ExcelPlas
TEST REPORT

TECHNICAL REPORT ON THE EFFECT OF ACCELERATED WEATHERING ON POLYETHYLENE AND SHADE COVER SAMPLES

Client: GUTTSA

ExcelPlas Job # 13204 UV
274 Wickham Road Highett, VIC 3190
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COMMERCIAL-IN-CONFIDENCE

1. Objective

The objective of this study is to measure the effect of UV accelerated weathering on polyethylene gutter liner and shade cover samples using a Fluorescent UV Condensation apparatus.

2. Samples Supplied

One sample of polyethylene gutter liner and one sample of shade cover were supplied by Mette Cordes-Harvey admin@guttsa.com.au of GUTTSA Pty. Ltd. for accelerated weathering testing.

The identification of the samples was:

Sample ID:	Sample Description
13204-1	Black polyethylene gutter liner with white 'GUTTA-LINER' text
13204-2	White shade cover material

Figure 1. Samples as received by ExcelPlas.

3. Testing Undertaken

Accelerated weathering of an uncovered polyethylene gutter liner and a polyethylene gutter liner with shade cloth on top using a Fluorescent UV Condensation apparatus was undertaken according to ASTM D7238.

Testing was carried out at the ExcelPlas Highett laboratory.

4. Method of Sampling.

UV accelerated weathering specimens were selected at random from the samples supplied.

5. Testing Methodology

UV accelerated weathering testing was conducted according to the procedure described in ASTM D7238.

QUV machine conditions were as follows:

Type of Lamp Used:	UV340A
Irradiance:	0.78 W/(m^2.nm)
UV / Condensation Cycle:	Continuous cycle
UV Conditions:	20 hours @ 75°C
Condensation Conditions:	4 hours @ 60°C
Coupon Repositioning Procedure:	Weekly
Calibration Procedure Calibrated:	Every 500 UV hours
Total Test Duration:	3000 hours

6. Results

Client:	GUTTSA Pty. Ltd.
ExcelPlas Job Number:	# 13204
Sample:	13204-1
Colour:	Black polyethylene gutter liner
Specimen Preparation:	Nil
Pre-conditioning Procedures:	Nil
Post-conditioning Procedures:	Nil
Test Method used for Evaluation of Property Change:	Visual inspection and photographic assessment
Visible changes to Test Specimens during test:	No significant change detected in material as shown in photos below. White text deteriorated as shown in photos below

Client:	GUTTSA Pty. Ltd.
ExcelPlas Job Number:	# 13204
Sample:	13204-2
Colour:	White shade cover over top of black polyethylene gutter liner
Specimen Preparation:	Nil
Pre-conditioning Procedures:	Nil
Post-conditioning Procedures:	Nil
Test Method used for Evaluation of Property Change:	Visual inspection and photographic assessment
Visible changes to Test Specimens during test:	No significant change detected in material as shown in photos below.

7. Photographs

Figure 2. Sample 13204-1 specimen 1 prior to UV exposure.

Figure 3. Sample 13204-1 specimen 1 after 500 hours of exposure.

7. Photographs (cont.)

Figure 4. Sample 13204-1 specimen 1 after 1000 hours of exposure.

Figure 5. Sample 13204-1 specimen 1 after 1500 hours of exposure.

7. Photographs (cont.)

Figure 6. Sample 13204-1 specimen 1 after 2000 hours of exposure.

Figure 7. Sample 13204-1 specimen 1 after 2500 hours of exposure.

7. Photographs (cont.)

Figure 8. Sample 13204-1 specimen 1 after 3000 hours of exposure.

7. Photographs (cont.)

Figure 9. Sample 13204-1 specimen 2 prior to UV exposure.

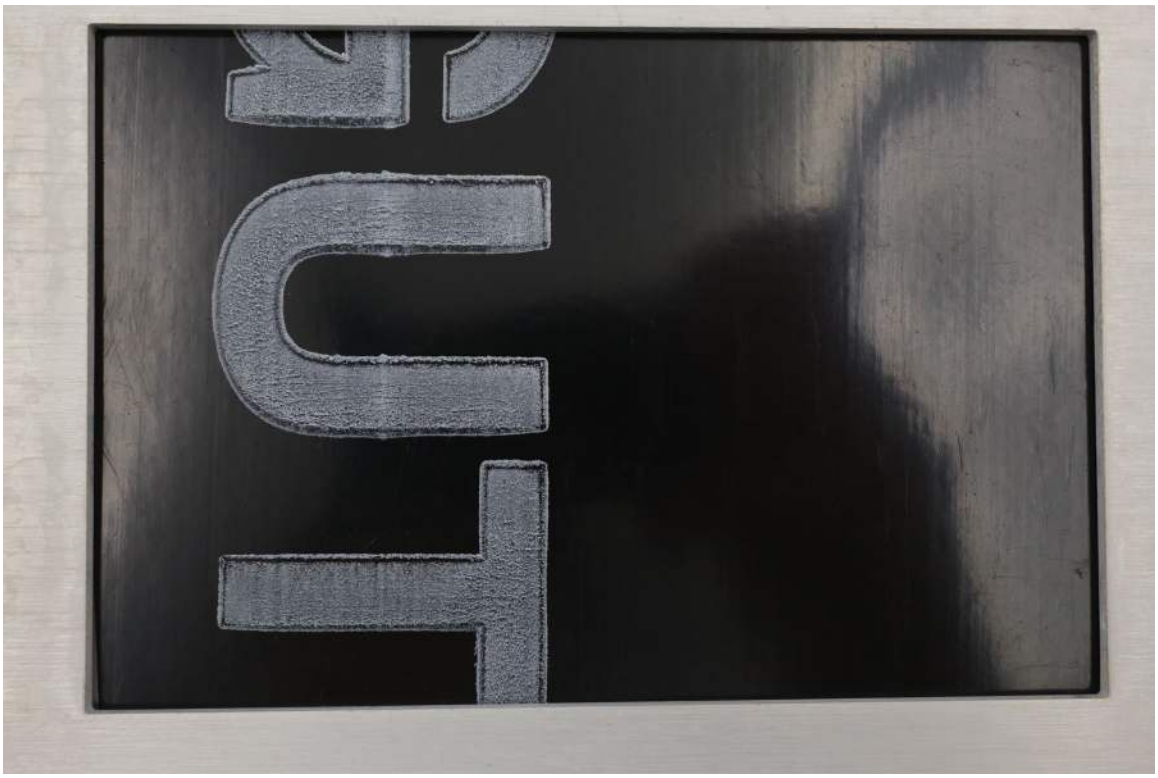


Figure 10. Sample 13204-1 specimen 2 after 500 hours of exposure.

