

WGB2-42_HighTempLimits – Chair, LenCuster

Thermal Aging of Conventional Conductor Systems

**Task: Comparison between ACSR and TACSR
Penguin Conductor**

by:

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Figure 2 – Power Transformer System (300 kVA), two Reguladores de Tensão, Power Donut Sensor of Monitoring Temperature System and Weather Station in Experimental Line

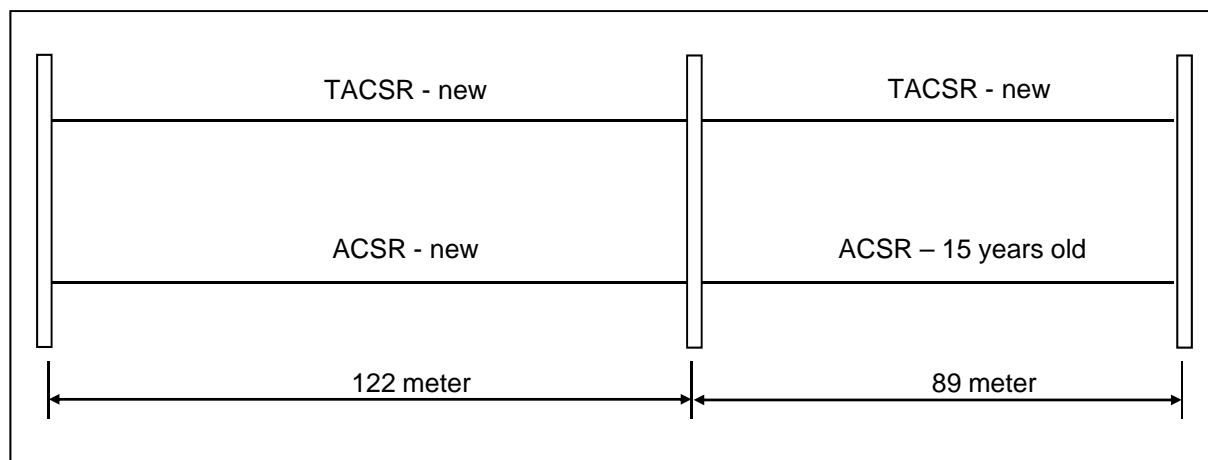


Figure 1 - Configuration of ACSR and TACSR Conductors in the Exerimental Line.

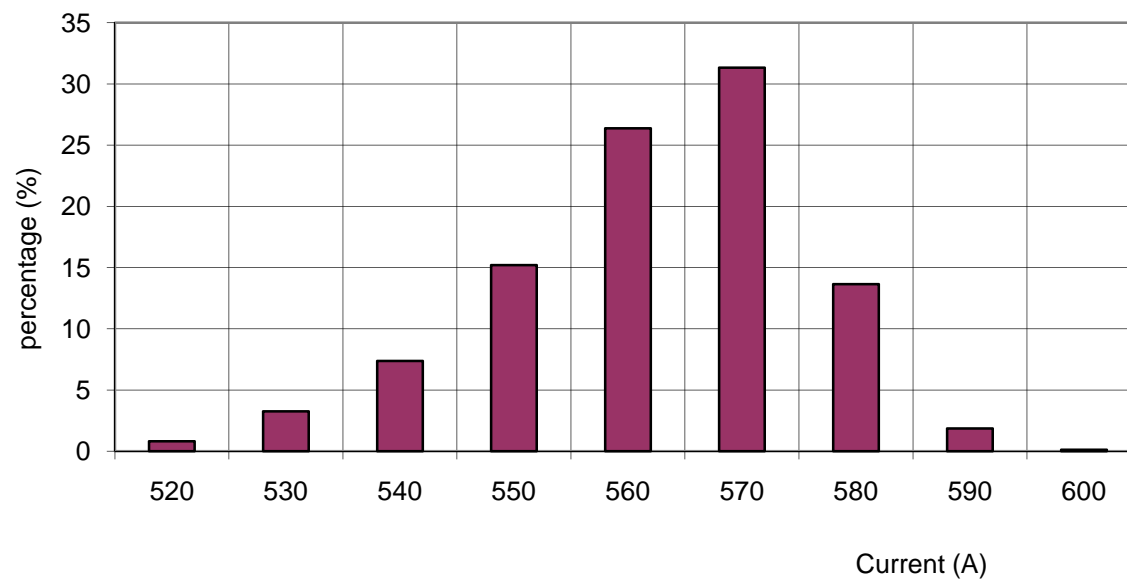


Figure 4 - Hourly average of current in the Experimental Line.

