Application Development Center EMS-GRIVORY **Answer to Technical Inquiry No.: 2020-0682**	EMS-GRIVORY

Author: To:	Gian Cadisch Andre Sutter	Date: 19.02.2021
Company: Country:	TCL HOFMANN PTY LTD. Australia (AU)	
Material: Application:	Grilamid FE 12217 Blue (L20 L Blue) Cable Coating	

Problem Description / Target of the Customer:

AFL have extruded Grilamid FE 12217 Blue (L20 L Blue) for cable sheathing and request EMS to carry out UV resistance testing according to AS 1049. AFL will also provide some sample of their incumbent blue from Arkema for EMS to run a side by side comparison.
Samples of the extruded sheath have been sent to Gian Cadisch

Please carry out UV testing on the EMS and Arlema extruded sheath sample as per previous testing carried out for Prysmian Australia (see attached report)

Result / Solution / Proposal:

The customer has sent extruded sheathing samples form Grilamid FE 12217 blue and the corresponding competitor material from ARKEMA. From both extruded sheathing samples ISO 8256 type 3 specimen have been cut along extrusion direction.
Afterwards both materials have been weathered according to ISO 4892-2 method A cycle 1.
The mechanical tests were performed according to ISO 527 with 50mm/min tensile speed.
The results are shown in the table below:

Material	State	Time [h]	Residual Elongation at Break [%]	Residual Tensile Strength [%]	Residual Elongation at Yield [%]	Residual Yield Strength [%]	Dis-coloration dE
L FE 12217 BLUE	conditioned	0	100	100	100	100	0
	Weathering acc. to ISO 4892-2	120	93	98	98	98	0.2
		240	80	90	113	102	0.4
		360	86	93	91	111	0.4
		480	75	100	130	102	0.5
		600	43	76	85	89	0.6
		720	43	87	104	110	0.7
ARKEMA BLUE	conditioned	0	100	100	100	100	0
	Weathering acc. to ISO 4892-2	120	94	105	102	105	0.3
		240	95	101	118	102	0.4
		360	83	107	110	104	0.6
		480	47	89	135	103	0.6
		600	43	96	102	102	0.6
		720	43	100	111	108	0.6

Table 1: Comparison of weathering resistance between Grilamid L FE 12217 and ARKEMA material

Both materials show similar weathering resistance at mechanical and optical properties. Differences in the mechanical properties can result from the different sheathing thickness which varies between 0.4 and 0.5mm thickness at both materials and the circumstance that the extruded sheathing samples are curved.

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Materialprüfung

Bewitterung n. ISO 4892-2

BA.Nr. 202408

TA 2020-0682S
Kunde: TCL Hofmann

Januar 2021 / CAIG,ABTD

A) L FE 12217 BLUE

Gerät: WOM ci4000
I (340): 0,50W/m²
Zyklus: 102/18 Min.
BST: 65°C ± 3°C
Feuchte: 65% ± 5%

Zeit [h]		Farbdiff. ΔE D65
0		0
120		0,2
240		0,4
360		0,4
480		0,5
600		0,6
720		0,7