7. Photographs (cont.)

Figure 11. Sample 13204-1 specimen 2 after 1000 hours of exposure.

Figure 12. Sample 13204-1 specimen 2 after 1500 hours of exposure.

7. Photographs (cont.)

Figure 13. Sample 13204-1 specimen 2 after 2000 hours of exposure.

Figure 14. Sample 13204-1 specimen 2 after 2500 hours of exposure.

7. Photographs (cont.)

Figure 15. Sample 13204-1 specimen 2 after 3000 hours of exposure.

7. Photographs (cont.)

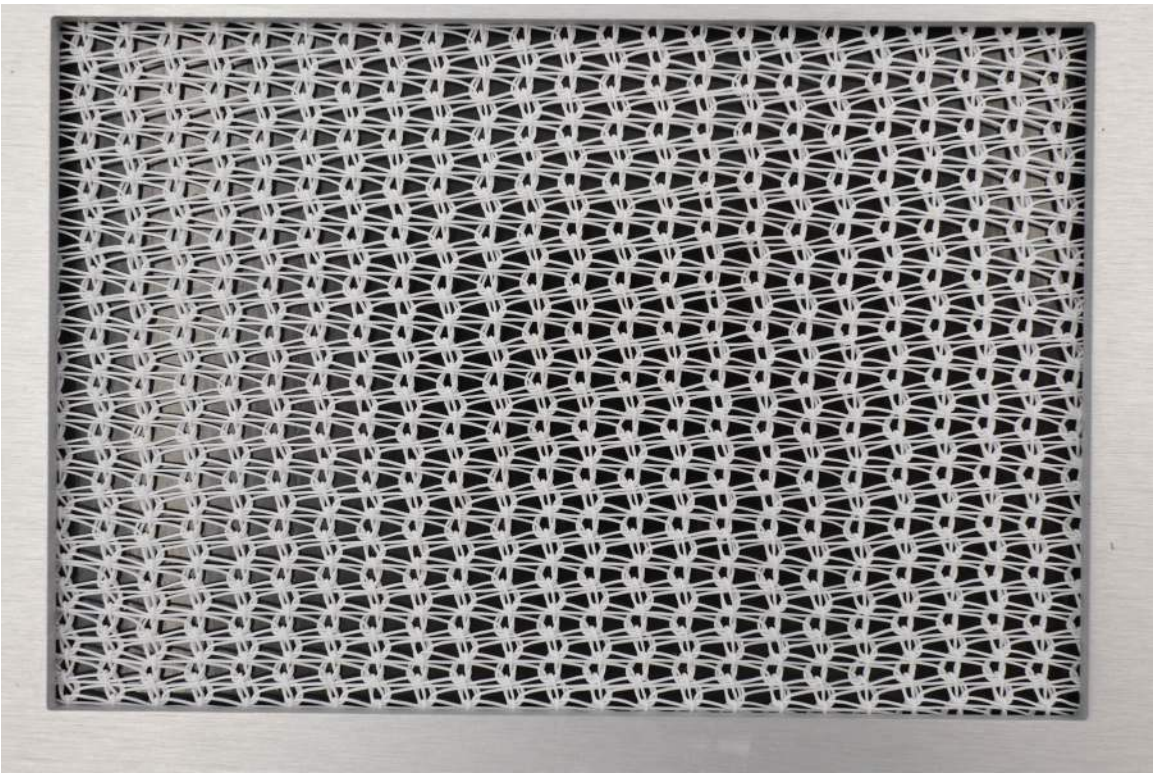


Figure 16. Sample 13204-2 specimen 1 prior to UV exposure.

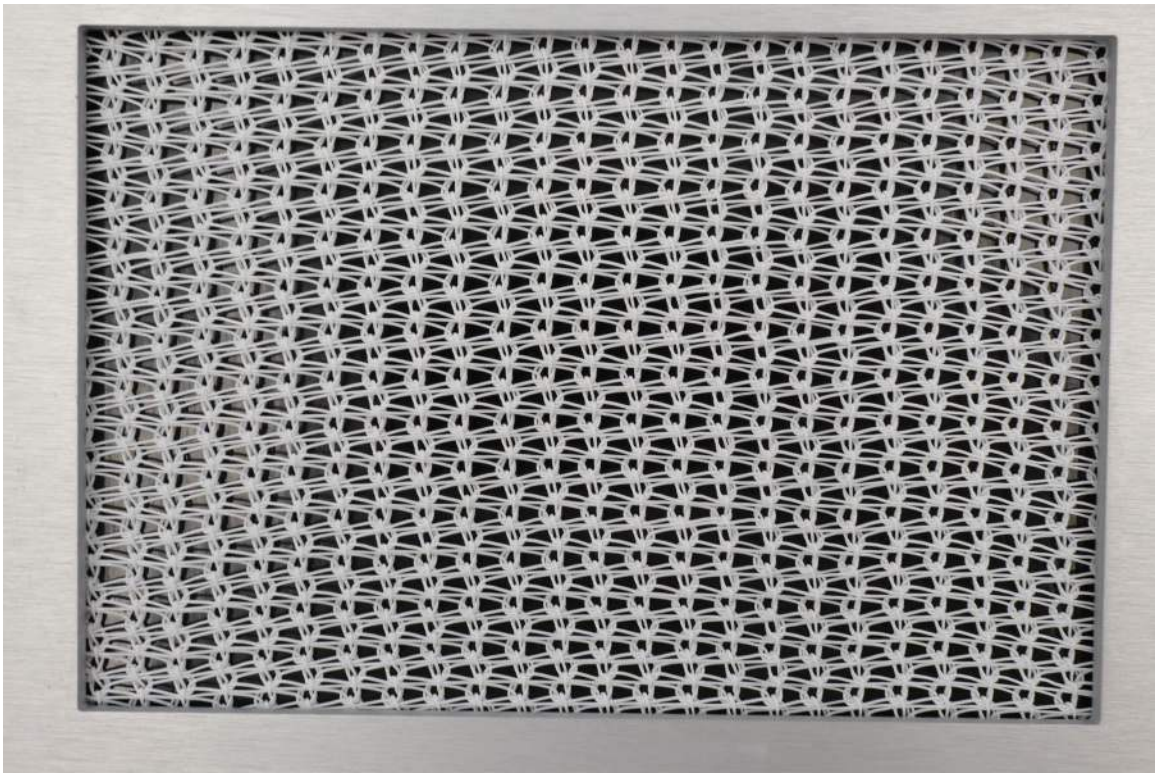


Figure 17. Sample 13204-2 specimen 1 after 500 hours of exposure.