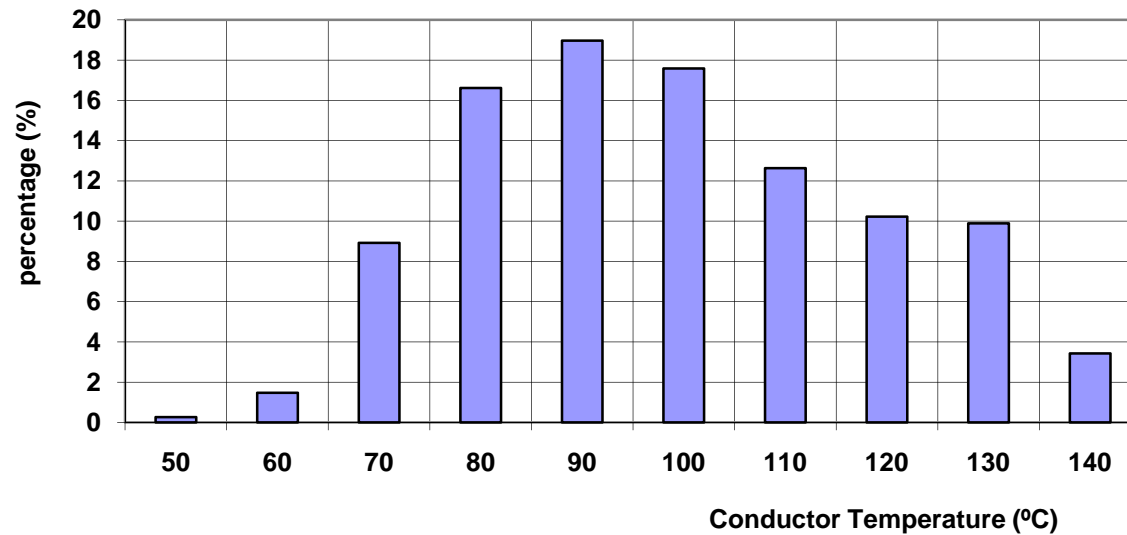


Figure 3 - Hourly average of conductor temperature in the Experimental Line.

some results



TABLE 2 – Percentage of Conductor Strength Lost

Conductor		Reference New before experiment	After 4 months of experiment	After 12 months of experiment
ACSR	Kgf	3990	3778	3636
	Strength Lost %	-	5.3	8.9
TACSR	Kgf	3810	3825	3913
	Strength Lost %	-	~0	~0

some results



TABLE 3 – Percentage of Wires Strength Lost

Alloy		Reference New before experiment	After 4 months of experiment	After 12 months of experiment
Al 1350	σ_{break} (kgf)	322.5	127.5	151
	Strength Lost (%)	-	60	53
TAL	σ_{break} (kgf)	323.6	275.4	203.4
	Strength Lost (%)	-	15	37

