
Test Report Number:

101080

Issue 1

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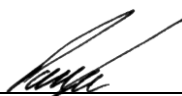
Customer Order Number:

478

Test Sample Description:

Steel & Aluminium Panels

Author:



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Date:

22nd July 2008

Approved by:



Geraint Catling

Environmental Test & Reliability Manager
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Date:

22nd July 2008



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1 Introduction

This report details the environmental testing carried out on twelve Steel and twelve Aluminium Panels as supplied by Enviro Tech Ltd. The Panels were subjected to the environmental test detailed in Section 4 of this report, following the guidelines of the ASTM standard defined in Table 1. The testing was performed between 8th and 18th July 2008.

Test:	Standard:
Salt Spray	ASTM B117-07: Standard Practice for Operating Salt Spray (Fog) Apparatus

Table 1: Environmental Test Standards

2 Equipment Used

Description:	Serial No:	Calibration:	
		Date:	Due:
C&W SF/MP1000 Salt Spray Chamber	CWL/80604	18 th Oct 2007	17 th Oct 2008
Sodium Chloride conforming to purity limits as prescribed in standard ASTM B117-07	CW/047/08	13 th Feb 2008	n/a

Table 2: Equipment List

3 Panel Serial Numbers

#1 Steel No Coat	#6a Steel Double Coat Scored	#11a Aluminium Double Coat
#2 Steel No Coat Scored	#6b Steel Double Coat Scored	#11b Aluminium Double Coat
#3a Steel Single Coat	#7a Steel Single Coat	#12a Aluminium Single Coat Scored
#3b Steel Single Coat	#7b Steel Double Coat	#12b Aluminium Single Coat Scored
#4a Steel Double Coat	#8 Aluminium No Coat	#13a Aluminium Double Coat Scored
#4b Steel Double Coat	#9 Aluminium No Coat Scored	#13b Aluminium Double Coat Scored
#5a Steel Single Coat Scored	#10a Aluminium Single Coat	#14a Aluminium Single Coat
#5b Steel Single Coat Scored	#10b Aluminium Single Coat	#14b Aluminium Double Coat

Table 3: Panel Serial Numbers

4 Test Plan

The following table defines the environmental test profile to which the Panels were subjected.

4.1 Salt Spray Parameters

Water Conductivity @ 25°C:	< 5µS/cm
Salt Concentration:	5 ± 1%
Salt Solution Density @ 25°C:	1.0255 to 1.0400
pH of Collected Solution @ 25°C:	6.5 to 7.2
Collection Funnel Diameter:	100 mm
Collection Rate:	1 to 2 ml/hr
Chamber Temperature:	+35°C
Duration:	10 days