7. Photographs (cont.)

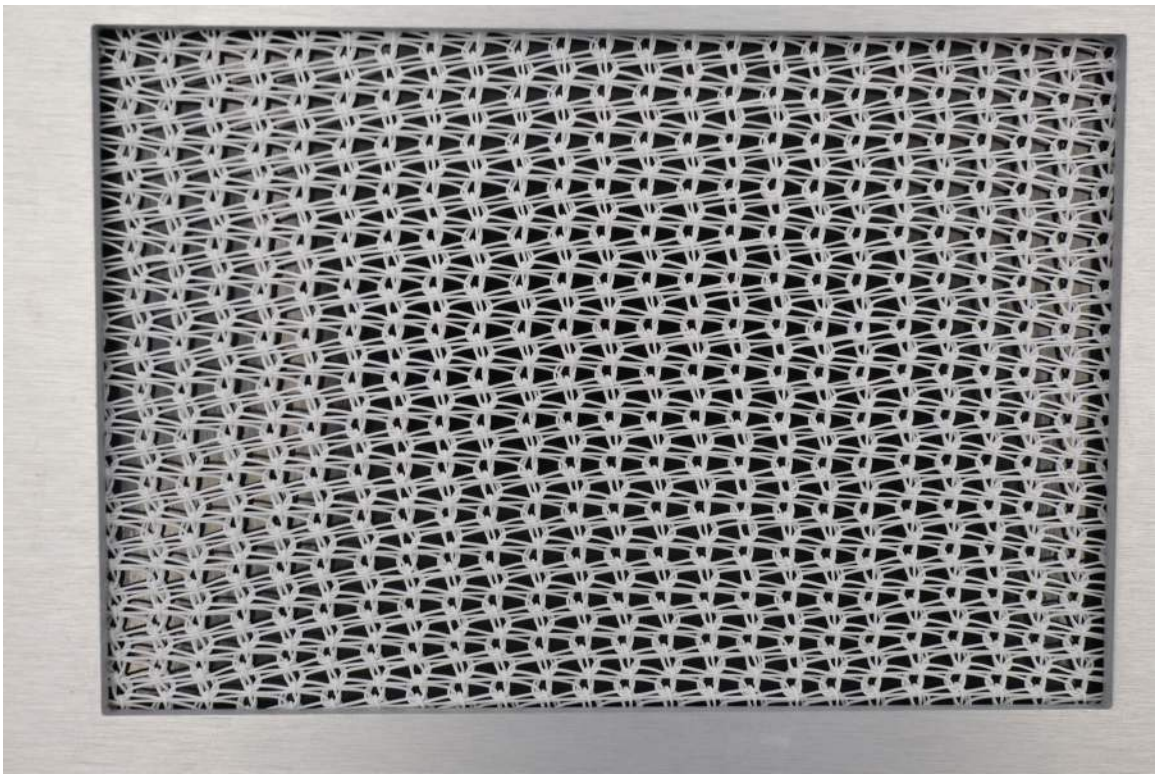


Figure 18. Sample 13204-2 specimen 1 after 1000 hours of exposure.

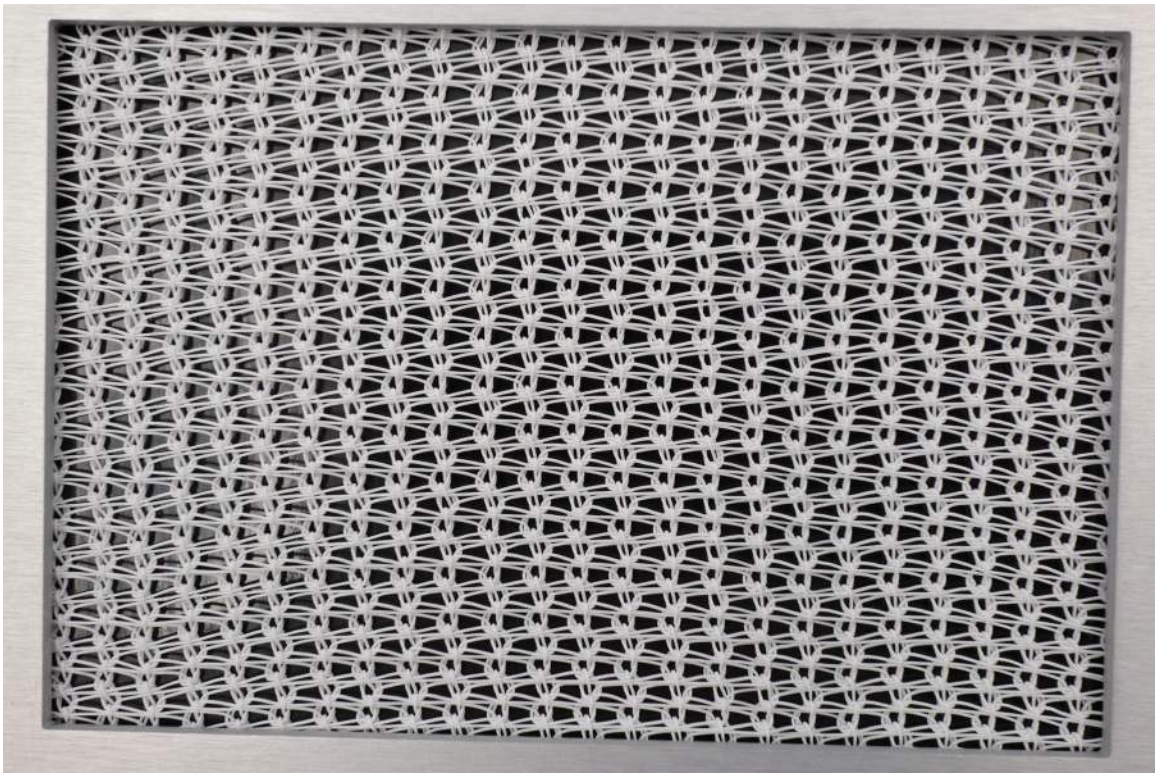


Figure 19. Sample 13204-2 specimen 1 after 1500 hours of exposure.