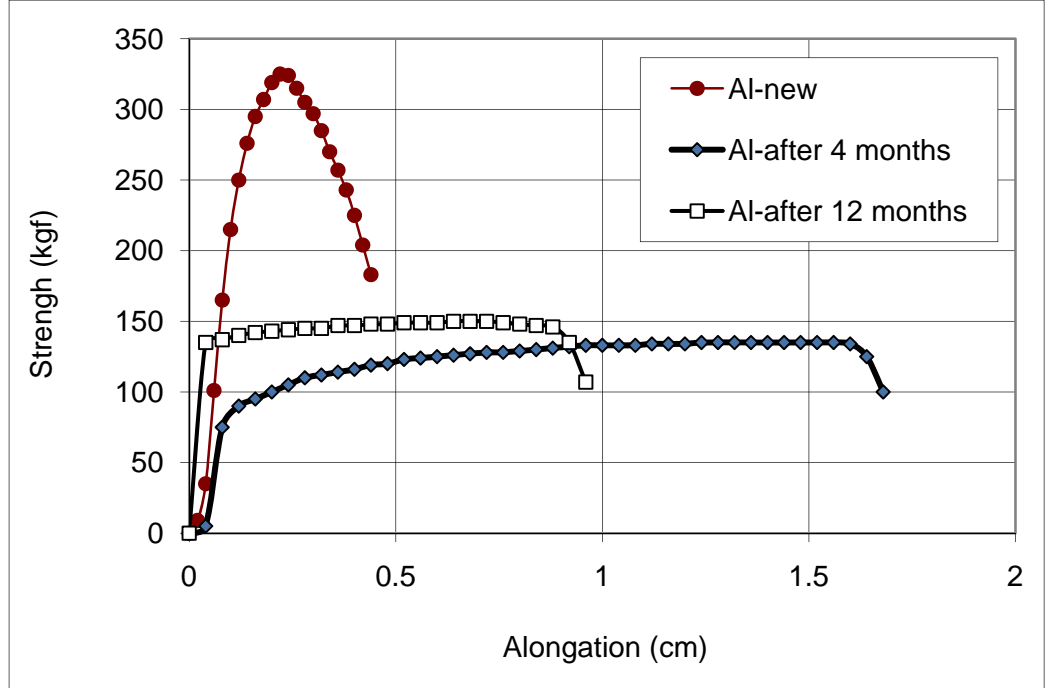
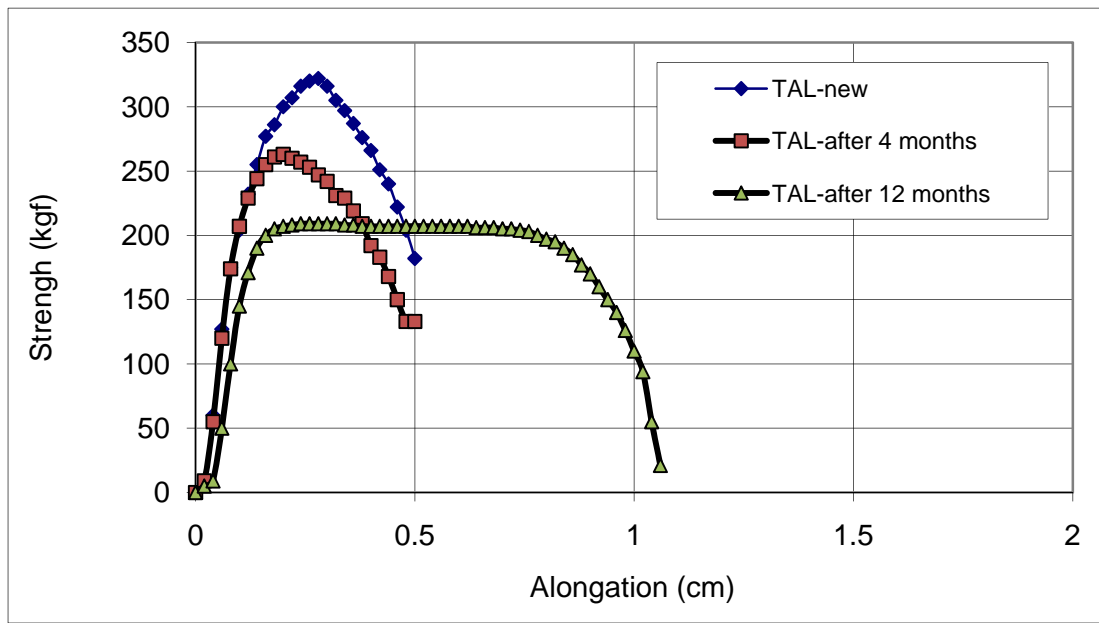
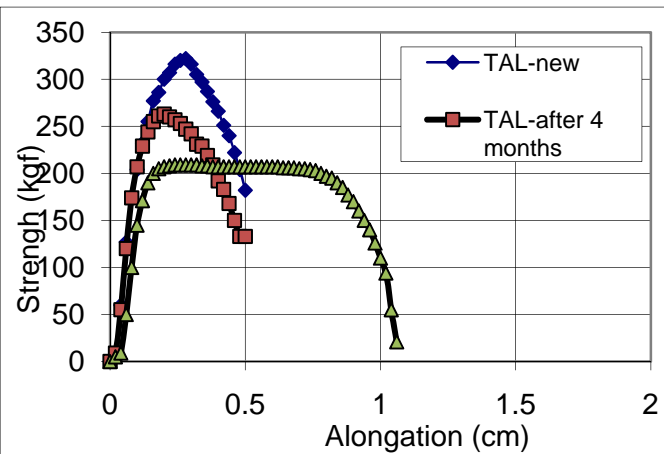
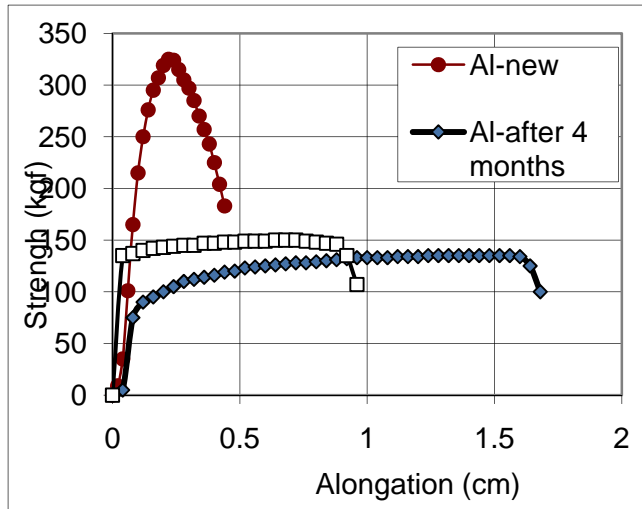


Figure 8 - Tension-deformation diagrams for the alloys wires view.





	Al – 1350 Cross section	Al – TAL Cross section
New Sample		
After 4 months		
After 12 months		