Specification " " "	BSPTCL Records	A A A]]]	S S S	W W W	N	N N N N	
6.0	Flanges of Spherodal Graphite Iron / Malleable cast Iron (caps & flange) black condition Visual Inspection Dimension check & Guage check Tensile strength (Test bar) % Elongation (Test Bar) Microstructure Phosphorous Hardness MPI Test Proof Load Test Mechanical failing load Steel Round for pins Visual Inspection Forgeability Chemical Analysis Tensile Load Test EN19 / EN15 Elongation EN19 / EN15 Yield stress EN19 / EN15 Inclusion rating Grain size	Physical " " Chemical Physical " " Physical " Chemical Physical " " " " " " " " " " " " " " " " "	100% IS 2500 LI AQL 1.5 1 No./heat cycle 2 No./heat cycle 100% 10 Nos/ Lot/ Heat 1 Nos/ Lot/ Heat 2 Nos/ Lot/ Heat "" "" ""	IS-1865 Gr.400-15 for SGI/ IS-2108 Gr.BM340 for MCI " " IS-3054/1865 IS 3703 " " No surface defect No cracks BS:970 IS:1608 " " IS:4163 IS:4748	No crack/sur. defects As per rel. drg.IS-1865 Gr.400-15 for SGI/ IS-2108 Gr.BM340 for MCI " No crack " No surface defect No cracks BS:970 IS:1608 " " IS:4163 IS:4748	BSPTCL Records CMTC " " BSPTCL Records CMTC BSPTCL Records CMTC " " " " " " " " "	A A B B B B B B B B B B B B B B B B B B	J J K K K K K K K K K K K K K	S S P P P P P P P P P P	W/Z W/Z W/Z W/Z W/Z W/Z W/Z W/Z W/Z W/Z	E		



	Manufacturer's Name & Address		ustomer SSPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016				om: pto: 1			
Sr.	Components / Operations & Description	Type of check	Quantum of Check /	Reference document for	Acceptance Norms	Format of Record				ole Co	odes 5		REMARKS
No. 7.0	of Test		Sampling with basis	Testina			11	- 2	3	4	5	6	
7.0	Forged Pin (Black) Ball Pin & Cotter Pin										Е		
	Visual Inspection	Physical	100%	IS: 2486/ No surface defect	IS: 2486/ No surface defect	BSPTCL Records	Α	J	S	W/Z		N	
	Dimensional (As forged) guage check	riiysicai "	1%	IS: 2486/ Approved drg.	IS: 2486/ Approved drg.	BSF I CL Recolus	A	-	S	W/Z		N	
	M.P.I.	"	100%	IS: 3703/ No cracks	IS: 3703/ No cracks	"	A		S	W/Z		N	
	Failing load test	"	2 Nos/ 1000/ Heat	Approved drg.	Approved drg.	"	A		S	W/Z		N	
	Proof load test	"	2 1103/ 1000/ 11cm	F:8201-41	F:8201-41	"	A		S	W/Z		N	
	Hardness	"		Approved drg.	Approved drg.	"	A		S	W/Z		N	
	Tensile load test	"		BS:970	BS:970	CMTC	В		P	W/Z		N	
	Yield Strength	"		BS:970	BS:970	"	В		P	W/Z		N	
	% Elongation	"	**	BS:970	BS:970	"	В		Р	W/Z		N	
	Grain Size	"	"	IS:4748	IS:4748	"	В		P	W/Z		N	
	Non-metallic inclusion rating	"	"	Max.2 thin/ thick	Max.2 thin/ thick	"	В		P	W/Z		N	
	Heat Treatment chart	"	"	Time & temp. chart	Time & temp. chart	"	В	K	P	W/Z		N	
	Grain Flow	"	"	BSPTCL Spec.	BSPTCL Spec.	"	В	K	P	W/Z		N	
					_								
8.0	Security Clips/ Split Pins Ball Pin & Cotter Pin					"					Е		
