GEMSCAB®
CABLES
THE RIGHT CONNECTION

STANDARD QUALITY PLAN
FOR 1.1 K.V. GRADE XLPE INSULATED CABLES AS PER IS 7098 (PART I)

Sl.	Component of Check	Characteristics Documents	Category	Type/method	Extent of Check	Ref.	Acceptance	Format of	Agency	Remarks
1.	**RAW MATERIAL**									
	a) XLPE Compound									
		1. Physical Properties	MA	Physical		IS:7098-1	IS:7098-1	Supplier's TC	IQC	
	b) PVC Compound									
		1. T.S. & Elongation	MA	Physical	4% composite per batch	IS:5831	IS:5831	GIL-GIR-003	IQC	
		2. Thermal stability	MA	Chemical	-do-	IS:5831	IS:5831	GIL-GIR-003	IQC	
	Additional Tests for for FRLS PVC									
		1. Smoke density Rating	MA	Environmental	-do-	ASTMD2843	60% Max.	GIL-GIR-003	IQC	FRLS
		2. Oxygen Index/ Temp Index	MA	Environmental	-do-	ASTMD2863	30/250°C Min	GIL-GIR-003	IQC	FR/FRLS
		3. HCL Gas Emmission	MA	Chemicai	-do-	IEC 754-1	20%Max. by wt.	GIL-GIR-003	IQC	FRLS
	c) Aluminium / Copper Wire Rod									
		1. Diameter	MA	Measurement	100%	IS5484 &	IS5484 & IS : 613	Supplier TC IS:613	IQC	
		2. Tensile strength	MA	Physical	100%	"	"	Supplier TC	IQC	
		3. Conductivity/Resestivity	MA	Electrical	100%	"	"	Supplier TC	IQC	
		4. Surface Finish	MA	Visual	100%	Gemscab Standard		Supplier TC	IQC	
	d) GI round wire/Flat strip									
		1. T.S. & Elongation	MA	Physical	4%	IS 3975	IS:3975	GIL-GIR-003	IQC	
		2. Torsion/Winding	MA	Measurement	4%	IS 3975	IS:3975	GIL-GIR-003	IQC	
		3. Uniformity of Zinc coating	MA	Chemical	4%	IS 3975	IS:3975	GIL-GIR-003	IQC	
		4. Mass of Zinc coating	MA	Chemical	4%	IS 3975	IS:3975	GIL-GIR-003	IQC	
2.	**INPROCESS INSPECTION**									
	a) Wire Drawing									
		1. Surface finish	MA	Visual	Continuous	Gemscab Standard		GIL-PII-001	PQC	
		2. Diameter	MA	Measurement	Start & end	Gemscab Standard		GIL-PII-001	PQC	
		3. Tensile strength	MA	Mechanical	Every Setting	IS:8130	IS:8130	GIL-PII-001	PQC	
		4. Wrapping	MA	Mechanical	Every Setting	IS:8130	IS:8130	GIL-PII-001	PQC	
		5. Resistivity	MA	Electrical	Every setting	IS:8130	IS:8130	GIL-PII-001	PQC	
	b) Conductor Stranding		Page 2 of 8							
		1. No. of strands	MA	Counting	100% spools	Data Sheet	Data Sheet	GIL-PII-002	PQC	
		2. Dia./ Depth	MA	Measurement	Setting	Data Sheet	Data Sheet	GIL-PII-002	PQC	
		3. Lay length	MA	Measurement	Start & finish	Gemscab Standard		GIL-PII-002	PQC	
		4. Conductor Resist.NVt.per mtr.	Electrical		At Start	IS:8130& Gemscab Standard		GIL-PII-002	PQC	
	c) Core Insulation									
		1. Thickness/Dimension	MA	Measurement	Start & finish	Data Sheet	IS:1554-1	GIL-PII-003	PQC	
		2. Spark test	CR	Electrical	Continuous	Gemscab Standard		GIL-PII-003	PQC	
		3. Surface Finish	MA	Visual	100%	Gemscab Standard		GIL-PII-003	PQC	
	d) XLPE Curing	1. Temperature of chamber	CR	Thermal	Contineous	Gemscab Standard		GIL-PII-004	PQC	