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Materialprüfung

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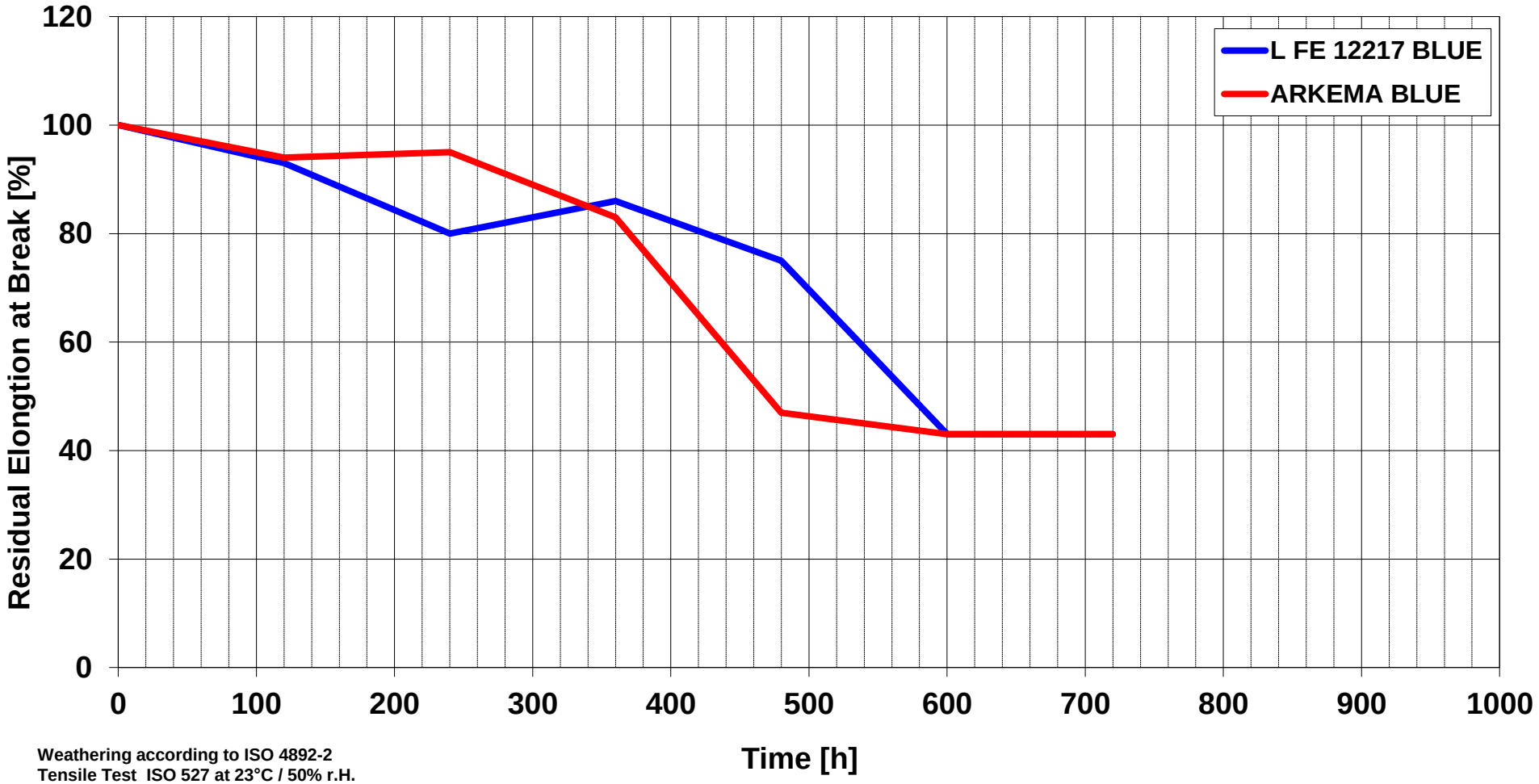
B) ARKEMA BLUE

Gerät: WOM ci4000
I (340): 0,50W/m²
Zyklus: 102/18 Min.
BST: 65°C ± 3°C
Feuchte: 65% ± 5%

Zeit [h]		Farbdiff. ΔE^* D65
0		0
120		0.3
240		0.4
360		0.6
480		0.6
600		0.6
720		0.6

Weathering - Comparison



Weathering according to ISO 4892-2
Tensile Test ISO 527 at 23°C / 50% r.H.
Tensile Speed: 50mm/min
Test specimen : ISO 8256 Type 3 cut from extruded sheathing

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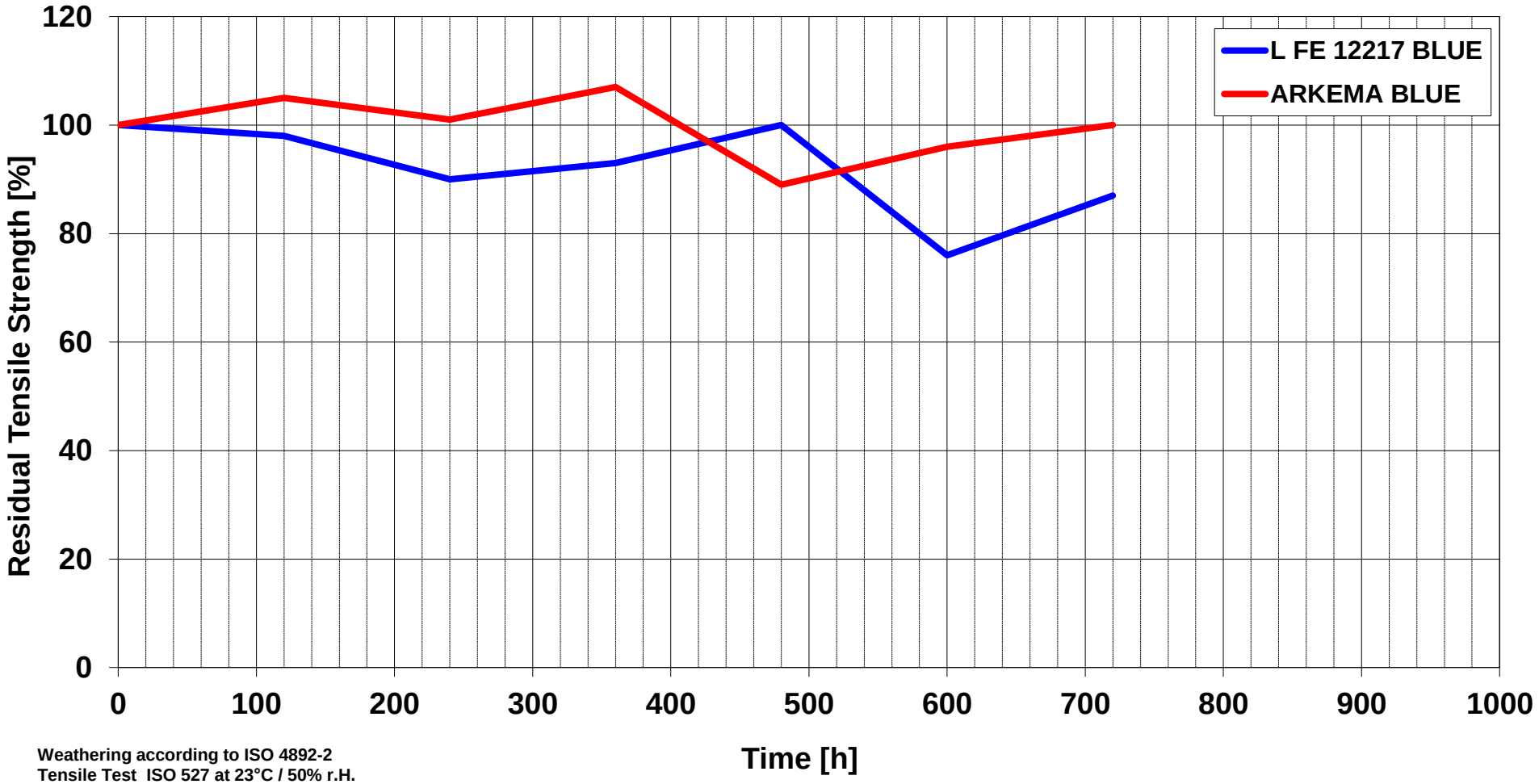
Weathering - Comparison