Table 4: Salt Spray Parameters

4.2 Panel Mounting

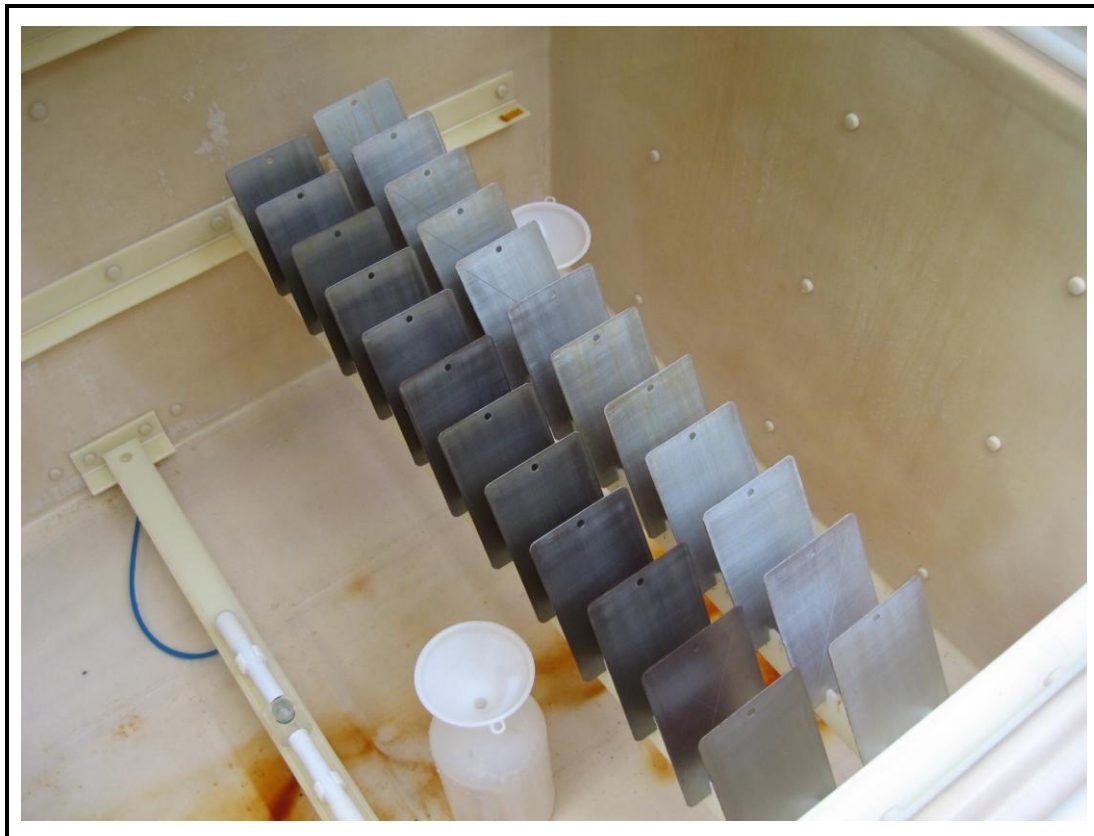


Figure 1: Panel Mounting

5 Test Results

5.1 24hr Pre Test

Prior to subjecting the Panels to the salt spray environment, the chamber was operated for a period of 24 hours to ensure that the prepared and collected salt spray solutions conformed to the parameters as defined in Table 4. The results of this pre test are presented below:

Water Conductivity @ +25°C:	0.7 µS/cm
Salt Concentration:	5%
Collected Salt Solution Density @ +25°C:	1.0365
pH of Collected Solution @ +25°C:	7.03
Averaged Collection Rate:	1.77 ml/hr

Table 5: 24hr Pre Test Results

5.2 240hr Test

The Panels were tested as received from Enviro Tech; ie, cleaning of the Panels was not performed. The Panels defined as Scored in Table 3 were scored with an X prior to the application of the test.

The measurements performed on the collected solution on completion of the applied test are presented below:

Salt Solution Density @ 25°C:	1.0355
pH of Collected Solution @ 25°C:	6.63
Averaged Collection Rate:	1.52 ml/hr









Table 6: Test Results

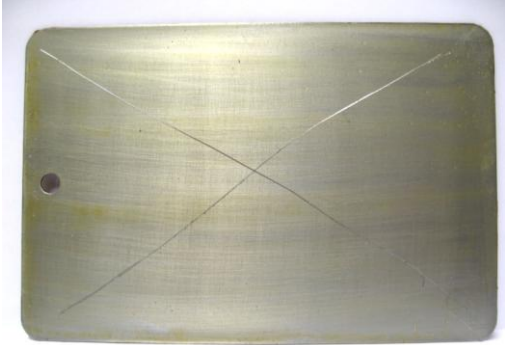







5.3 Daily Inspections

The Panels were visually inspected at 24hour intervals, with the exception of weekends. The salt spray chamber was paused and the Panels removed from the chamber and photographed. The elapsed time for this inspection was kept to a minimum.

The photographs are presented in the following sections.

5.3.1 Pre Test:

#1 Steel No Coat		#2 Steel No Coat Scored	
#3a Steel Single Coat		#3b Steel Single Coat	
#4a Steel Double Coat		#4b Steel Double Coat	
#5a Steel Single Coat Scored		#5b Steel Single Coat Scored	

#6a Steel Double Coat Scored		#6b Steel Double Coat Scored	
#7a Steel Single Coat		#7b Steel Double Coat	
#8 Aluminium No Coat		#9 Aluminium No Coat Scored	
#10a Aluminium Single Coat		#10b Aluminium Single Coat	



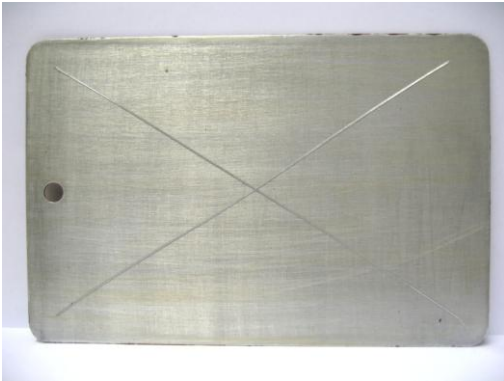
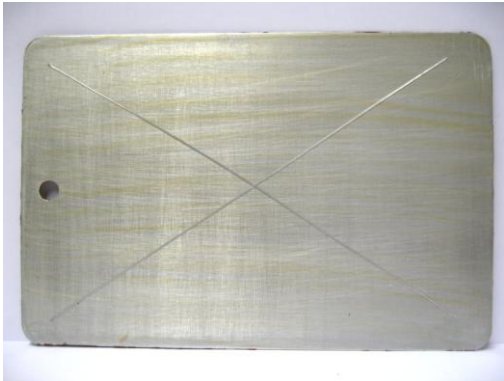
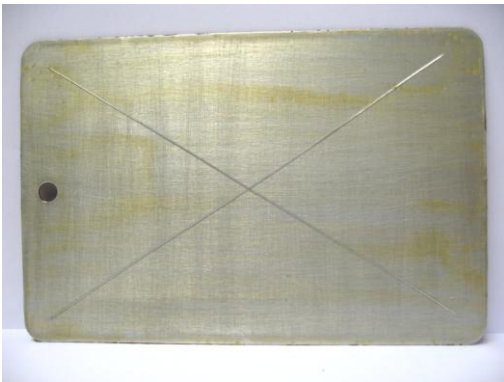
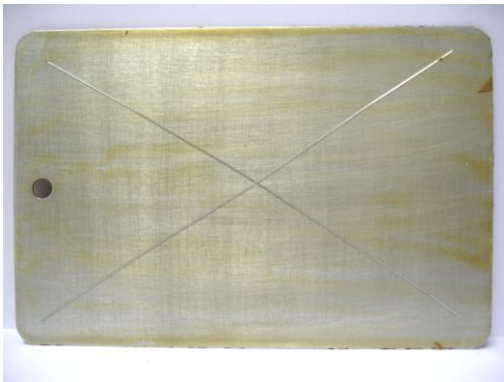


