


Application Development Center EMS-GRIVORY Answer to Technical Inquiry No.: 2018-0660		
Author:	Gian Cadisch	Date: 07.05.2019
To:	Hiroaki Mifune	
Company:	Kyocera / Camera	
Country:	Japan (JP)	
Material:	Grivory GVX-5H	
Application:	Sensor Camera	

Problem Description / Target of the Customer:

The customer shows interests in Grivory series and required the comparison of weatherability with the competitor's materials.

The same test conditions were used as in TI 2016-0534S

Weatherability tests based on ISO 4892-2 method A

- Black Panel thermometer: Temperature: 83°C ±2°C
- Cycles of 18 minutes with pure water dispersion - 102 minutes interval (Total 120 minutes for 1 cycle)
- Repeat this condition for 1000 hours

Please measure each specimen at the point of the start and after 400, 700, 1000 hours (Total 4 points)

1. Observation of the appearance / t2 x 60(100) plates / 5 pcs x 4 points for each materials
 - Gloss
 - E
2. Measurement of the properties / Specimens based on ISO standard
 - Tensile impact toughness / ISO 8256 Type 3 specimens / 5 pcs x 4 points for each materials

Materials:

- Grivory GVX-5H
- Grivory G6VX-AP XE11107
- Grivory G6VX-AP XE11107 UV (Blended with 4% MB 3427 AUV)
- Grivory HT3 XE4065
- Grivory HTV-45H1
- Reny XL1027U
- Reny 1027
- Amodel A-1145HS
- Xyron XP640

Requests:

1. Blending of Grivory XE11107 + 4% MB 3427 AUV at ECSZ
 - Please blend necessary volume at ECCH
2. Make the specimens at ECCH once received the materials
 - Plates: t2 x 60 or 100mm
 - ISO 8256 Type 3 specimen
 - *The pellets will be sent from ECJP.
3. Please run the weatherability tests

These recommendations are based on our present experience. No liability whatsoever can be assumed.

Same conditions with TI ECJP 2016-0534S.

*This measurement will be handled by Mr. Gian Cadisch of ECCH.

*The size of specimens can be changed at ECCH






*Please send the tested specimens to Hiroaki Mifune of ECJP.

Result / Solution / Proposal:

All suggested materials were sent by ECJP and molded in ECCH. The weathering stability was tested according to ISO 4892-2 method A cycle 1 on ISO 8256 Type 3 specimen with 1mm thickness. Afterwards optical tests such as discoloration measurements (dE) according to ISO 11664-4, residual gloss at 60° according to ISO 2813 performed and tensile properties according to ISO 527-2 with 2.5mm/min tensile speed tested. The results are displayed in the attachment. It can be clearly seen that the products of the competition does not perform a good weathering stability compared to our products. The mechanical properties of all materials are not really influenced, but the optical properties such as discoloration dE and gloss 60° have a big impact on competitor's materials. It can be clearly seen that Xyron XP640 black shows the worst and GV XE 11107 black 9915 + 4% MB 3427 shows the best weathering performance.





Bewitterungstest n. ISO 4892-2

A) Reny 1027 black
PAP: 7K5128G

Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0		<i>Legenda</i>	0	44
400			2.5	16
700			5.6	16
1000			3.4	11





Bewitterungstest n. ISO 4892-2

B) Amodel A-1145HS black
PAP: 1624000732

Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	76
400			1.3	64
700			3.2	40
1000			3.9	18





Bewitterungstest n. ISO 4892-2

C) Xyron XP640 black PAP: 218701

Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	78
400			34.4	8
700			35.5	3
1000			32.6	1





Bewitterungstest n. ISO 4892-2

D) Reny XL 1027U black
PAP: 7E4717G





Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	79
400			2.2	62
700			2.7	62
1000			3.6	44

Bewitterungstest n. ISO 4892-2

E) HTV-45H1 BLACK 9205
PAP: 7115698/13


Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	80
400			0.7	76
700			1.7	50
1000			3.0	18

Bewitterungstest n. ISO 4892-2**F) XE 4065 BLACK 9238****PAP: 7679885/01**

Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	62
400			1.2	57
700			1.9	49
1000			5.3	39