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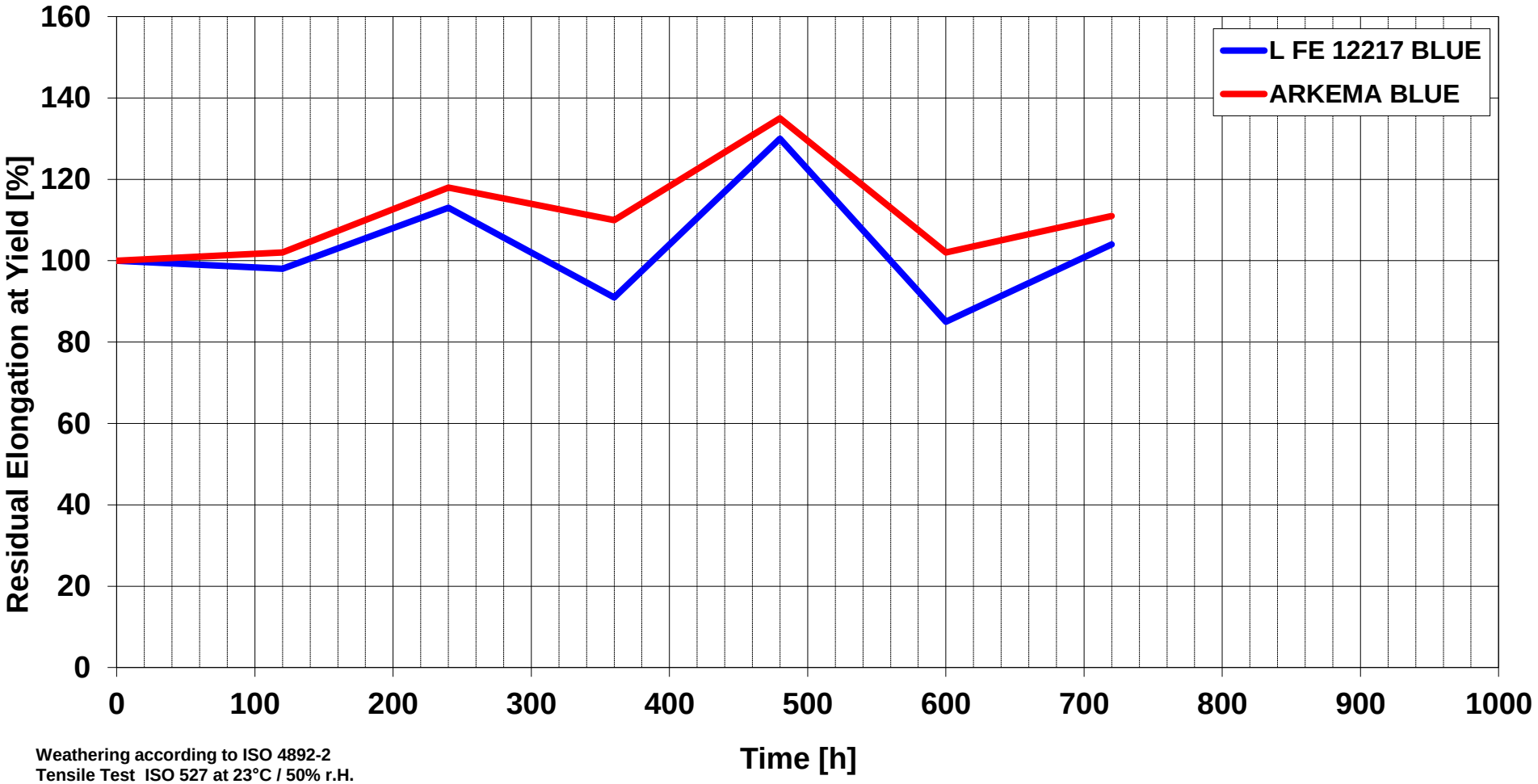

