



BIHAR STATE POWER TRANSMISSION COMPANY LIMITED

MANUFACTURING QUALITY PLAN -- Disc Insulators up to 160kN

		Customer BSPTCL	Vendor, Code	Item: Disc Insulators up to 160kN	M.Q.P. No.- 033 Rev. No.00	Date:06.01.2016	Valid From:15.01.2016 Valid Upto :Till Revision						
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	Applicable Codes						Remarks
							1	2	3	4	5	6	
A. RAW MATERIAL INSPECTION													
1.01	QUARTZ POWDER			IS 11464								N	
(a)	Visual Inspection	Visual	5kgs/consignment/ 200tonnes or part thereof		White or Off White color, free from any impurities	BSPTCL-Format	A	J	S	W		N	
(b)	Inspection of Fired samples (Button Test)	Visual	5kgs/consignment/ 200tonnes or part thereof		White or Off White color, free from any impurities	BSPTCL-Format	A	J	S	W		N	
(c)	Free magnetic Iron Content	Physical	5kgs/consignment/ 200tonnes or part thereof		0.01% Max.	BSPTCL-Format	A	J	S	W		N	
(d)	Grain Size	Physical	5kgs/consignment/ 200tonnes or part thereof		4% or less on 200/300 BS Mesh for Grade A/B respectively	BSPTCL-Format	A	J	S	W		N	
(e)	Chemical Analysis L.O.I at 1000 °C Fe ₂ O ₃ SiO ₂	Chemical	5kgs/consignment/ 200tonnes or part thereof		0.5% Max. 0.25% Max 98.0% Min.	BSPTCL-Format	A	J	S	W		N	
1.02	FELDS PAR POWDER											N	
(a)	Visual Inspection & Physical Properties	Visual	5kgs/consignment/ 200tonnes or part thereof	IS 9749	Off White powder with Grain Size - 5% Max. on 300/200 BS Mesh	BSPTCL-Format	A	J	S	W		N	
(b)	Inspection of Fired samples	Visual	5kgs/consignment/ 200tonnes or part thereof	BSPTCL Spec	Transparent Feldspathic glass free from any foreign inclusions	BSPTCL-Format	A	J	S	W		N	
(C)	Chemical Analysis L.O.I at 1000 °C Fe ₂ O ₃ K ₂ O Na ₂ O K ₂ O+Na ₂ O	Chemical	5kgs/consignment/ 200tonnes or part thereof	IS 9749	0.5%Max. 0.2%Max. 11.0%Min. 4.0%Max. 13.0%Min.	BSPTCL-Format	A	J	S	W		N	
1.03	CHINA CLAY			IS 2840								N	
(a)	Residue 300 BS Mesh	Physical	5kgs/consignment/ 200tonnes or part thereof		1.5%Max.	BSPTCL-Format	A	J	S	W		N	
(b)	Fired Color	Visual	5kgs/consignment/ 200tonnes or part thereof		Whiter/Light Creamy Biscuit Color, free from black or brown specks	BSPTCL-Format	A	J	S	W		N	