Bewitterungstest n. ISO 4892-2

G) G VX-5H BLACK 9915
PAP: C180812/06

Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	71
400			0,8	56
700			2,9	31
1000			4,8	23





Bewitterungstest n. ISO 4892-2

H) GV XE 11107 BLACK 9915
PAP: 6005759/01

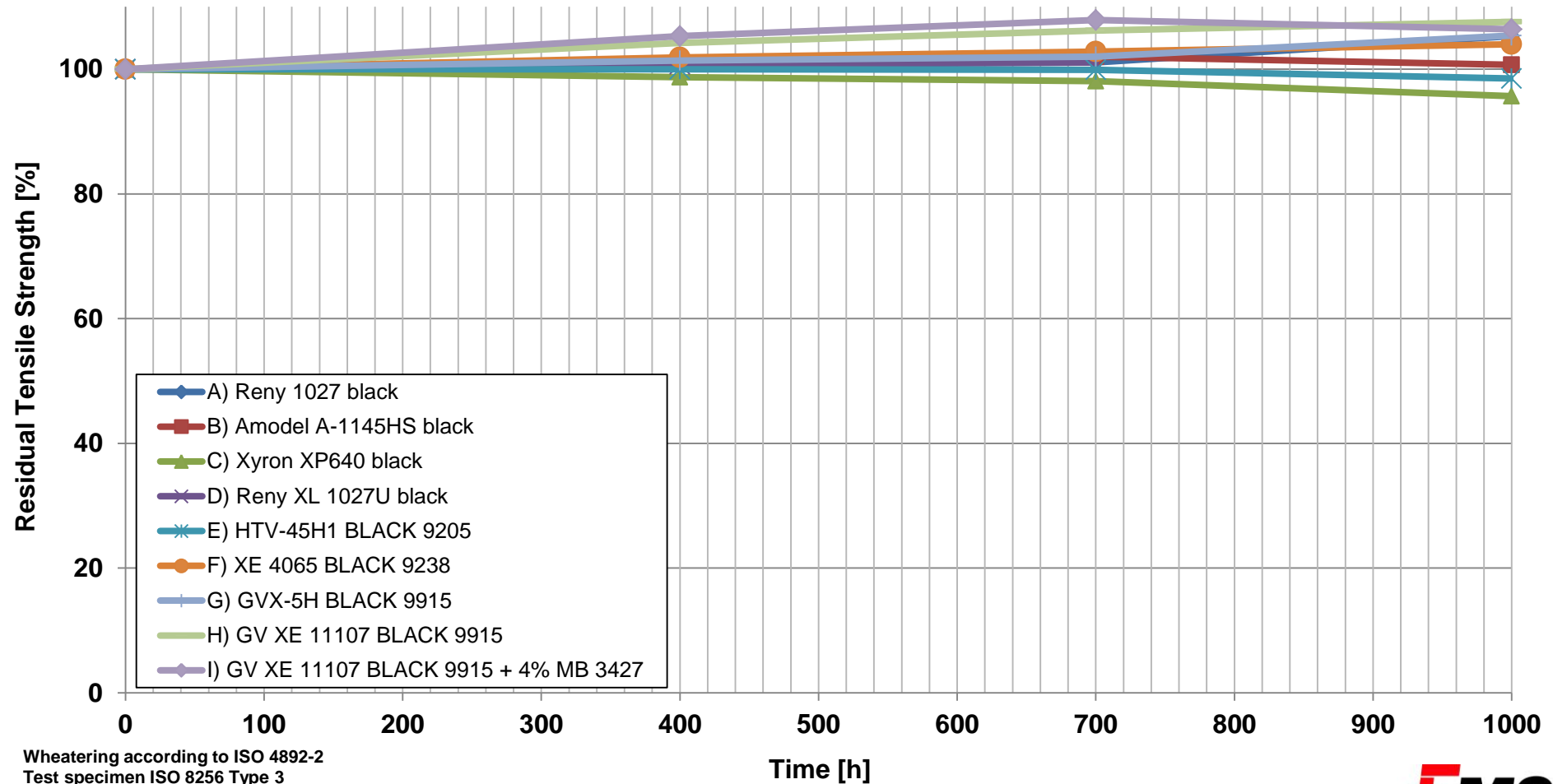
Zeit [h]		SZZ [kJ/m ²]	Farbdifferenz dE D65	Glanz 60°
0			0	68
400			0.7	68
700			1.8	61
1000			2.1	41