	Visual Inspection	Physical	IS: 2486	IS: 2486	IS: 2486	BSPTCL Records	Α		S	W/Z		N	
	Dimensional Check	"	IS: 2486	IS: 2486 Approved drg.	IS: 2486 Approved drg.	"	A		S	W/Z		N	
	Bending Test	"	5 Nos / lot of 5000	IS: 2486 No crack	IS: 2486 No crack	"	A		S	W/Z		N	
	Hardness	"	"	IS: 1586/2486 Approved drg.	IS: 1586/2486 Approved drg.	BSPTCL Records	A		S	W/Z		N	
	Chemical Analysis	Chemical	1 No/ lot%	IS: 7814/ ATSM 304	IS: 7814/ ATSM 304	CMTC	В	K	P	W/Z		N	
	(I) Phosphor Bronze												
	(ii) Stainless Steel												
9.0	Graphite Iron / Malleable cast												
	Iron Cap & Flange after Galvanising										E		
	Visual appearance	Physical	100%	IP-01-64	Free from crack &	BSPTCL Records	A		S	W/Z		N	
	Gauge check	"	100%	. "	visual sur.defect		A		S	W/Z		N	
	Other Dimension		2% random	As per rel. drg.	As per BSPTCL Specification	"	A		S	W/Z		N	
	Adhesion Test	. "	2% random	BSPTCL Specification/IS2629	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		A		S	W/Z		N	
	Purity of zinc	Instrumental	1 Sample/cons.	IS 209/ 99.25% IS 6745	IS 209/ 99.25% IS 6745	"	A		S	W/Z W/Z		N N	
	Mass of zinc Coating Mechanical load test	Physical	1% random			,,	A A		S	W/Z W/Z		N	
	Mechanical load test		2 per lot	As per rel. drg.	As per rel. drg.		A	,	3	W/Z		IN	
10.0	Bolts & Nuts Galvanised						1				Е		
	Visual Inspection	Physical	IS 2614	BSPTCL Specification/IS 1367	BSPTCL Specification/IS 1367	BSPTCL Records	Α	J	S	W/Z		N	
	Dimensions	"	IS 2614	IS 6639	IS 6639 / rel drg.	CMTC	В		P	W/Z		N	
	Uniformity of zinc coating	Chemical	IS 1367	BSPTCL Specification/IS 2633	As per IS 2633	BSPTCL Records	Α	J	S	W/Z		N	
	Mechanical Properties	Physical	"	IS 1367	As per IS 1367	CMTC	В		P	W/Z		N	
							1						
							1						
							1						
							1						
						1	1	1					



	Manufacturer's Name & Address		ustomer SPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016	A J S W B K P W A J S W						
Sr. No.	Components / Operations & Description of Test	Type of check	Quantum of Check / Sampling with basis	Reference document for Testing	Acceptance Norms	Format of Record	1	App	licat	ole C	odes	6	REMARKS
	Flat Washer / Spring		Sampling with pasis	resulid			Ť	_	J				
	Washer Galvanised							_	_		Е		
	Visual Inspection	Physical	IS-6821	BSPTCL Specification	No Crack	BSPTCL Records				W/Z		N	
	Dimensions Twist test for spring washer	"	"	IS2016/3063	IS 2016/3063/ rel drg. As per IS 3063	CMTC				W/Z W/Z		N N	
	Hardness for spring washer	"	н	"	As per IS 3063	BSPTCL Records				W/Z		N	
	Uniformity of zinc coating	Chemical	IS 1367	BSPTCL Specification/ IS 2633	As per IS 2633	"			S	W/Z		N	
2.0	Corona Ring For												
	400 kV of Al. Alloy										Е		
