

TR-0002302-3 QUV Accelerated Weathering Performance Testing	Date: 21 December 2023
Assessment of Opalon-F45	Document Number: TR-0002302-3

[Executive Summary](#)

[Introduction](#)

[Assessment](#)

[Panel Preparation](#)

[Results](#)

[Metalox-GC450 / Opalon-S30 - 24 Hour Recoat](#)

[Opalon-F45 Mid Grey / Opalon-F45 Mid Grey - 24 Hours Recoat](#)

[System 0003/01 \(F45/F45 Mid Grey/24 Hours\)](#)

[Opalon-F45 Mid Grey / Opalon-F45 Clear - 24 Hours Recoat](#)

[System 0004/01 \(F45/F45 Clear/24 Hours\)](#)

[Opalon-W45 Mid Grey](#)

[Conclusion](#)

Executive Summary

The colour change is tabulated below for all products tested after 1000 hours.

Tabulated data for the series

System	QUV Hours	dL*(D65)	da*(D65)	db*(D65)	dE*ab(D65)	Visual Comment
GC450 / S30 White (24 Hrs)	1000 Hrs	-0.15	0.03	0.37	0.4	No colour change Visually
F45 / F45 Mid Grey (24 Hrs)	1000 Hrs	-0.34	-0.05	0	0.34	No colour change Visually
F45 Mid Grey / F45 Clear	1000 Hrs	0.09	-0.81	2.39	2.52	Slight Yellowing of Clear
Opalon-W45 Mid Grey	1000 Hrs	-0.83	0	-0.06	0.83	No colour change Visually

The following conclusion is drawn from the results.

- Opalon-F45 Mid Grey, Opalon-S30 White, and Opalon-W45 Mid Grey had no visual change in colour or gloss
- Opalon-F45 Clear had slight yellowing after 1000 hours of weathering (ASTM D154 Cycle 1).
- None of the samples experienced high levels of DFT loss.

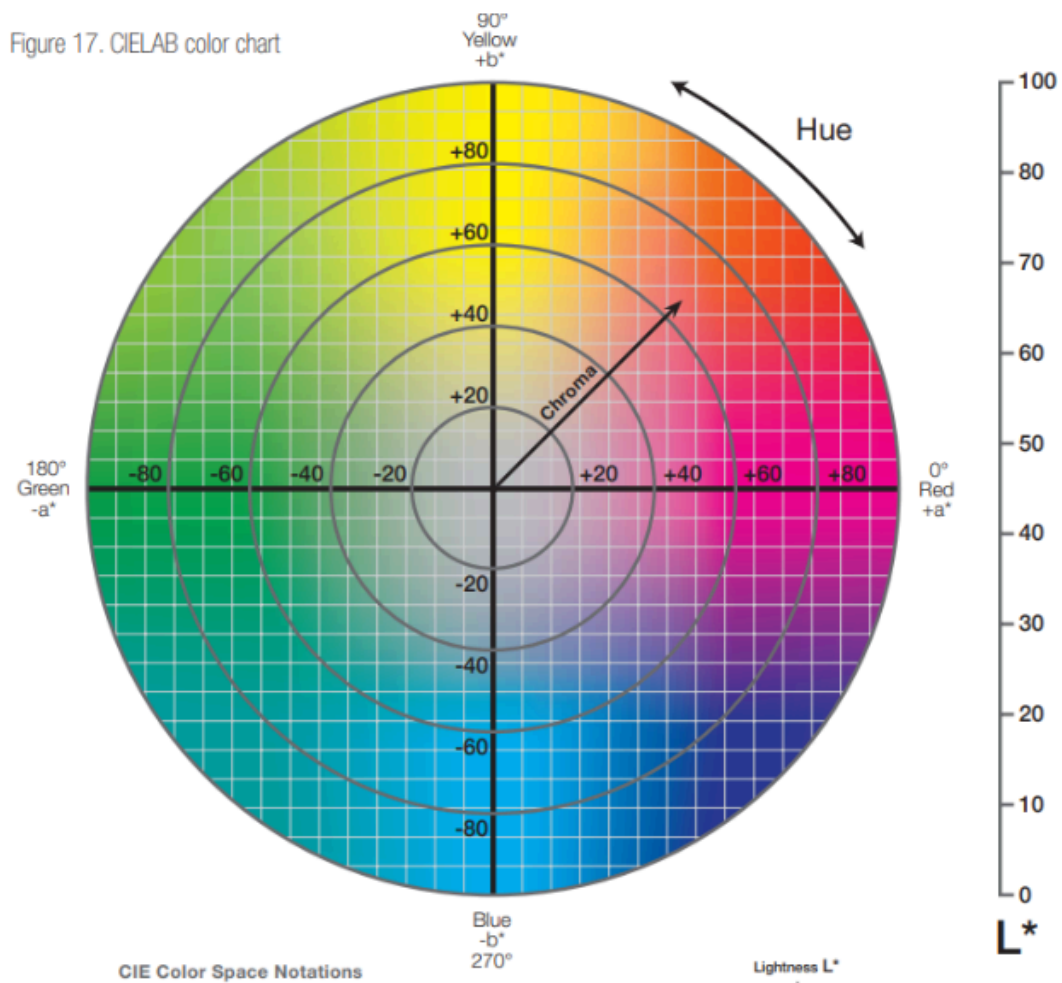
Introduction

This technical report assesses the colour change, gloss change, and DFT loss after 1000 hours of accelerated weathering to ASTM D154 Cycle 1. The list of test panels in the series is tabulated in panel preparation

Assessment

Colour

The colour will be assessed using a spectrophotometer (Konica Minolta - CM-36dG). Any colour data will be supported by a visual assessment of a colour matcher.