7. Photographs (cont.)

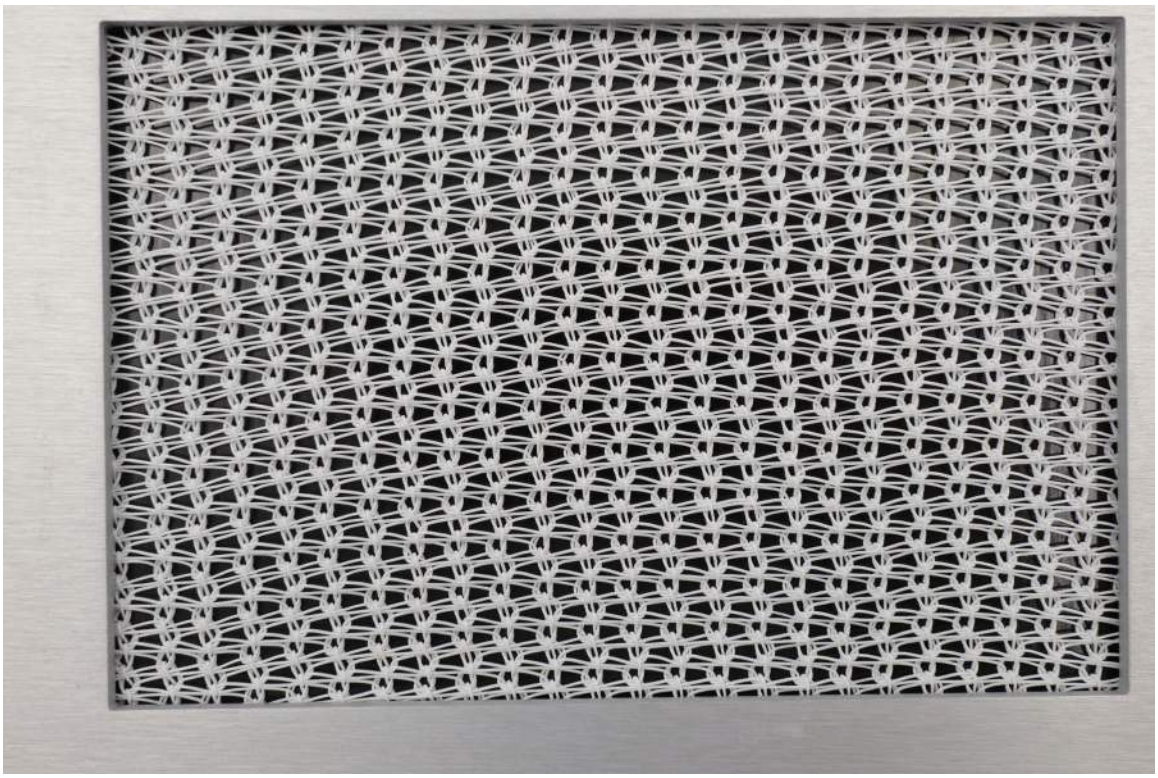


Figure 20. Sample 13204-2 specimen 1 after 2000 hours of exposure.

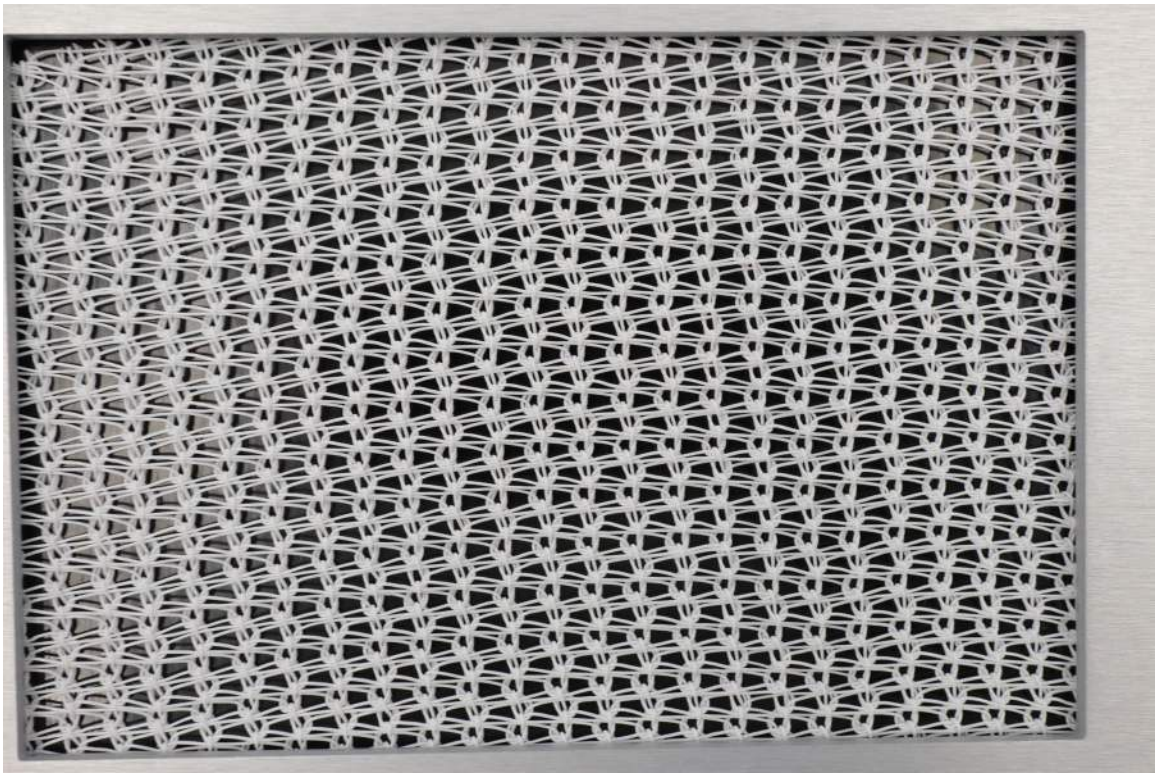


Figure 21. Sample 13204-2 specimen 1 after 2500 hours of exposure.