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		2. Duration of Curing	MA	Time	---	Gemscab Standard		GIL-PII-004	PQC	
		3. Hot Set Test	MA	Thermal	1 Sample per batch	IS:7098-1	IS:7098-1	GIL-PII-004	PQC	
		4. TS & elongation	MA	Measurement	--do--	IS:7098 -1	IS:7098 -1	GIL-PII-004	PQC	
	e) Core Laying									
		1. Colour sequence	MA	Visual	At Start	Data Sheet	Data Sheet	GIL-PII-005	PQC	
		2. Lay direction / lay length	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-005	PQC	
		3. Thickness of tape	MA	Visual	At Start	Data Sheet	Data Sheet	GIL-PII-005	PQC	
		4. Dia.over laid up	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-005	PQC	
	f) Extruded in' er Sheath									
		1. Thickness of sheath	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-006	PQC	
		2. Dia. Over Sheath	MA	Measurement	At Start	Data Sheet	Data Sheet	IL-PII-006	PQC	
		3. Surface Finish	MA	Visual	100%	Gemscab Standard		GIL-PII-006	PQC	
	g) Armouring									
		1. Size of wire/ strip	MA	Measurement	At Start	Data Sheet	IS:3975	GIL-PII-007	PQC	
		2. Direction of lay	MA	Visual	At Start	Data Sheet	Data Sheet	GIL-PII-007	PQC	
		3. Lay length	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-007	PQC	
		4. No. of wire/ strip	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL PII-007	PQC	
		5. Dia. over armour	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-007	PQC	
	h) Outer sheat	Page 3of 8								
		1. Thickness of sheath	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-008	PQC	
		2. Diameter over sheath	MA	Measurement	At Start	Data Sheet	Data Sheet	GIL-PII-008	PQC	
		3. Marking/Embossing	MA	Visual	Continuous	Data Sheet	Data Sheet	GIL-PII-008	PQC	
		4. Colour	MA	Visual	Continuous	Data Sheet	Data Sheet	GIL-PII-008	PQC	
		5. Surface Finish	MA	Visual	100%	Gemscab Standard		GIL-PII-008	PQC	
3.	FINAL TESTS									
	a) Routine test									
		1. High voltage	CR	Electrical	100% Drum	IS:7098 -1	IS:7098 -1	GIL-FIR-001	FQC	
		2. Conductor resistance	CR	Electrical Drum	IS:7098 -1	IS:7098 -1	GIL-FIR-001	FQC		
	b) Acceptance test									
		1. Annealing test (for copper)	MA 7098-Pt-1	Physical	as per IS:	IS:8130	IS:8130	GIL FIR 008	FQC	
		2. Tensile strength and Wrapping test (for Al.)	MA 7098-Pt-1	Physical	as per IS:	IS:8130	IS:8130	GIL-FIR-008	FQC	
		3. Conductor resistance 7098-Pt-1	CR	Electrical	as per IS:	IS:8130	IS:8130	GIL-FIR-008	FQC	
		4. Thickness of INS.&SH 7098-Pt-1	MA	Measurement	as per IS:	IS:7098 -1	IS:7098 -1	GIL-FIR-008	FQC	
		5. T.S. & Elongation at break of Ins.& SH.	MA 7098-Pt-1	Physical	as per IS:	IS:5831	IS:5831	GIL-FIR-008	FQC	
		6. Insulation resistance	CR	Eiectrical	as per IS:	IS:5831	IS:5831	GIL-FIR-008	FQC	

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		(Volume resisitivity)	7098-Pt-1							
		7. H.V. Test 7098-Pt-1	CR	Electrical	as per IS:	IS:7098 -1	IS:7098 -1	GIL-FIR-008	FQC	
		8. Hot Set Test	MA	Thermal	as per IS:	IS 7098 -1	IS:7098 -1	GIL-FIR-008	FQC	
					7098-Pt-1					
	c) Type Test									
		1. Tensile strength & Wrapping test (for Al.)	MA	Physical	1 Sample per lot	IS:8130	IS:8130	GIL-FIR-003	FQC	
		2. Annealing test(for Cu.)	MA	Physical	1 Sample per lot	IS:8130	IS:8130	GIL-FIR-003	FQC	
		3. Conductor resistance test	CR	Electrical	1 Sample per lot	IS:8130	IS:8130	GIL-FIR-003	FQC	
		4. Test for armour (wire / Strip)	FQC							
		I) Torsion / winding test	MA	Physical	1 Sample per lot	IS: 3975	IS:3975	GIL-FIR-004	FQC	
		ii) Mass of zinc coating	MA	Chemical	1 Sample per lot	IS: 3975	IS:39i5	GIL-FIR-004	FQC	
		iii) Uniformity of zinc cozting	MA	Chemical	1 Sample per lot	IS: 3975	IS:3975	GIL-FIR-004	FQC	
		iv) TS & Elongation	MA	Physical	1 Sample per lot	IS: 3975	IS:3975	GIL-FIR-004	FQC	
		5. Thickness of insulation	MA	Measurement	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		6. Physical tests on Insulation	Page 4 of 8	GIL-FIR-003	FQC					
		i) T.S.&Elongation	MA	Physical	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		ii) Ageing in Air oven	MA	Thermal	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		iii) Shrinkage	MA	Thermal	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		iii)Hot set test	MA	Thermal	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		v) Water absorption (gravimetric)	MA	Thermal	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		7. Physical tests on outer sheath	GIL-FIR-003	FQC						
		i) T.S.&Elongation	MA	Physical	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		ii) Ageing in Air oven	MA	Thermal	1 Sample per lot	IS:5831	IS:583	GIL-FIR-003	FQC	
		iii) Shrinkage	MA	Thermal	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		iii) Loss of mass	MA	Thermal	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		v) Hot deformation	MA	Thermal	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		vi) Heat Shock Test	MA	Thermal	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		vii) Thermal stability	MA	Thermal	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		8. Insulation Resistance (Vol. Resistivity)	CR	Electrical	1 Sample per lot	IS:5831	IS:5831	GIL-FIR-003	FQC	
		9. HV Test	CR	Electrical	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-003	FQC	
		10. Flammability Test	MA	Visual	1 Sample per lot	IS:7098 -1	IS:7098 -1	GIL-FIR-004	FQC	
1.	RAW MATERIAL									
	a) PVC Compound for FR/ PVC									
		1. T.S. & Elongation	MA	Physical	4% composite per	IS:5831	15:5831	GIL-GIR-003	IQC	
		2. Thermal stability	MA	Chemical	-do.	IS:5831	15:5831	GIL-GIR-003	IQC	