	Visual Inspection	Physical	IS 2500 L-III AQL0.4	IP-01-71	No sur defects/crack	BSPTCL Records	Α		S	W/Z		N	
	Dimensions	"	"	IP-01-71	Rel. drg	"	Α		S	W/Z		N	
	Chemical Composition	Chemical	1 /Lot min.	IS 5082	As per Rel. Drg.	CMTC	В	K	P	W/Z		N	
	Purity	Chemical	"			CMTC	В	K	P	W/Z		N	
	Mechanical Properties / Tensile Test Dye penetration after welding	Physical	IC 2500 I III AOI 0 4	DCDTCI Specification	No amoult	CMTC BSPTCL Records	В		P	W/Z W/Z		N N	
	Dye penetration after weiding	Physical	IS 2500 L-III AQL0.4	BSPTCL Specification	No crack	BSPTCL Records	Α	J	S	W/Z		IN	
	IN PROCESS												
	Body Slurry Preparation Weighment	Physical	All batch Weekly twice	BSPTCL Specification	As per composition	BSPTCL Records	Α	J	s	W		N	
	Moisture content	" "	All batch weekly twice	BSF TCL Specification	As per composition	BSF ICL Records	A		S	W		N	
•													
	Ball Milling Litre weight	Physical	All batch/ Daily	BSPTCL Specification	IR-02-01	BSPTCL Records	Α	J	s	w		N	
	Residue on 63 micron	riiysicai "	All batch/ Daily	BSFTCL Specification	1R-02-01	BSFTCL Records	A		S	W		N	
	Particle size distribution	"	"	"	"	n n	A		S	w		N	
3.0	Slip Preparation												
	Litre weight	Physical	Each Shift/ Daily	BSPTCL Specification	IR-02-01	BSPTCL Records	Α	J	S	W		N	
	Residue on 63 micron	"	"	ii ii	"	"	Α		S	W		N	
	Particle size distribution	"	"	"	"	"	Α		S	W		N	
	Iron Content	"	"	"	"	"	Α	J	S	W		N	
4.0	Glaze Preparation												
	Weighment	Physical	All batch	BSPTCL Specification	As per composition	BSPTCL Records	A		S	W		N	
	Litre weight	"	"	BSPTCL Specification	IR-02-01	"	Α		S	W		N	
	Residue on 38 micron	"	"				A		S	W		N	
	Colour & Glossyness of fired sample	"	Mandala ana				A		S S	W W		N N	
	Fired Flow Thermal Expansion	"	Monthly once	"	"	Dialatometer	A A		S	W		N N	
	•												
	Filter Pressing	Dli1	F. J. Cl. 9	WH 7502 04	Decemb	DCDTCI D	١.	J	s	w		N	
	Covering of cakes Moisture content	Physical "	Each Shift	WI-7503-04	Record IR-02-01	BSPTCL Records	A A		S	W		N N	
					~_ v-								
	Extrusion Pure mainture content	Dhysical	Each Shift	WI-7503-05	IP-02-05	BSPTCL Records	Α	J	s	w		N	
	Pug moisture content Iron Content	Physical "	Weekly	WI-7503-05 WI-7503-05	IP-02-05 IP-02-05	DSF I CL Records	A		S	W		N N	
	Min. 685 mm of Hg vacuum & drop	"	Each Shift	W1-73U3-U3	WI-7503-05		A		S	W		N N	
	Physical properties	"	Weekly	"	IR-02-04	"	A		S	w		N	
	Chemical	Chemical	Monthly	"	"		A		S	w		N	
7.0	Pug Electrical drying (PED)												
	Penetrometer reading	Physical	Each Shift	BSPTCL Specification	WI-7503-06	BSPTCL Records	Α	J	S	W		N	
	Moisture after drying	"	Daily	11	For records	"	A		S	W		N	
	Temperature	"	Each Shift	"	WI-7503-06	"	Α		S	W		N	
	Visual check	"	100%	"	No crack	"	Α		S	W		N	