7. Photographs (cont.)

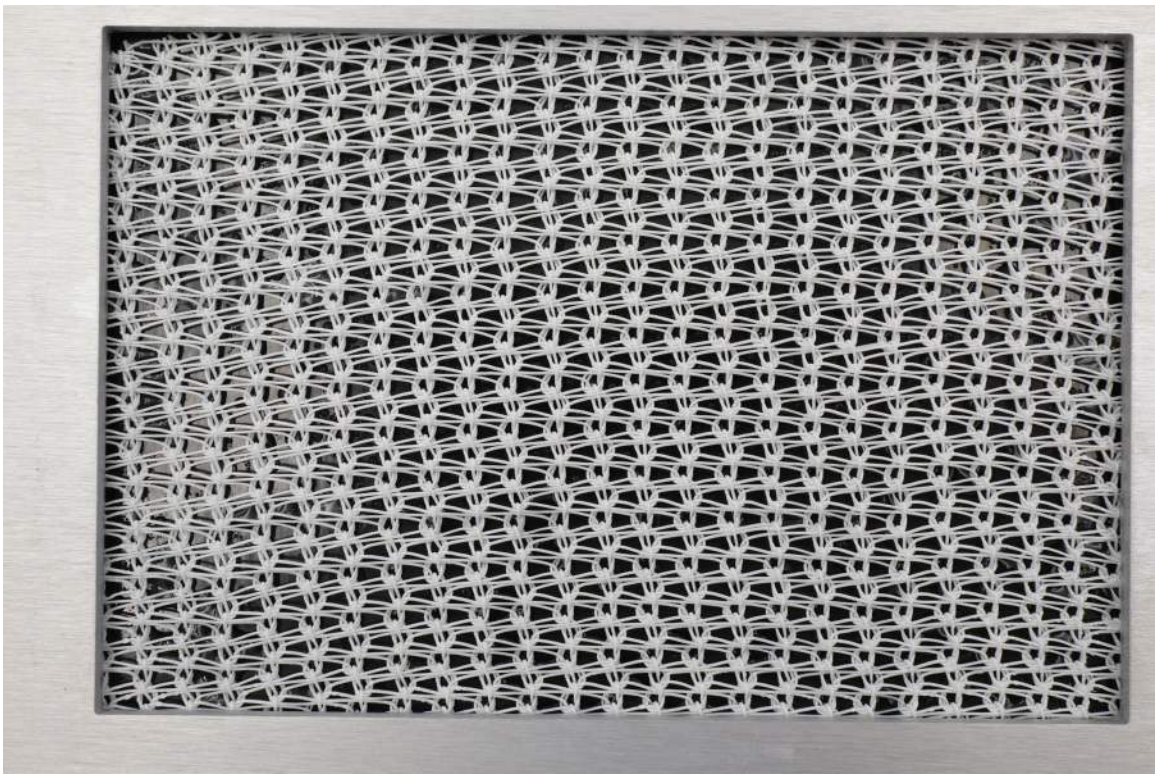


Figure 22. Sample 13204-2 specimen 1 after 3000 hours of exposure.

7. Photographs (cont.)

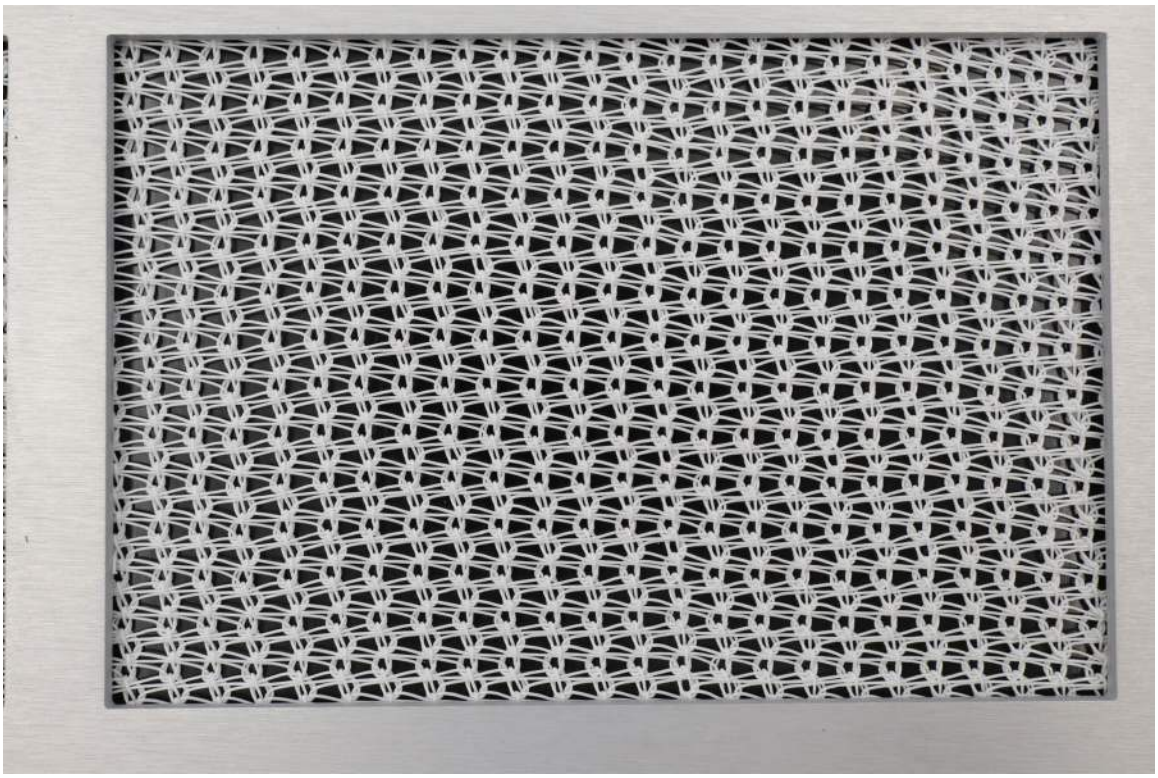


Figure 23. Sample 13204-2 specimen 2 prior to UV exposure.