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(a)	Visual Inspection	Visual	500gms/consignment/20tonnes or part thereof		White in color , free from impurities	BSPTCL-Format	A	J	W	Y		N	
(b)	Inspection of Fired Samples	Visual	500gms/consignment/20tonnes or part thereof		Free from ferrogeneous tint and foreign inclusion	BSPTCL-Format	A	J	W	Y		N	
(c)	Grain Size	Physical	500gms/consignment/20tonnes or part thereof		5% Max. on 200 BS Mesh	BSPTCL-Format	A	J	W	Y		N	
(d)	Chemical Analysis Acid Insolubles Fe ₂ O ₃ CaO MgO	Chemical	500gms/consignment/20tonnes or part thereof		8% Max. 0.2% Max. 28% Min. 18% Min.	BSPTCL-Format	A	J	W	Y		N	
2.03	Talc Powder			IS 10429								N	
(a)	Visual Inspection	Visual	500gms/consignment/20tonnes or part thereof		White or Off white	BSPTCL-Format	A	J	W	Y		N	
(b)	Fired Appearance	Visual	500gms/consignment/20tonnes or part thereof		Free from ferrogeneous tint and foreign inclusion	BSPTCL-Format	A	J	W	Y		N	
(c)	Chemical Analysis L.O.I at 1000 o C SiO ₂ Fe ₂ O ₃ CaO MgO	Chemical	500gms/consignment/20tonnes or part thereof		6% Max. 58% Min. 1% Max. 5% Max. 30% Min.	BSPTCL-Format	A	J	W	Y		N	
(d)	Residue 200 BS Mesh	Physical	500gms/consignment/20tonnes or part thereof		2%Max.	BSPTCL-Format	A	J	W	Y		N	
2.03	Iron Oxide			Plant Standard BNI 02/RM/12.0 & IS:44								N	
(a)	Visual Inspection	Visual	500gms/consignment/20tonnes or part thereof		Red colored powder and free from foreign impurities	BSPTCL-Format	A	J	W	Y		N	
(b)	Grain Size	Mechanical	500gms/consignment/20tonnes or part thereof		2% Max on 200 BS Mesh	BSPTCL-Format	A	J	W	Y		N	
(c)	Colored Intensity Fired	Visual	500gms/consignment/20tonnes or part thereof		Should match std. Reference	BSPTCL-Format	A	J	W	Y		N	
(d)	Chemical Analysis Fe ₂ O ₃	Chemical	500gms/consignment/20tonnes or part thereof		90% Min.	BSPTCL-Format	A	J	W	Y		N	
2.04	Manganese Dioxide			IS 11153								N	
(a)	Visual Inspection	Visual	500gms/consignment/20tonnes or part thereof		Black color free from impurities	BSPTCL-Format	A	J	S	W		N	
(b)	Grain Size	Physical	500gms/consignment/20tonnes or part thereof		2% Max on 200 BS Mesh	BSPTCL-Format	A	J	S	W		N	
(c)	Color of Fired samples	Visual	500gms/consignment/20tonnes or part thereof		Should match std. Reference	BSPTCL-Format	A	J	S	W		N	



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(c)	Visual Examination	Visual	100%	BSPTCL Spec	BNI -02/PS/14.2	BSPTCL-Format	A	J	S	W		N	
4.11	Grit / Sand			BSPTCL Spec								N	
(a)	Grain Size	Physical	Each Batch		- 10 to 16 BS Mesh	BSPTCL-Format	A	J	S	W		N	
4.12	Firing of Green Wares											N	
(a)	Temp. Control	Physical	Constant Recording	BSPTCL Spec	As per Plant Std.	BSPTCL-Format	A	J	S	W		N	
(b)	Atmosphere Control	Physical	Constant Recording	BSPTCL Spec	As per Plant Std.	BSPTCL-Format	A	J	S	W		N	
(c)	Pressure Control	Physical	Per Shift	BSPTCL Spec	As per Plant Std.	BSPTCL-Format	A	J	S	W		N	
(d)	Fuel Oil Control	Physical	Per Shift	BSPTCL Spec	As per Plant Std.	BSPTCL-Format	A	J	S	W		N	
4.13	Sorting of Fired Insulators			IS:731 & IS:13305								N	
(a)	Visual Examination	Visual	100%	BSPTCL Appr. Drg., IS:731 & IS:13305 & IEC: 60383.1	IS:731 & IS:13305 & IEC: 60383.1	BSPTCL-Format	A	J	S	W		N	
(b)	Porosity	Physical	1 No. / Car	IS:731	No Dye Penetration	BSPTCL-Format	A	J	S	W		N	
(c)	Dimensional Check	Dimensional	2 Nos./1000 Nos.	IS:731	Should conform with the drawing	BSPTCL-Format	A	J	S	W		N	
5.00 RAW MATERIAL INSPECTION (Metal Parts)													
5.01	Steel round for Ball pins					CMTC						E	
(a)	Visual Inspection	Visual	100%	BS:970(Gr. EN-8D).	Shall be straight, without rust & free from cracks, folds & similar surface defects.	CMTC	B	K	P	W	E	N	
(b)	Forgeability	Mechanical	2 Nos/ Lot	BSPTCL Spec	No cracks	CMTC	B	K	P	W		N	
(c)	Non Metallic Inclusion rating	Metallurgical	2 Nos/ Lot	IS:4163	Max. 2 thick series	CMTC	B	K	P	W		N	
(d)	Chemical Analysis	Chemical	1 No/ Lot	BS:970	Gr. EN-8D	CMTC	B	K	P	W		N	
5.02	Forged Steel Ball Pins											E	
(a)	Visual inspection	Visual	100% by Manufacturer & 5% by BNIPL	IS: 2486 & P.S. BNI-02/MP/2.0	Shall be free from visual defects like surface defects, flakes & other visual defects that make the surface undulated.	BSPTCL-Format	A/B	J/K	S/P	W		N	
(b)	Heat Treatment	Physical	100%	Time & Temperature graph	Should be output of recorder	CMTC	B	K	P	W		N	
(c)	M.P.I	Electro megnatic	100% by Manufacturer & 5% by BNIPL	IS: 3703 & P.S. BNI-02/MP/2.0	No cracks	CMTC	B	K	P	W		N	
(d)	Dimension checking	Dimensional	IS:2486	BSPTCL Approved Drawing	Should conform with the drawing	BSPTCL-Format	A/B	J/K	S/P	W		N	
(e)	Gauge checking	Dimensional	100%	IS:2486	Should answer Go and No Go gauges	BSPTCL-Format	A/B	J/K	S/P	W		N	
(f)	Failing Load test	Mechanical	4 Nos./ 2000/ heat	BSPTCL Spec	Should withstand at least 10% above the Min. rated FMS	CMTC	A/B	J/K	Q	W		N	