	Shaping			1									



	Manufacturer's Name & Address		ustomer SSPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016		Val Val	id Fi id U	om: 1 pto: Ti	5.01.2 II Rev	2016 vision
Sr.	Components / Operations & Description	Type of check	Quantum of Check /	Reference document for	Acceptance Norms	Format of Record				ole Co		REMARKS
No.			Sampling with basis	Testina			_	_	3	_	5 6	
	Moisture content surface/core	Physical	Each Shift / Daily	BSPTCL Specification	IP-02-06	BSPTCL Records	Α		S	W	N	
	Dimensions	"	"	"	IR-02-02	"	Α	J	S	W	N	
	Visual check after finishing	"	Each Shift	"	"	"	Α	J	S	W	N	
	Covering after shaping	"	Each Shift	"	IP-02-06	"	Α	J	S	W	N	
	Penetrometer Reading	"	4 pugs/ rack	"	"	"	Α	J	S	W	N	
9.0	Dryer											
	Moisture	Physical	Per cycle	BSPTCL Specification	WI-7503-08	BSPTCL Records	Α	J	S	W	N	
	Temp. & Humidity	"	Hourly	"	"	"	A	J	S	W	N	ſ
	Visual check	"	100%	"	"	"	Α	J	S	W	N	T
10.0	Glazing (Dipping, Gravelling & Stamping)											
	Litre weight	Physical	BSPTCL Specification	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α	J	S	w	N	ſ
	Free iron particle	"		ii ii		"	Α	J	S	W	N	ſ
	Gravel sieve analysis	"	IP-01-34	"	BSPTCL Specification	"	Α	J	S	W	N	For BPI only
	Viscosity of glue glaze		Each Batch	"	BSPTCL Specification	"	Α	J	S	W	N	"
	Transfer fixing for 'serial number'	"	Each Insulator	"	Readable serial number	"	Α	J	S	W	N	"
11.0	Firing											
	Firing schedule	Physical	Per cycle	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α	J	S	W	N	
	Porosity	"		"	"		Α	J	S	W	N	
	Bulk Density	"		"	"	"	Α	J	S	W	N	
	Temperature control	"	Constant check	"	"	"	Α	J	S	W	N	
12.0	Sorting											!
1	Visual check for cracks/ gravel/ bend	Physical	100%	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	Α	J	S	W	N	
1	Dimensions	"	2 / cycle	"	"	"	Α	J	S	W	N	
1	Porosity	"	Each cycle	"	No dye penetration	"	Α	J	S	W	N	
1	Bulk Density	"	" "	"	BSPTCL Specification	"	Α	J	S	W	N	
1	Chemical/ Alumina content	Chemical	Monthly Once	"	"	"	Α	J	S	W	N	For long rod only
1	Physical Property	Physical	Weekly once	"	"	"	Α	J	S	W	N	
1	Glaze thickness	"	Weekly once, 2 pieces	"	100-300 micron	BSPTCL Records	Α	J	S	W	N	1
												



	Manufacturer's Name & Address		ustomer SPTCL	Vendor's Code:	Item: Solid Core Insulator/ Long rod Insulator	M.Q.P. No. 031 Rev. No. 00 Date:05.01.2016					5.01.2 ill Rev	
Sr.	Components / Operations & Description	Type of check	Quantum of Check /	Reference document for	Acceptance Norms	Format of Record				le Co		REMARKS
No.	of Test	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Sampling with basis	Testina			1	2	3	4	5 6	
