

Resin Materials shortage management Supporting document

AFCI technical overview
September, 28th 2021

Amphenol Information Communications
and Commercial Products

≡ **FCi Basics**

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- Introduction - explanation of the situation
- Impacted products
- Identified solutions : resin color change
 - Evaluation of visual impact
- Evidences of no technical impact
 - Data Sheets Materials review
 - Performance review
 - Dimensional review
- Conclusion & resin shortage management process
- Contact persons

- Due to the sanitary situation, the consumption of resin Materials is fluctuant and generates a balance of offer / demand which **conducts to a resin shortage**.
- This shortage impacts us at the level of PBT POCAN B4235 resin in gray color, used for several of our products, *mainly Quickie header and receptacle* with associated eject latch.
- As soon as we have been informed of this Materials risk of shortage, we worked to identify alternatives solutions.

- Bellow Is the based number family impacted. Attached the full detail of PN into the XLS file :



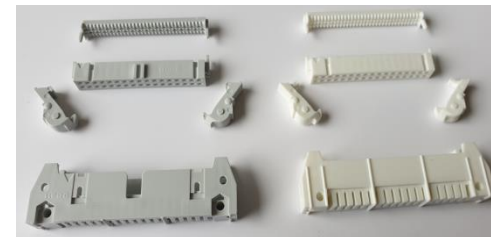
PN impacted

- 10129768 - QUICKIE EJECTOR LATCH
- 67018 - EJECTOR LATCH STANDARD
- 67046 - EJECTOR LATCH LOW PROFILE
- 71600 - QUICKIE III FEMALE
- 71918 - SHROUDED EJECT LATCH HEADER STR DR TMT
- 71922 - SHROUDED EJECT LATCH HEADER RA DR TMT

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Identified solution

- Below is the picture showing example of color difference between the original and the alternative solution in natural color.



Original color (grey)
Molded with the key

Alternative color (natural)
Molded without the key

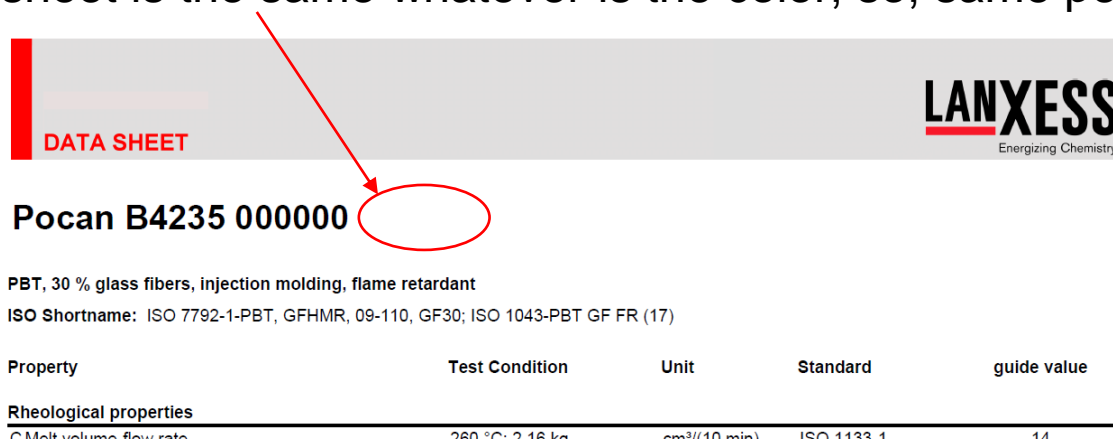


- Only the color is different, the Raw Materials is exactly the same, from the same manufacturer.

PBT shortage management

Evidence of no technical impact – datasheet

- As mentioned, the raw material is exactly the same from the same manufacturer. As evidence, below and attached is the material data sheet valid for both color :
- The 6 digit to identify the color code of the material prove that the data sheet is the same whatever is the color, so, same performance.



PBT Pocan B4235
- Datasheet

- The **YELLOW** cards for the UL certificates **remain valuable** as well.

B4235+

Polybutylene Terephthalate (PBT), "POCAN", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.75	V-2	3	2	130	120	130
	1.5	V-0,5VA	2	2	130	130	140
	3.0	V-0, 5VA	1	2	130	130	140
	6.0	V-0, 5VA	0	2	130	130	140

- The identified PN are covered by several product specifications as « BUS-12-082 » and « BUS-12-085 » .

The material remains exactly the same having **only the color as difference from the original version**, the product stays **fully compliant with the products specifications listed**.

So, the below categories of properties are still valid :

- Electrical characteristics (current rating, contact resistance, LLCR & insulation resistance, dielectric Withstanding voltage)
- Mechanical characteristics (cable retention and flex resistance, durability, ...)
- Environmental conditions (humidity, Thermal shock, High T° life, Chock, vibration, H2S exposure, Salt spray...)