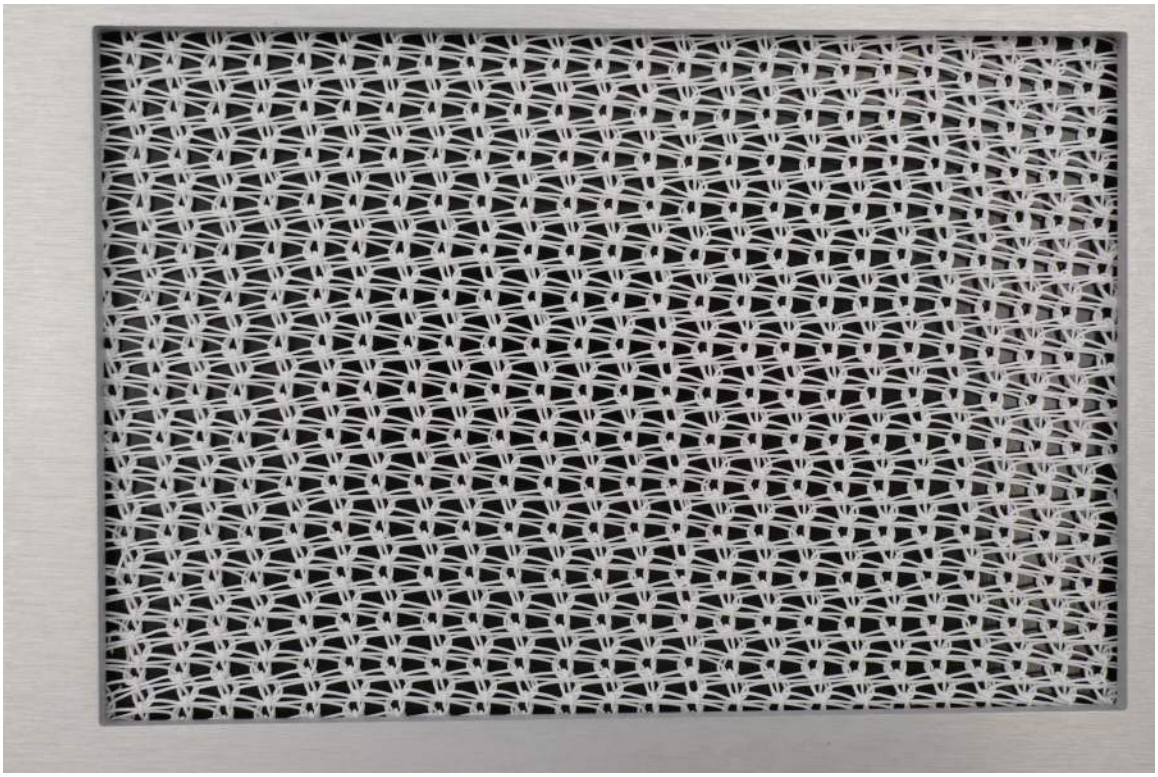


Figure 24. Sample 13204-2 specimen 2 after 500 hours of exposure.

7. Photographs (cont.)

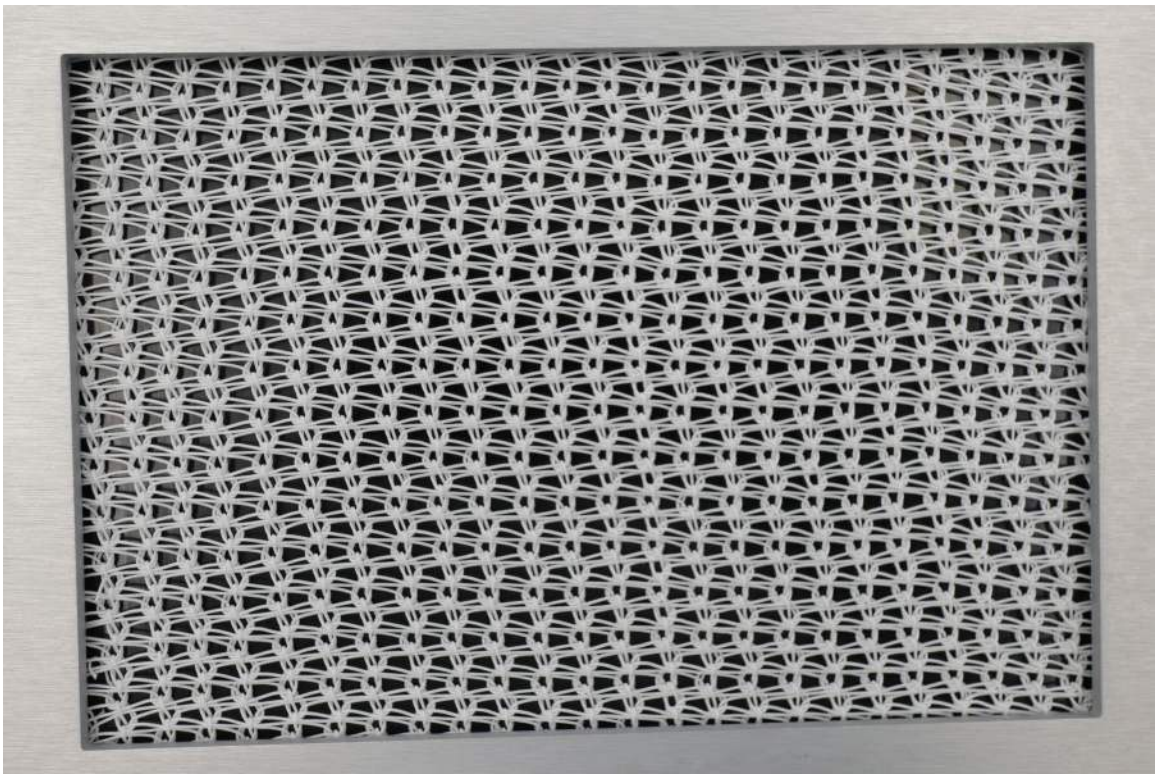


Figure 25. Sample 13204-2 specimen 2 after 1000 hours of exposure.