13.0	Cutting & Grinding Dimension check Ultrasonic Test	Physical	Each Shift 100%	BSPTCL Specification IEC-60168 1994/BSPTCL Specification	As per rel. drg. Free from cracks	BSPTCL Records	A A		S S	W W	N N	
14.0	Assembly Cement mix check Cement cube test	Physical "	Each Batch 6 cubes/week	BSPTCL Specification	BSPTCL Specification	BSPTCL Records	A A	J J	S S	W W	N N	
С	FINAL INSPECTION											
1.0 a) (l) (ii)	Routine Test For Solidcore Insulator Visual examination Check for surface & glazing defects	Physical "	100% 100%	BSPTCL specn.IEC60273/168 BSPTCL specn.IEC60273/168	BSPTCL specn.IEC60273/168 BSPTCL specn.IEC60273/168	BSPTCL Records	A A	J	S S	W/Z W/Z	N N	
	Bending Test in four directions (50% min. failing load) Deflection at 50% (one direction)	"	100% 100%	BSPTCL specn.IS:2544/ IEC60168 BSPTCL apprd. Drg. IS:2544/IEC60168/273	BSPTCL specn.IS:2544/ IEC60168 BSPTCL apprd. Drg. IS:2544/IEC60168/273	"	A	J	S	W/Z	N	
	Dimensional checks(critical dimension)		Random	BSPTCL apprd. Drg. IS:2544/IEC60168/273	BSPTCL apprd. Drg. IS:2544/IEC60168/273	BSPTCL Records	Α	J	S	W/Z	N	
b)	For Longrod Insulator											
(I)	Visual examination	Physical	100%	IEC-60383/433 NO CRACK	IEC-60383/433 NO CRACK	BSPTCL Records	Α		S	$W/\!\!\!/Z$	N	
(ii)	Check for surface & glazing defects	"	100%	BSPTCL specn.IEC60383/433	BSPTCL specn.IEC60383/433	"	Α	J	S	W/Z	N	
(iii)	Dimensional checks (Length)		5%	BSPTCL apprd.drg. IEC60383/433	BSPTCL apprd.drg. IEC60383/433	"	A	J	S	W/Z	N	
	Mech.Routine Test(80% of Min. UTS)	"	100%	BSPTCL apprd.drg. IEC60383/433 /IS-731	BSPTCL apprd.drg. IEC60383/433 /IS-731							
2.0	Acceptance Test											
a) (l)	For Solidcore Insulator Dimensional check	Physical	IEC-168/ 1% for lot less than 500 Nos.	BSPTCL apprd.drg IEC-60168/273	BSPTCL apprd.drg IEC-60168/273	BSPTCL Records	Α	J	U	W/Z	Y	
(ii)	Eccentricity & Parallelism	"	н	BSPTCL specn. IEC-60168	BSPTCL specn. IEC-60168	BSPTCL Records	Α	J	U	W/Z	Y	
. ,	Temperature cycle test	"	"	BSPTCL specn. IEC-60168 & IS 2544	BSPTCL specn. IEC-60168 & IS 2544	BSPTCL Records	Α		U	W/Z	Y	
(iv)	Porosity Test	"	"		"	BSPTCL Records	A		U	W/Z	Y	
(v)	Ultrasonic Test with angular probe	"	2% per/lot	IEC 60168/273	IEC 60168/273	EM TC	A	J J	U	W/Z	Y Y	
	Mech. Strength Test	"	IEC-168/ 1% for lot less than 500 Nos.	BSPTCL specn.IEC-60168 & IS 2544 approved drg.	BSPTCL specn.IEC-60168 & IS 2544 approved drg.	EM TC	Α		U	W/Z		
(vii)	Deflection Test at 20%,50%,70% min.	"	"	"	"	EM TC	A	J	U	W/Z	Y	
(viii)	bending failing load on complete stack Bending Test 100% of min. failing load in 4 directions on complete stack and final	"	п	"	п	EM TC	A	J	U	W/Z	Y	
(ix)	load to actual breaking in forth direction Torsional Test	"	"	n n	"	EM TC	A	J	U	W/Z	Y	