Bewitterungstest n. ISO 4892-2

I) GV XE 11107 BLACK 9915 + 4% MB 3427
PAP: 6005759/01

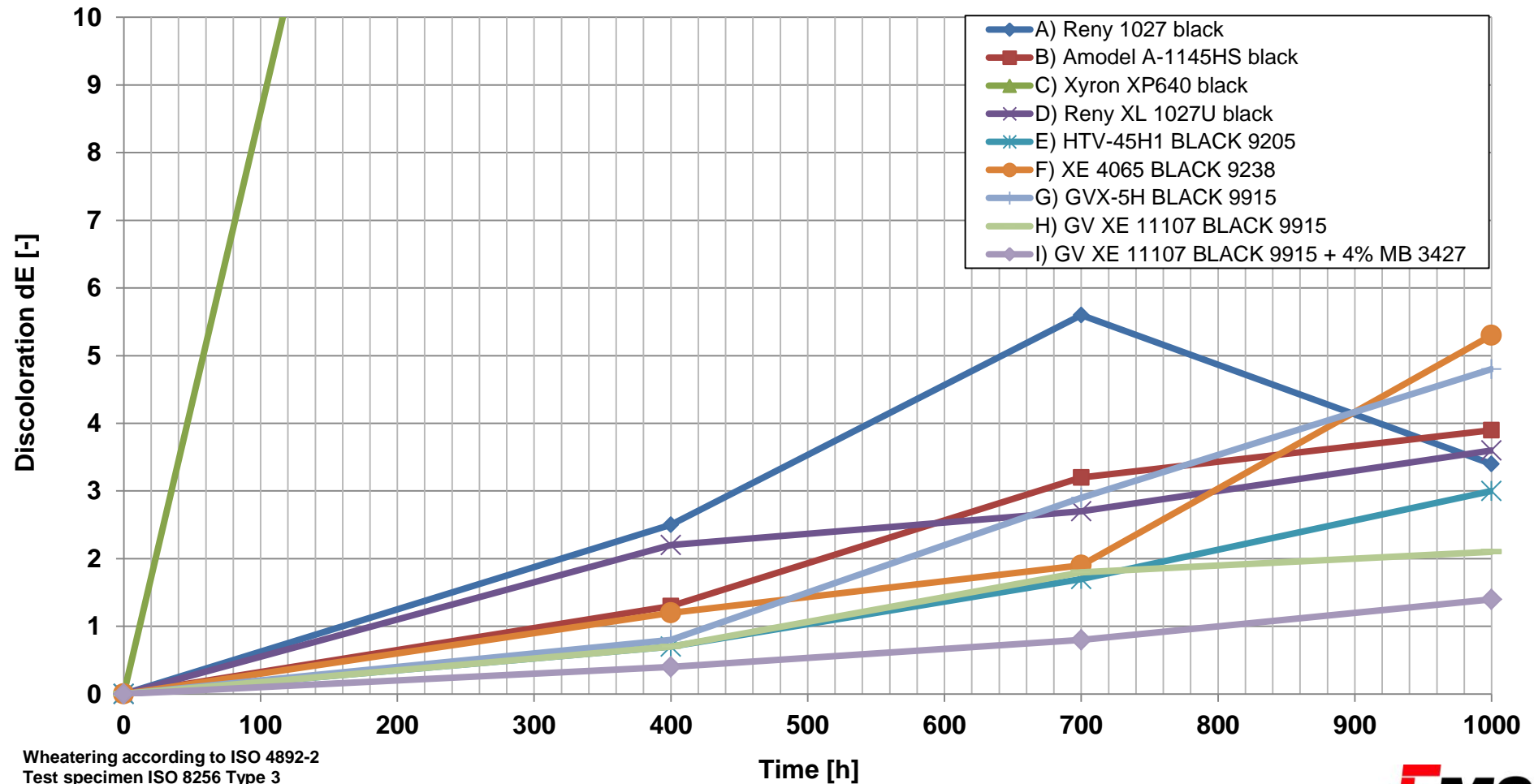
Zeit [h]		SZZ [kJ/m ²]	Farbdiffere dE D65	Glanz 60°
0			0	70
400			0.4	70
700			0.8	68
1000			1.4	34