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(g)	Yield strength, Tensile strength & % Elongation on test bar	Physical	4 Nos./ 2000/ heat	IS:1608, BS:970, BSPTCL specn.	Y.S-upto 120 kN -28 kg/mm2 (min.), 160 kN -47 kg/mm2(min.) T.S-upto 120 kN - 55 kg/mm2((min.), 160 kN -71 to 87 kg/mm2.%E upto 160 kN -16% min.	CMTC	B	K	P	W		N	
(h)	Hardness	Physical	4 Nos./ 2000/ heat	IS: 1500, BS 970, BSPTCL Specn.	upto 120 kN -152-207 BHN.; 160 kN - 201-255 BHN	CMTC	B	K	P	W		N	
(l)	Grain Size	Metallurgical	4 Nos./ 5000/ heat	IS:4748	'Min. 6, 100X Magnification	CMTC	B	K	P	W		N	
(j)	Non Metallic Inclusion rating	Metallurgical	4 Nos/ 5000/ heat	IS:4163	Max. 2 thick series	CMTC	B	K	P	W		N	
(K)	Chemical Analysis	Chemical	1 No/ Lot	BS:970	Gr. EN-8D	CMTC/ Third party lab's Test certificate	B/D	K/L	P/V	W		N	
5.03	MCI/ SGCI caps	Visual	100%	BSPTCL Spec	Shall be free from defects & shall be sound, fettled & free from blow holes, porosity, distortion & harmful defects	CMTC/ BSPTCL-Format	A/B	J/K	Q	W	E	N	
(a)	Visual inspection												
(b)	Gauge checking	Dimensional	100%	IS:2486	Should answer Go and No Go gauges	CMTC/ BSPTCL-Format	A/B	J/K	Q	W	E	N	
(c)	Dimension checking	Dimensional	IS:2486	BSPTCL Approved Drawing	Should conform with the drawing	CMTC/ BSPTCL-Format	A/B	J/K	Q	W	E	N	