PBT shortage management

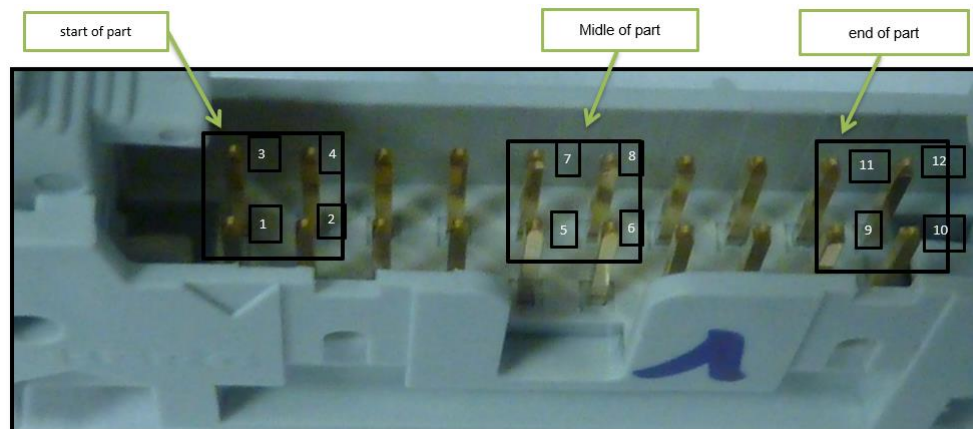
Evidence of no technical impact – performances

- In order to check no mechanical property impact some tests were performed :

Pin retention

No specification on contact retention

→ only to show there is no significant change



Pin retention

71918-220LF : original part (Grey)

		Pièce 1	Pièce 2	Pièce 3	Pièce 4	Pièce 5
Pin 1	start of part	27.04	41.54	42.67	25.91	35.44
Pin 2		34.57	34.86	37.93	34.36	42.44
Pin 3		32.65	35.26	35.70	30.69	34.32
Pin 4		39.19	35.69	36.63	37.95	39.58
Pin 5	Midle of part	36.48	40.65	38.55	36.02	34.99
Pin 6		16.19	42.31	42.18	44.24	42.93
Pin 7		36.76	37.81	37.32	32.34	35.39
Pin 8		41.53	38.31	41.32	39.81	33.97
Pin 9	end of part	39.88	39.19	38.88	42.34	39.62
Pin 10		29.02	33.07	32.85	29.94	31.40
Pin 11		37.93	36.49	36.58	38.46	36.88
Pin 12		29.66	33.70	35.08	30.50	32.55
Average		33.41	37.41	37.97	35.21	36.63

71918-234LF : Natural color

		Pièce 1	Pièce 2	Pièce 3	Pièce 4	Pièce 5
Pin 1	start of part	37.67	31.17	37.21	38.29	35.81
Pin 2		35.03	39.27	34.21	35.65	45.91
Pin 3		32.16	35.47	37.12	33.67	34.28
Pin 4		34.86	34.65	30.15	35.25	35.27
Pin 5	Midle of part	43.51	49.62	44.25	44.19	47.43
Pin 6		44.19	42.42	38.55	47.5	43.99
Pin 7		39.84	35.16	41.95	39.33	31.52
Pin 8		31.00	41.29	35.27	35.45	38.10
Pin 9	end of part	38.02	41.35	46.72	42.99	34.74
Pin 10		43.37	40.07	35.29	46.37	32.41
Pin 11		34.09	28.56	36.04	34.47	31.65
Pin 12		24.38	31.37	26.86	24.18	35.52
Average		36.51	37.53	36.97	38.11	37.22

- There is no difference observed between the two different colors.

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Evidence of no technical impact – performances

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Latches retention

Latches retention

71918-220LF : original part (Grey)

	Latch 1	Latch 2	Average	Max	Min
Pièce 1	71	66	68.5	71	66
Pièce 2	81	73	77.0	81	73
Pièce 3	71	74	72.5	74	71
Pièce 4	70	77	73.5	77	70
Pièce 5	72	73	72.5	73	72
			72.8		

71918-234LF : Natural color

	Latch 1	Latch 2	Average	Max	Min
Pièce 1	75	69	72.0	75	69
Pièce 2	71	73	72.0	73	71
Pièce 3	71	75	73.0	75	71
Pièce 4	74	75	74.5	75	74
Pièce 5	75	79	77.0	79	75
			73.7		

Drawing specification

4 — 40N MIN LATCH RETENTION FORCE
AT FIRST EXTRACTION



- The first batch of production with the alternative color (Natural instead of grey) have been controlled specifically to confirm **there is no impact on the product dimensions.**
- Our internal CCD system are not affected by the color change as well and are still performing.

As synthesis there is no difference between original parts and the new color proposed as alternative.

- Conclusion :

According to this presentation, expect the color, there is absolutely **no functional difference** between the original product and the resin alternative we are going to engage.

- Resin shortage management process

Due to a very short lead time front of us to define a solution, a derogation is going to be submitted to each Customer, supported to this present presentation.

The **temporary deviation** informs of the situation and the period of the change of production.

All the questions or concerns related to this color change are to be addressed to your Sales contact person as usual.

Indeed, in order to support Customer, a specific project Team is in place into our AFCI factory of Besançon, in France.

This Team will be able to support any question you can have and help our Sales Team to bring you the appropriated answers in a brief time.

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Thank you !