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Sr.	Components / Operations & Description	Type of check	Quantum of Check /	Reference document for	Acceptance Norms	Format of Record				ole Co		REMARKS
No.	of Test	,,	Sampling with basis	Testina			1	2	3	4	5 6	
b)	For Longrod Insulator											
(i)	Visual Examination	Visual	IEC 60383	IEC 60383	IEC 60383	EM TC	Α	J	U	W/Z	Y	
(ii)	Dimensional checks	Physical	IEC60383/IEC60433/IS-731/ 3 Pcs for lot < 300 Nos	BSPTCL apprd. Drg IEC-60383/433/IS:731	BSPTCL apprd. Drg IEC-60383/433/IS:731	EM TC	Α		U	W/Z	Y	
(iii)	Axial, Radial & Angular displacement check	"	"	"	"	EM TC	A	J	U	W/Z	Y	Test load upto breakage
(iii)	Temp. Cycle Test	"	IEC-60383/IEC-433/IS-731/ 10 Pcs for lot < 300 Nos	"	"	EM TC	Α	J	U	W/Z	Y	
(iv)	Mechanical Performance Test	"	IEC-60383/IEC-433/ IS-731/1%	BSPTCL apprd. Drg IEC-60383/575/433/IS:731	BSPTCL apprd. Drg IEC-60383/575/433/IS:731	EM TC	A	J	U	W/Z	Y	
(v)	Mechanical failing load test	"	"	"	"	EM TC	A		U	W/Z	Y	
(vi)	Porosity Test	"	IEC-60383/IEC-433/IS-731/ 3 Pcs for lot < 300 Nos	BSPTCL apprd. Drg IEC:60383 Non porous	BSPTCL apprd. Drg IEC:60383 Non porous	EM TC	Α		U	W/Z	Y	
	Warpage, creepage appearance check	"	"	BSPTCL apprd. Drg IEC-60383/433/IS:731	BSPTCL apprd. Drg IEC-60383/433/IS:731	EM TC	Α		U	W/Z	Y	
	Ultrasonic Test with angular probe		IEC-60383/IEC433/ IS-731/5% /Lot	No flaws	No flaws	EM TC	A		U	W/Z	Y	
, ,	Thermal Mechanical Performance Test	Mechanical	5 samples / every 3260 nos.	BSPTCL Specs.	BSPTCL Specs.	EMTC	A	J	U	W/Z	Y	
3.0	Galvanising Test Mass of zinc coating	Physical	IEC-60168/ 1994, 3 Pcs/ lot < 300 Nos.	IEC-60168 1994/IP-03-03	IEC-60168 1994	EM TC	Α	J	U	W/Z	Y	
	Uniformity of zinc coating Adhesion Test	"	" "	n n		EM TC EM TC	A A		U U	W/Z W/Z	Y Y	
4.0	Additional Tests (On Samples brought from S	Site)										
(i)	Electro Mechanical Test	Electrical	3 samples / every 1500 nos.	BSPTCL Specs.	BSPTCL Specs.	EMTC	A	J	U	Y	Y	Random Samples to be taken after segregating insulators
D	PACKING & DESPATCH											damaged in transit. Samples to be sealed by BSPTCL site. Test reports to be submitted to BSPTCL FQA.
	Visual Inspection Dimension	Visual Physical	10% 10%	EM Drawing EM Drawing	EM Drawing EM Drawing	EM TR EM TR	A A		S S	W W	N N	

	1												
		В	BIHAR S	STATE	POWE	R TRAI	NSMISS	SION C	OMPAN	I YI	LIMITE	D	
		М	ANUFAC	TURING	QUALIT	Y PLAN	Solid C	ore Insu	lator/ Lo	ng ro	od Insula	tor	
						Rev. No.	00						
Rev. No.	Date	Modificatio	ns										
P0	24.04.06	1. The MQ				312 Rev. 3 i	merged and	revised in	the new for	mat.			
				Chart added	<u>d.</u>								
								<u> </u>					
		4. Special	l est E&IVI	est added	as per i ec	nnicai Spec	ifications re	equirement.					
	3. Stage CIPs removed 4. Special Test E&M To												
						-							