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(d)	Failing Load test	Mechanical	4 Nos/ 2000 Nos	BSPTCL Spec	Should withstand at least 10% above the Min. rated EMS	CMTC/ BSPTCL-Format	A/B	J/K	Q	W	E	N	
(e)	Hardness Test	Physical	4 Nos./ 2000/ heat	IS: 1500 , IS:14329(Gr. BM350)/ IS:1865(Gr. 400/15)	MCI - 150 BHN Max. SGCI- 130 BHN Min.	CMTC	B	K	P	W	E	N	
(f)	Microstructure	Metallurgical	2 Nos./ 5000 Nos	IS:14329/ IS:1865/BSPTCL Spcn.	MCI- Temper carbon nodules in ferritic matrix. SGCI- Spheroidal graphite nodules in ferritic matrix.	CMTC	B	K	P	W	E	N	
(g)	Tensile strength, %Elongation & 0.2% Proof strength test on test bar	Physical	2 Nos./ Lot of 5000 Nos./ Heat	IS:14329 (Gr. BM350)/ IS: 1865 (Gr. 400/15)/	For MCI: T.S. - 350Mpa (min.), %E-10% Min. 0.2% PST-200 Mpa (min). For SGCI: T.S. -450 Mpa(min.), %E-10%	CMTC	B	K	P	W	E	N	
(h)	Chemical Analysis	Chemical	1 No/ 5000 Nos.	IS:14329 & IS: 1865/ IS:228/ BSPTCL Specn.	Phosphorous- 0.15% Max.	CMTC	B	K	P	W	E	N	
(l)	Heat Treatment	Physical	100%	Time & Temperature graph	Should be output of recorder	CMTC	B	K	P	W	E	N	
5.04 (a)	Hot Dip Galvanizing (Caps & Pins) - (From BSPTCL Approved sources) Visual Inspection	Visual	100%	IS: 2629	Surface should be reasonably bright, smooth, free from rust, black spots, extra zinc.	CMTC/ BSPTCL-Format	A/B	J/K	Q	W/Y	E	Y	Record review during Final Inspection. Two Samples shall be kept with proper identification which shall be tested during Acceptance of Insulator and results obtained should be comparable with EM Test results.
(b)	Gauge checking	Dimensional	100%	IS:2486	Should answer Go and No Go gauges	CMTC/ BSPTCL-Format	A/B	J/K	Q	W/Y		Y	
(c)	Uniformity of Zn coating	Chemical	3Nos./5000	IS:2633	6 dips Min.	CMTC/ BSPTCL-Format	A/B	J/K	Q	W/Y		Y	
(d)	Mass of Zn coating	Chemical	3Nos./5000	IS:6745	610gm/m2 Min.	CMTC/ EM-Format No: L/F-09	A/B	J/K	Q	W/Y		Y	
(e)	Adhesion test	Chemical	3Nos./5000	IS:2629	No Peel-Off of Zinc Coating	CMTC/ BSPTCL-Format	A/B	J/K	Q	W/Y		Y	



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(f)	Dimension checking	Dimensional	5 Nos./ 5000 Nos.	BSPTCL Approved Drawing	Should conform with the drawing	CMTC/ EM-Format No: QC/F-53	A	J	S	Y	Y		
(g)	Flash on head & Ball side	Visual	5 Nos./ 5000 Nos.	BSPTCL specn.	No flash	CMTC/ EM-Format No: QC/F-53	A	J	S	Y	Y		
(h)	Zinc purity	Chemical	1 No./ Lot	BSPTCL specn.	99.8% Min.	Third Party Lab Report	D	L	V	W/Y	Y		
5.06 (a)	Security clips (stainless steel) Visual	Visual	As per IEC:60372, Cl.12, Table 1	IEC:60372	surface cracking or incipient cracks, AQL=1.5%. For rough surface & blisters, AQL=6.5%	CMTC/ BSPTCL-Format	A/B	J/K	Q	W	E	Y	
(b)	Dimension checking	Dimensional	As per IEC:60372, Cl.12, Table 1	IEC:60372	Should conform with the drawing	CMTC/BSPTCL-Format	A/B	J/K	Q	W	Y		
(c)	Operation Test	Mechanical	As per IEC:60383	IEC:60383/ IS:2486	50-500 N	BSPTCL-Format	A	J	S	Y	Y		
(d)	Resistance to bending	Mechanical	As per IEC:60372, Cl.13	IEC:60372/ IS:2486	No cracks at 75 degree bend.	CMTC/ EBSPTCL-Format	A/B	J/K	Q	W	Y		
(e)	Hardness	Physical	As per IEC:60372, Cl.13	IEC:60372/ IS:2486	152 BHN Min.	CMTC/ BSPTCL-Format	A/B	J/K	Q	W	Y		
(f)	Intergranular corrosion test (for stainless steel)	Metallurgical	1 No./ Lot	IS:10461 & ASTM: A 262A	No corrosion	Third Party Lab Report	D	L	V	W/Y	Y		
(g)	Chemical Analysis	Chemical	1 No./ Lot	AISI:304	Should conform standard	Third Party Lab Report	D	L	V	W/Y	Y		
6.00	IN - PROCESS INSPECTION												
6.01	Routine Tests on shells												
a	Hvd. Proof load Test	Mechanical	100 %	BSPTCL Specn.							N		
	70 kN				120 ± 10 kg/cm ²	BSPTCL-Format	A	J	S	W	N		
	90 kN				120 ± 10 kg/cm ²								
	120 kN				150 ± 10 kg/cm ²								
	160 kN				150 ± 10 kg/cm ²								
b	High Frequency Test	Electrical	100 %	IEC : 60383-1, ANSI : 29.1	As per Specn.	BSPTCL-Format	A	J	S	W	N		



