

ConductaClean®

Long Term Connector Resistance Tests

(Data provided by EPRI)

February 2010

Long term performance was evaluated by heat cycle testing conducted using EPRI's multi-stress compression connector test facility at EPRI's Power Delivery & Utilization Laboratories in Charlotte, North Carolina (photograph below). Heat cycle loops were fabricated using 4 matched sets (2 samples per set) of compression connectors (4 prepared with wire brushing and 4 prepared with ConductaClean®) and 2 matched sets (2 samples per set) of deadends (2 prepared with wire brushing and 2 prepared with ConductaClean®).



Each loop was subjected to 262 cycles of heating and cooling. Each cycle consisted of raising the sample temperature as measured using thermocouples to 93° C (200°F), holding it for 2 hours and then allowing it to cool to room temperature. Depending on ambient temperatures each cycle lasted for a total of 3.5 to 4.5 hours. After the 262 cycles the electrical resistance of conductors and each connector were measured using a micro ohm meter. The measurement results are provided in the following table.

The results show that connectors installed using ConductaClean® outperformed (i.e., lower resistance) those installed using wire brushing. This is particularly evident in the situations where a significant change in resistance of a

connector developed during the course of the heat cycle tests (highlighted). Note: The changes in resistance were corroborated by connector temperature measurements performed using thermocouples.

Component Type	Measurement Point	Resistance (micro ohms)			
		Wire Brushed (Line 0)		ConductaClean® (Line 1)	
		Measurement	Ratio (Measured/Reference)	Measurement	Ratio (Measured/Reference)
Conductor	Reference	23	1.00	23.5	1.00
Two Stage	Deadend 1	20.5	0.89	23	0.98
Two Stage	Splice 1 A	87.5	3.80	20	0.85
	Splice 1 B	111	4.83	23.5	1.00
Single Stage	Splice 2 A	80	3.48	36	1.53
	Splice 2 B	37.5	1.63	28	1.19
Two Stage	Deadend 2	26	1.13	19.5	0.83