Panel Preparation

System 0001/01 (GC450/S30/24 Hours)

Metalox-GC450 White	250µm DFT	24 Hour recoat
Opalon-S30 - White	75µm DFT	

System 0003/01 (F45/F45 Mid Grey/24 Hours)

Opalon-F45 Mid Grey	90µm DFT	24 Hour recoat
Opalon-F45 Mid Grey	90µm DFT	

System 0004/01 (F45/F45 Clear/24 Hours)

Opalon-F45 Mid Grey	90µm DFT	24 Hour recoat
Opalon-F45 Clear	90µm DFT	

System 0006/01 (Opalon W45)

Opalon-W45	100µm DFT	
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Results

Metalox-GC450 / Opalon-S30 - 24 Hour Recoat

System 0001/01 (GC450/S30/24 Hours)

Opalon-S30 White has not visually changed colour after 1000 hours of weathering (ASTM D154 Cycle 1). The dry film thickness has not changed.

System	QUV Hours	dL*(D65)	da*(D65)	db*(D65)	dE*ab(D65)
Metalox-GC450 / Opalon-S30 White (Recoat 24 Hrs)	0 Hrs	0.00	0.00	-0.01	0.01
	250 Hrs	0.09	0.02	0.32	0.33
	500 Hrs	-0.03	-0.03	0.47	0.48
	750 Hrs	0.03	-0.02	0.34	0.35
	1000 Hrs	-0.15	0.03	0.37	0.40

System	QUV Hours	Gloss
Metalox-GC450 / Opalon-S30 White (Recoat 24 Hrs)	0 Hrs	66.6
	1000 Hrs	68.1



<https://liquimix.com/opalon-s30>

Opalon-F45 Mid Grey / Opalon-F45 Mid Grey - 24 Hours Recoat

System 0003/01 (F45/F45 Mid Grey/24 Hours)

Opalon-F45 Mid Grey has not visually changed colour after 1000 hours of weathering (ASTM D154 Cycle 1). It has been the best performer of the series. The dry film thickness has not changed.

System	QUV Hours	dL*(D65)	da*(D65)	db*(D65)	dE*ab(D65)
Opalon-F45 Mid grey / Opalon-F45 Mid Grey (Recoat 24 Hrs)	0 Hrs	0.00	-0.01	0.00	0.01
	250 Hrs	-0.20	-0.03	0.06	0.21
	500 Hrs	-0.33	-0.06	0.04	0.34
	750 Hrs	-0.29	-0.08	0.00	0.30
	1000 Hrs	-0.34	-0.05	0.00	0.34

System	QUV Hours	Gloss
Opalon-F45 Mid grey / Opalon-F45 Mid Grey	0 Hrs	100.0
	1000 Hrs	97.6



<https://liquimix.com/opalon-f45>

Opalon-F45 Mid Grey / Opalon-F45 Clear - 24 Hours Recoat

System 0004/01 (F45/F45 Clear/24 Hours)

Opalon-F45 Mid Grey / Opalon-F45 Clear has yellowed visually changed colour after 1000 hours of weathering (ASTM D154 Cycle 1). The Opalon-F45 Clear has started to yellow slightly. The green can not be detected visually. The dry film thickness has not changed.

System	QUV Hours	dL*(D65)	da*(D65)	db*(D65)	dE*ab(D65)
Opalon-F45 Mid grey / Opalon-F45 Clear (Recoat 24 Hrs)	0 Hrs	0.02	-0.05	0.03	0.06
	250 Hrs	0.21	-0.74	1.99	2.13
	500 Hrs	0.18	-1.08	3.00	3.20
	750 Hrs	0.24	-0.92	2.64	2.81
	1000 Hrs	0.09	-0.81	2.39	2.52

System	QUV Hours	Gloss
Opalon-F45 Mid grey / Opalon-F45 Clear	0 Hrs	93.4
	1000 Hrs	92.8



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Opalon-W45 Mid Grey

System 0006/01 (Opalon W45)

Opalon-W45 Mid Grey has not visually changed colour after 1000 hours of weathering (ASTM D154 Cycle 1). The Spectrophotometer (Konica Minolta - CM-36dG) has detected a darkening of the colour however, at this point, it can not be detected visually. The dry film thickness has not changed.

System	QUV Hours	dL*(D65)	da*(D65)	db*(D65)	dE*ab(D65)
Opalon-W45 Mid Grey	0 Hrs	0.00	-0.01	0.00	0.01
	250 Hrs	-0.41	0.01	0.02	0.41
	500 Hrs	-0.55	-0.07	-0.03	0.55
	750 Hrs	-0.54	-0.02	-0.06	0.55
	1000 Hrs	-0.83	0.00	-0.06	0.83

System	QUV Hours	Gloss
Opalon-W45 Mid Grey	0 Hrs	95.8
	1000 Hrs	95.2



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Conclusion

The following conclusions are drawn from the above results.

- Opalon-F45 Mid Grey, Opalon-S30 White, and Opalon-W45 Mid Grey had no visual change in colour or gloss
- Opalon-F45 Clear had slight yellowing after 1000 hours of weathering (ASTM D154 Cycle 1).
- None of the samples experienced high levels of DFT loss.



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