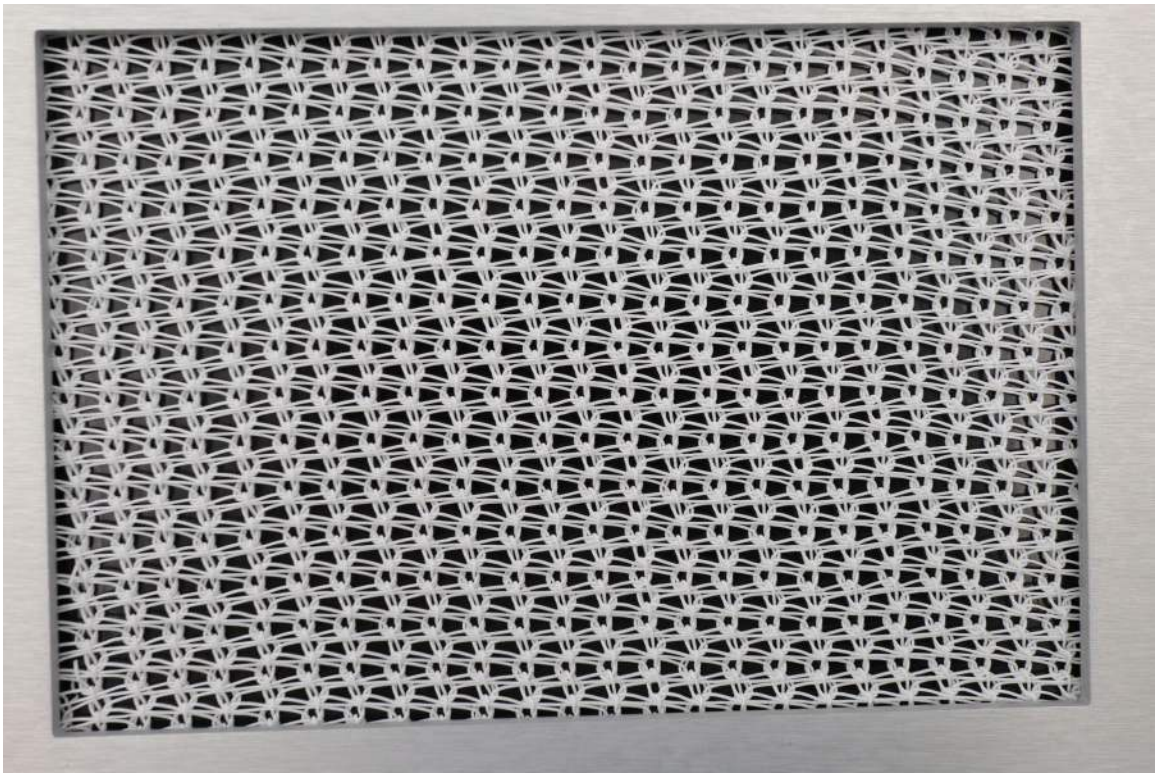


Figure 26. Sample 13204-2 specimen 2 after 1500 hours of exposure.

7. Photographs (cont.)

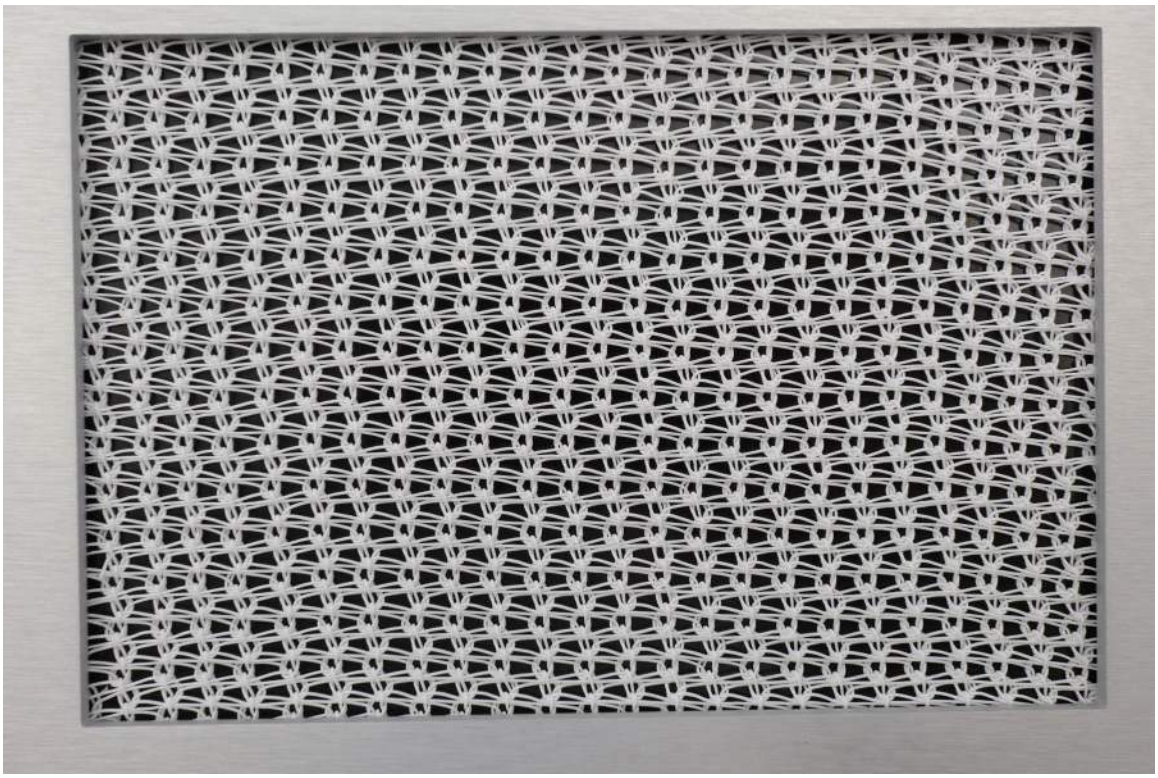


Figure 27. Sample 13204-2 specimen 2 after 2000 hours of exposure.