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c	Power Frequency Test	Electrical	100 %	IEC : 60383-1, IS : 731	As per Specn.	BSPTCL-Format	A	J	S	W		N	
6.02	Assembly			BSPTCL specn.	As per Specn.							N	
a	Cement Mix Check	Physical	Daily		As per Specn.	BSPTCL-Format	A	J	S	W		N	
b	Curing Time	Physical	Daily		Atleast 2 days water & 3 days air curing	BSPTCL-Format	A	J	S	W		N	
c	Cube Test (Compressive Strength Test 6 days on 70.7mm concrete, average of 3 cubes)	Mechanical	3 Cubes/Shift	IS : 4031, BS : 12	600kg/cm2 Min.	BSPTCL-Format	A	J	S	W		N	
7.00	Final Inspection & Testina												
7.01	Routine Tests on Disc Insulators											N	
a	Visual Inspection	Visual	100 %	IEC : 60383-1	As per Specn.		A	J	S	Y		N	
b	Mechanical Routine test (At 65% of rated EMS)	Mechanical	100 %	IS : 731	As per Specn.	BSPTCL-Format	A	J	S	Y		N	
c	Electrical Routine Test	Electrical	100 %	IEC : 60383-1, IS : 731	As per Specn.	BSPTCL-Format	A	J	S	Y		N	
7.02	Acceptance Test											N	
a	Visual examination	Visual	IEC 60383 on lot Size of 10000 Nos. or less	IS 731, IS :13305 & IEC: 60383-1	No Non permissible defect On glazed surface	BSPTCL-Format	A	J	U	W/Z		Y	
b	Verification of dimension	Dimensional	IEC 60383 on lot Size of 10000 Nos.	BSPTCL approved drg. & IS 731, IEC 60383-1	As per Approved Drg.	BSPTCL-Format	A	J	U	W/Z		Y	
c	Temperature cycle test	Thermal	IEC 60383 on lot Size of 10000 Nos.	IEC : 60383-1, IS : 731	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
d	Mech. Performance test	Mechanical	2 x 20 Nos. Min on Lot size of 10000 Nos.	IEC 60575, BSPTCL Spec.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	



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e	Test on locking devices for Ball & Socket coupling.	Mechanical	IEC 60383 on lot Size of 10000 Nos.	IS : 2486 & IEC 60372/60383 & BSPTCL Spec.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
f	Eccentricity Test (Axial & Radial runout)	Dimensional	IEC 60383 on lot Size of 10000 Nos. or less	IEC 60383-1 & BSPTCL approved Drg. & Spec.	As per Approved Drg.	BSPTCL-Format	A	J	U	W/Z		Y	
g	Residual strength test (Preceded by Temperature cycle test)	Mechanical	25 Nos. Min on Lot size of 10000 Nos.	IEC 60797 & BSPTCL Specification.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
h	Chemical Analysis of Zinc Sleeve (for Antifog only)	Chemical	1 No/ Lot of 5000 Nos./Lot of 10000	99.8 % min purity. BSPTCL Specification.	As per specn.		D	L	U	W/Z		Y	
l	Electromechanical strength Test.	Electrical - Mechanical	2 x 20 Nos. Min on Lot size of 10000 Nos.	BSPTCL Specn., IS : 731 & IEC 60383	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
j	Puncture Test	Electrical	IEC : 60383/ BSPTCL Specn on Lot Size of 10000 Nos. or less	BSPTCL Specn., IS : 731 & IEC 60383	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
k	Porosity Test	Physical	IEC 60383 on lot Size of 10000 Nos.	BSPTCL Specn., IS : 731 & IEC 60383	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
l	IR Test (using 5 kV Megger)	Electrical	25 Nos. on lot size of 10000 Nos.	BSPTCL Specn. > 500 Mega ohms	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
m	Galvanising Test (Cap & Pin)			IS : 2633/ 4759 / 6745	As per specn.							N	
	a) Mass of zinc coating	Chemical	IEC 60383 on lot Size of 10000 Nos.	610 g/m ² min	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
	b) Uniformity of zinc Coating	Chemical	IEC 60383 on lot Size of 20000 Nos.	6 dips min.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
	c) Adhesion test	Physical	IEC 60383 on lot Size of 10000 Nos.	IS : 731 & IS 2629	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
n	Impact Test	Mechanical	3 Nos. / Lot size of 10000 No.	BSPTCL Specn. ANSI : C-29.2	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	