Weather Resistance



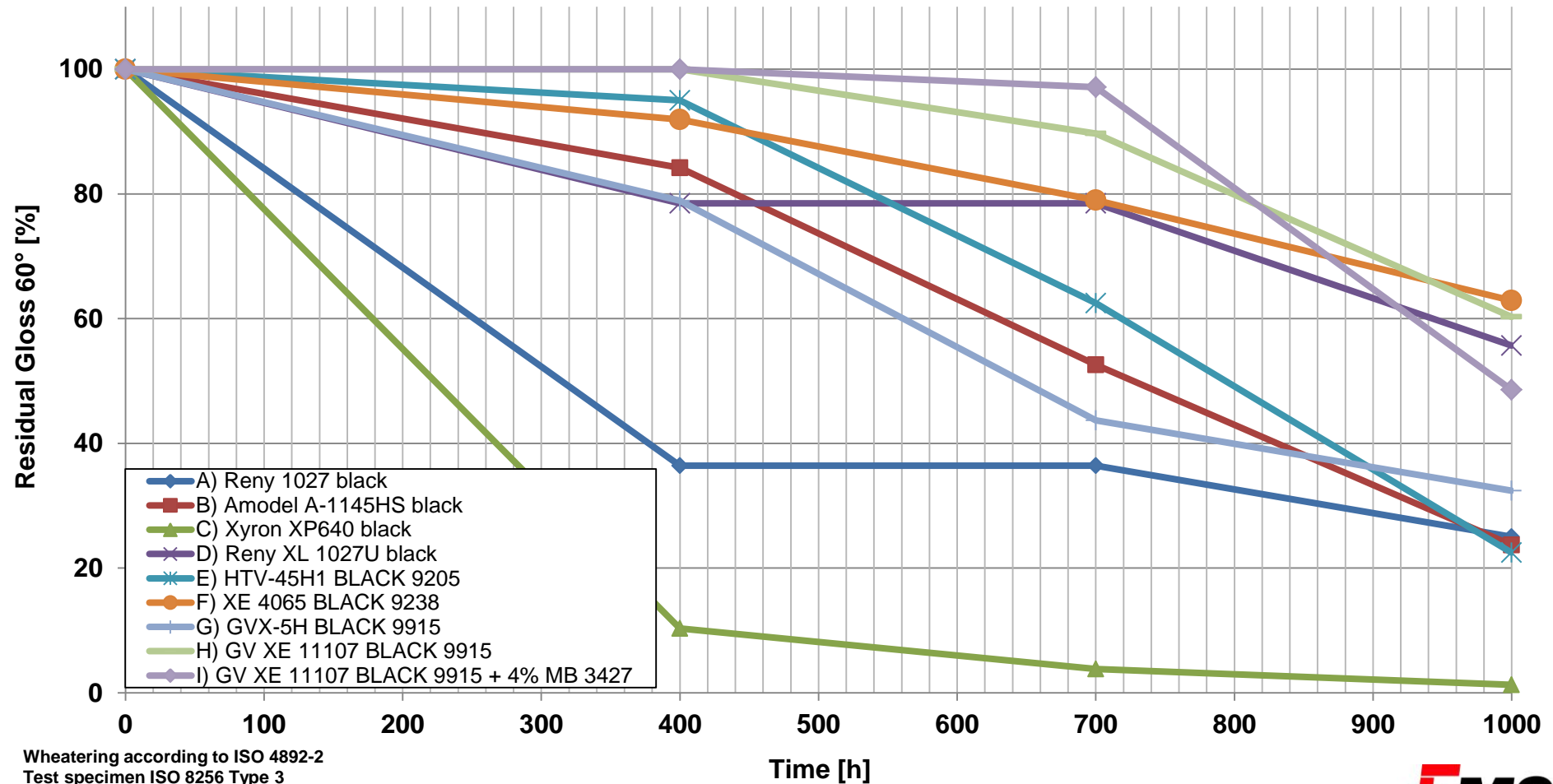
The recommendations and data given are based on our experience to date, however, no liability can be assumed in connection with their usage and processing.

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