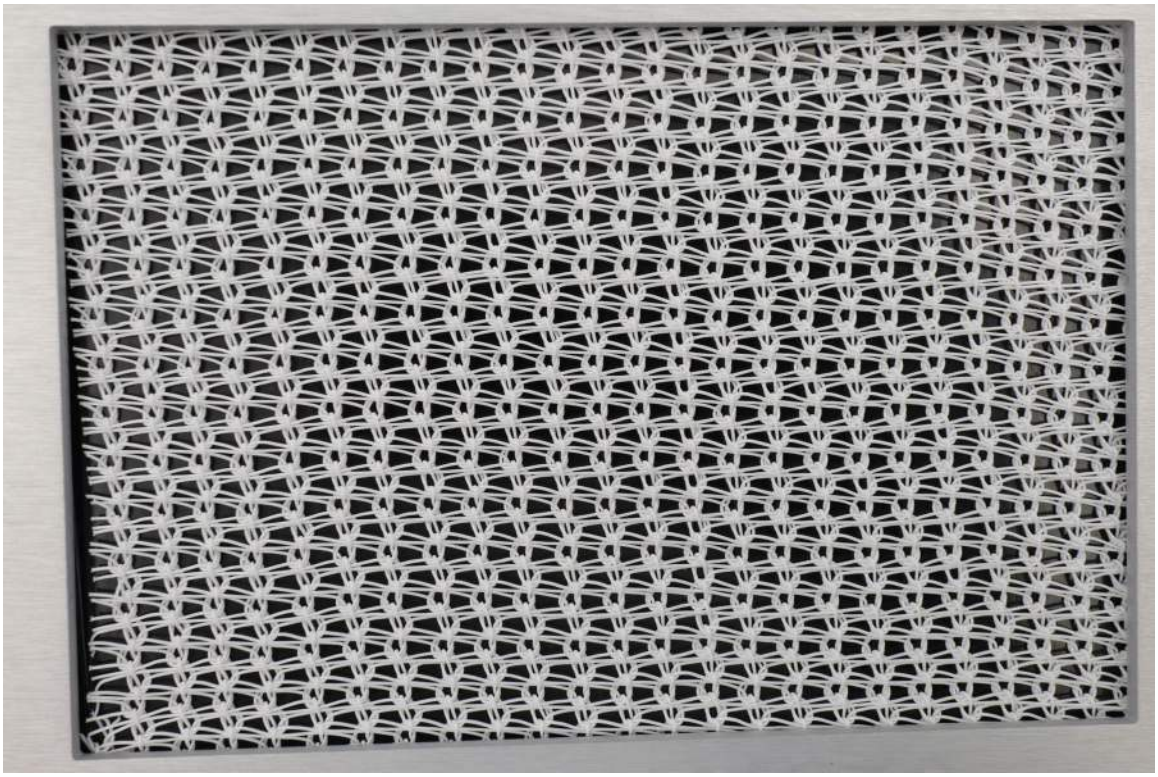


Figure 28. Sample 13204-2 specimen 2 after 2500 hours of exposure.

7. Photographs (cont.)

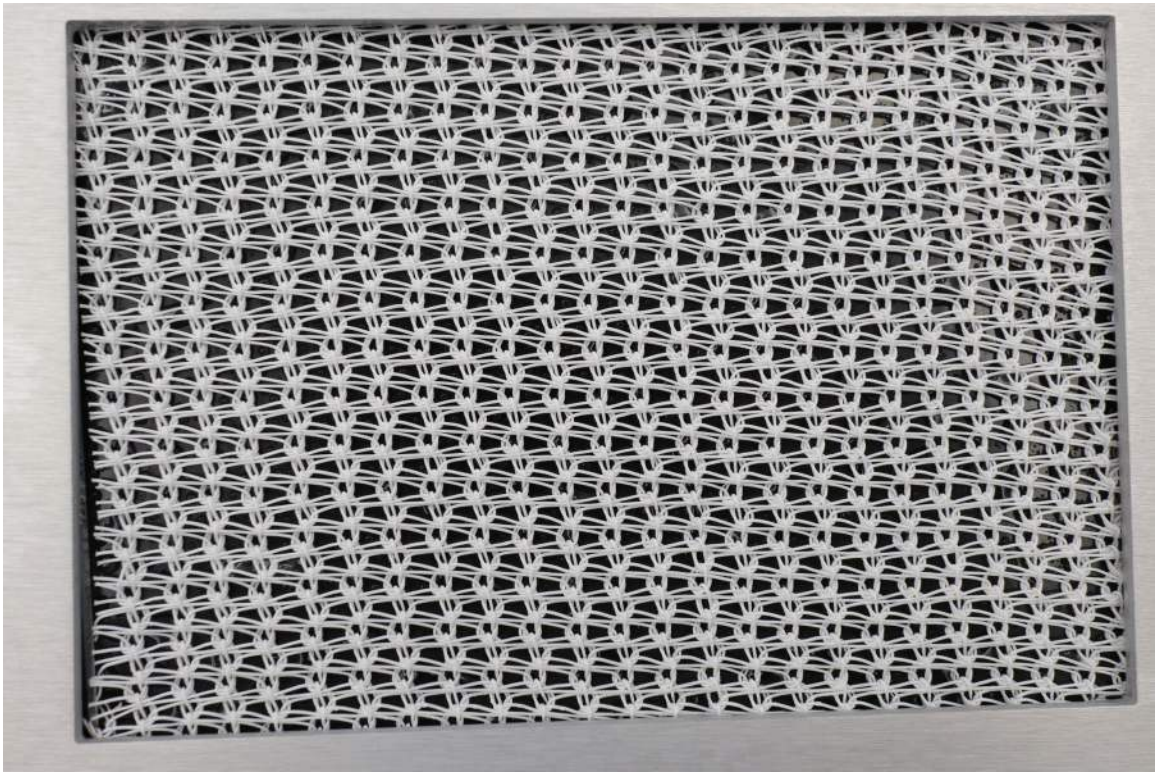


Figure 29. Sample 13204-2 specimen 2 after 3000 hours of exposure.

8. Conclusions

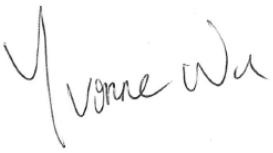
After 3000 hours of exposure to accelerated UV weathering according to ASTM D7238, both samples appear to have had little to no change in either of the materials. The only notable change was the apparent fading of white text on sample 13204-1 specimen 2 between the 2500-hour and 3000-hour intervals (Figure 14 and Figure 15). Neither 13204-2 shade cover specimens showed any apparent change in the white cover material nor the polyethylene gutter liner beneath.

The exposure of sample 13402-1 specimen 1 at each 500-hour interval can be seen in Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, Figure 7, and Figure 8.

The exposure of sample 13402-1 specimen 2 at each 500-hour interval can be seen in Figure 9, Figure 10, Figure 11, Figure 12, Figure 13, Figure 14 and Figure 15.

The exposure of sample 13402-2 specimen 1 at each 500-hour interval can be seen in Figure 16, Figure 17, Figure 18, Figure 19, Figure 20, Figure 21, and Figure 22.

The exposure of sample 13402-2 specimen 2 at each 500-hour interval can be seen in Figure 23, Figure 24, Figure 25, Figure 26, Figure 27, Figure 28, and Figure 29.

Prepared By	Reviewed By
	
Date: 10 May 2024	Date: 10 May 2024
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