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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	Applicable Codes						Remarks
							1	2	3	4	5	6	
o	Alumina Content (only if Power Arc Test is included in contract requirement)	Chemical	1 Sample / Lot	17% min, BSPTCL Specn.	As per specn.		A	J	U	W/Z		Y	
p	Bulk Density	Chemical	1 Sample / Lot	2.35 g/cc min, BSPTCL Specn.	As per specn.	Format	A	J	U	W/Z		Y	
q	Closed Porosity	Chemical	1 Sample / Lot	5.5 % max, by gravimetric method , BSPTCL Specn.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
r	Additional EMS Test	Mechanical	20 Nos. / 10000 Nos	BSPTCL Spcn./ IS:731/ IEC:60383	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
6.03	Repeat Type Test					BSPTCL-Format						N	
a	Steep wave front	Electrical	10 Nos. / 25000 Nos.	BSPTCL Specn.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
b	Thermal mechanical performance test	Thermal / Mechanical	20 Nos. / 25000 Nos.	BSPTCL Specn.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	
c	Mechanical strength test on strings	Mechanical	Based on string specified	BSPTCL Specn.	As per specn.	BSPTCL-Format	A	J	U	W/Z		Y	



BIHAR STATE POWER TRANSMISSION COMPANY LIMITED

MANUFACTURING QUALITY PLAN -- Disc Insulators up to 160kN

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	Applicable Codes						Remarks
							1	2	3	4	5	6	
		Customer BSPTCL		Vendor, Code		Item: Disc Insulators up to 160kN		M.Q.P. No.- 033 Rev. No.00 Date:06.01.2016		Valid From:15.01.2016 Valid Upto :Till Revision			
Remarks													
1	All Type test requirements and procedure to be decided and finalised with BSPTCL Engineering Department on Contract to Contract basis.												
2	One 10 mm thick ring or one 20 mm diameter dot using suitable quality of paint shall be marked on cap of each insulator or particular strength for easy identification as per specn. Paint shall not have deteriorating effect on performance of insulator performance.												
3	Each disc insulator shall be legibly and indelibly marked with the trade mark of manufacturer, year, month & week of manufacture. The guaranteed combined mechanical and electrical strength shall be indicated in KN. The marking shall be on porcelain & shall be printed not impressed & shall be applied before firing.												
4	All shells to be marked with 'PG' marking before firing for clear cut identification.												
5	Correlated documents review to be carried out prior to start of the inspection in line with the accepted MOP of the manufacturer.												
6	All testing & measuring equipments to be duly calibrated and records to be reviewed during final inspection. In absence of which all tests to be done in a 3rd party lab.												
7	The insulators offered shall be in packed condition in crates at the time of final inspection. The crates shall be marked with unique numbers and shall be sealed by BSPTCL Inspectors. Offered list will describe these numbers.												
8	All the crates should have BSPTCL, LOA details, project name & item description & unique number marked on the crates.												
9	In case of any dispute BSPTCL specification/provision of specific contract shall prevail.												
10	Insulators to be offered in lots upto 10,000 Nos. for acceptance test as per the provision of Contract / specification & should be manufactured in consecutive week/month. No. of lots offered for inspection per month can be more than one.												
11	All bought out items, components/fasteners to be procured from BSPTCL approved sources as per respective quality plan/relevant Indian Standards.												
12	All markings/packing to be done as per BSPTCL Specification/Drawing.												
13	Mechanical tests to be repeated at NABL accredited laboratory in atleast one lot out of three lots randomly picked by BSPTCL Inspector.												
14	Copy of dispatch clearance/ instructions along with Test Reports to be sent along with the consignment.												