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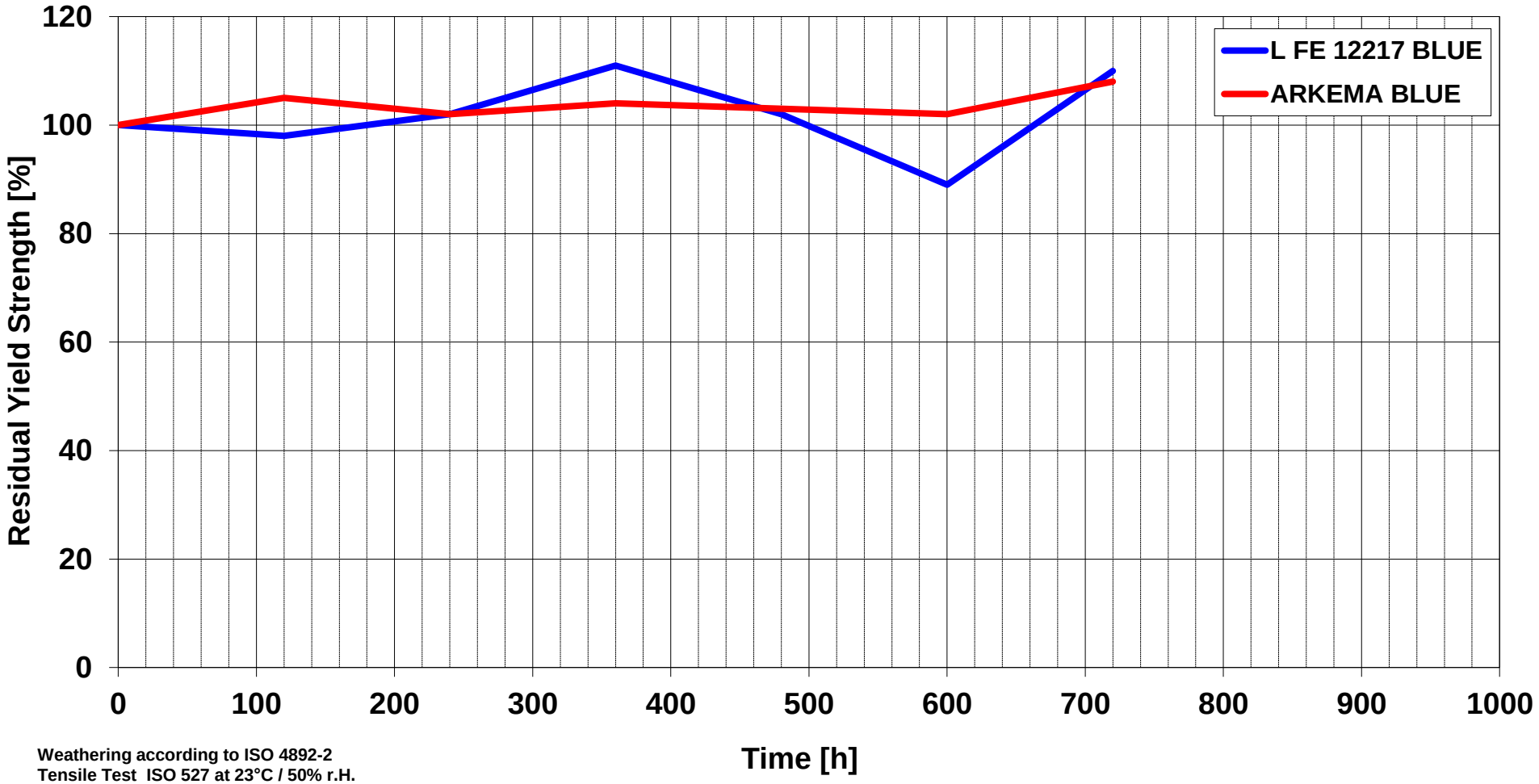

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