#11a Aluminium Double Coat		#11b Aluminium Double Coat	
#12a Aluminium Single Coat Scored		#12b Aluminium Single Coat Scored	
#13a Aluminium Double Coat Scored		#13b Aluminium Double Coat Scored	
#14a Aluminium Single Coat		#14b Aluminium Double Coat	

Figure 2: Pre Test

5.3.2 #1 Steel No Coat

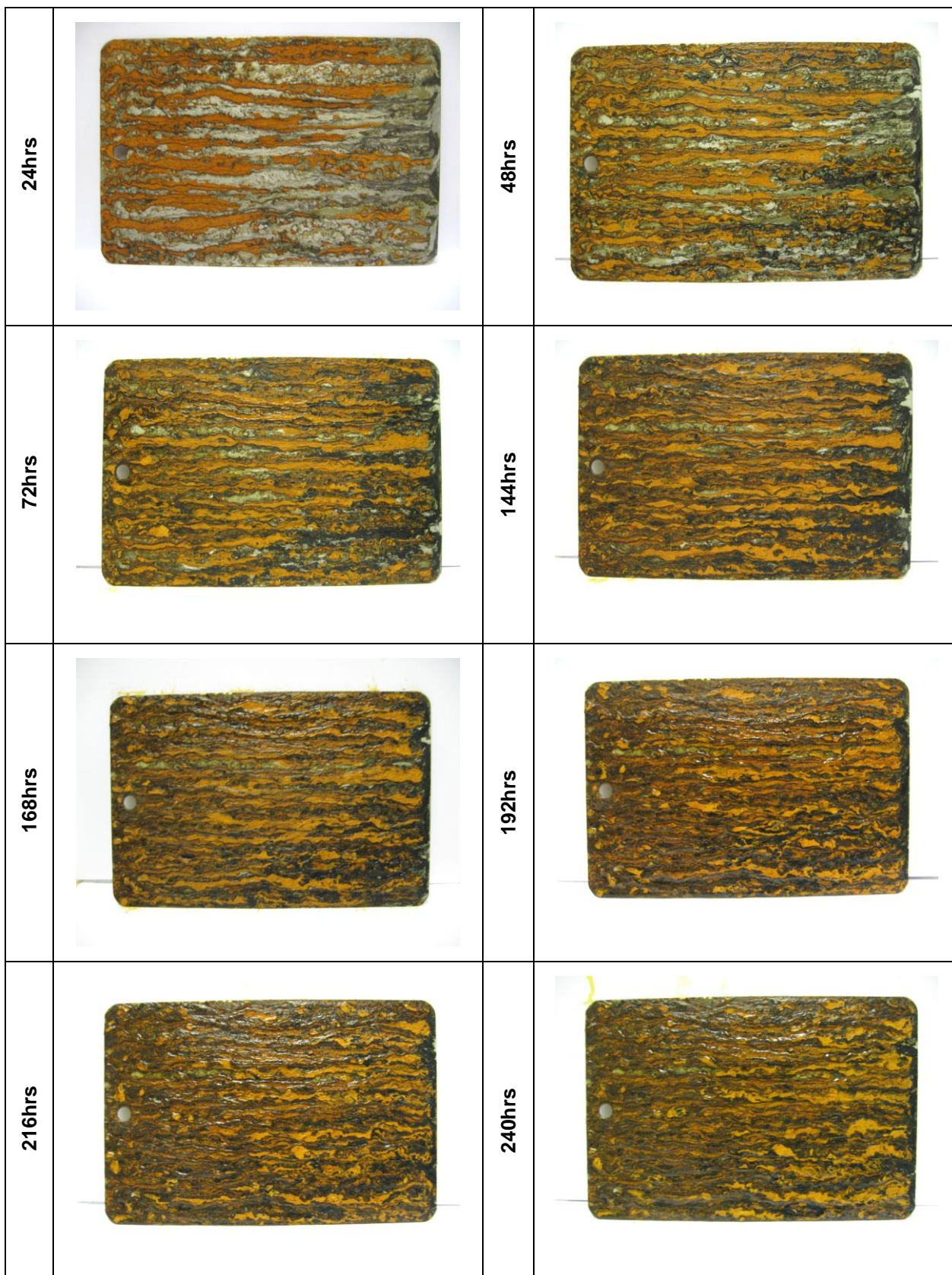


Figure 3: #1 Steel No Coat

5.3.3 #2 Steel No Coat Scored

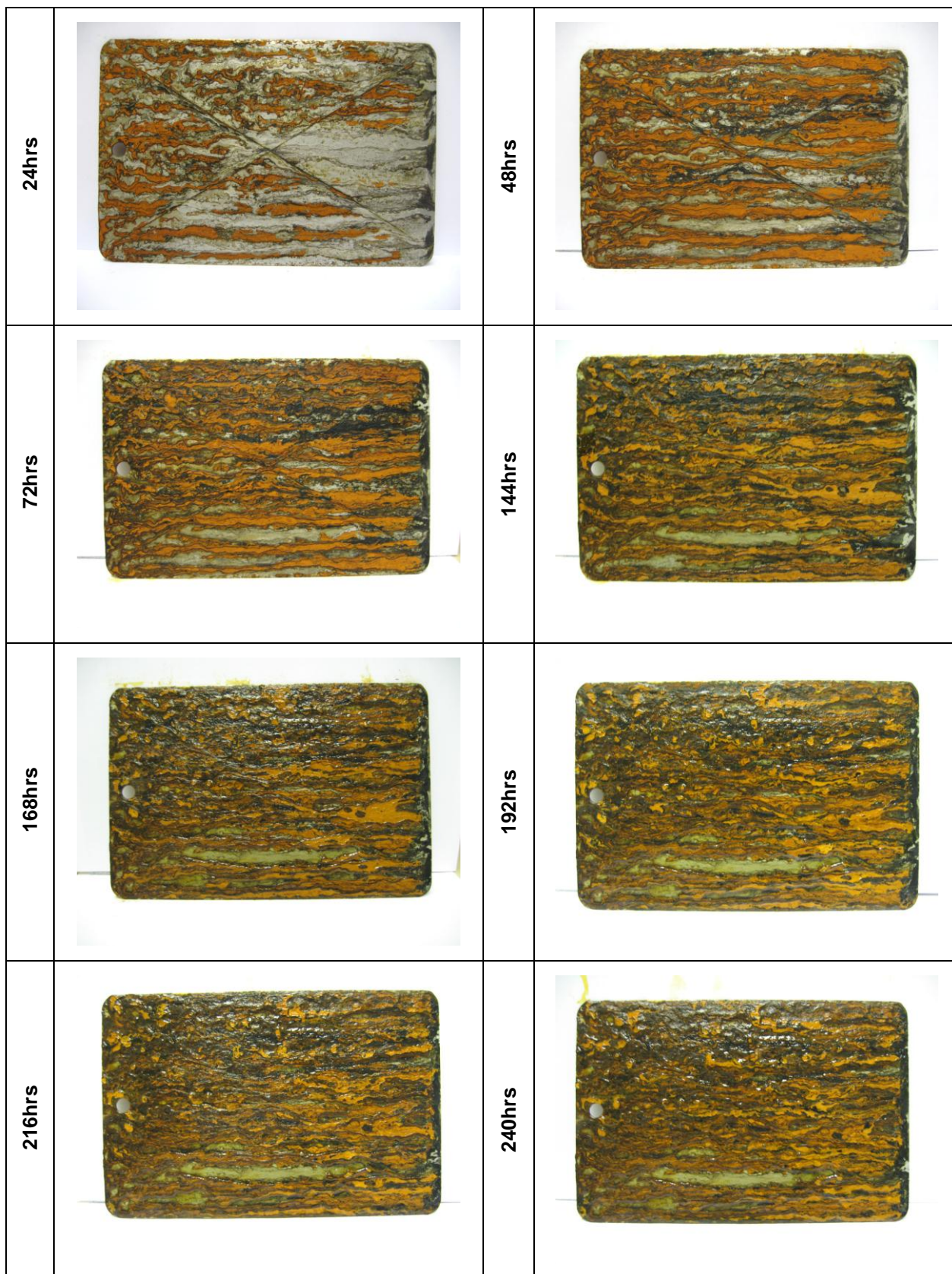


Figure 4: #2 Steel No Coat Scored

5.3.4 #3a Steel Single Coat

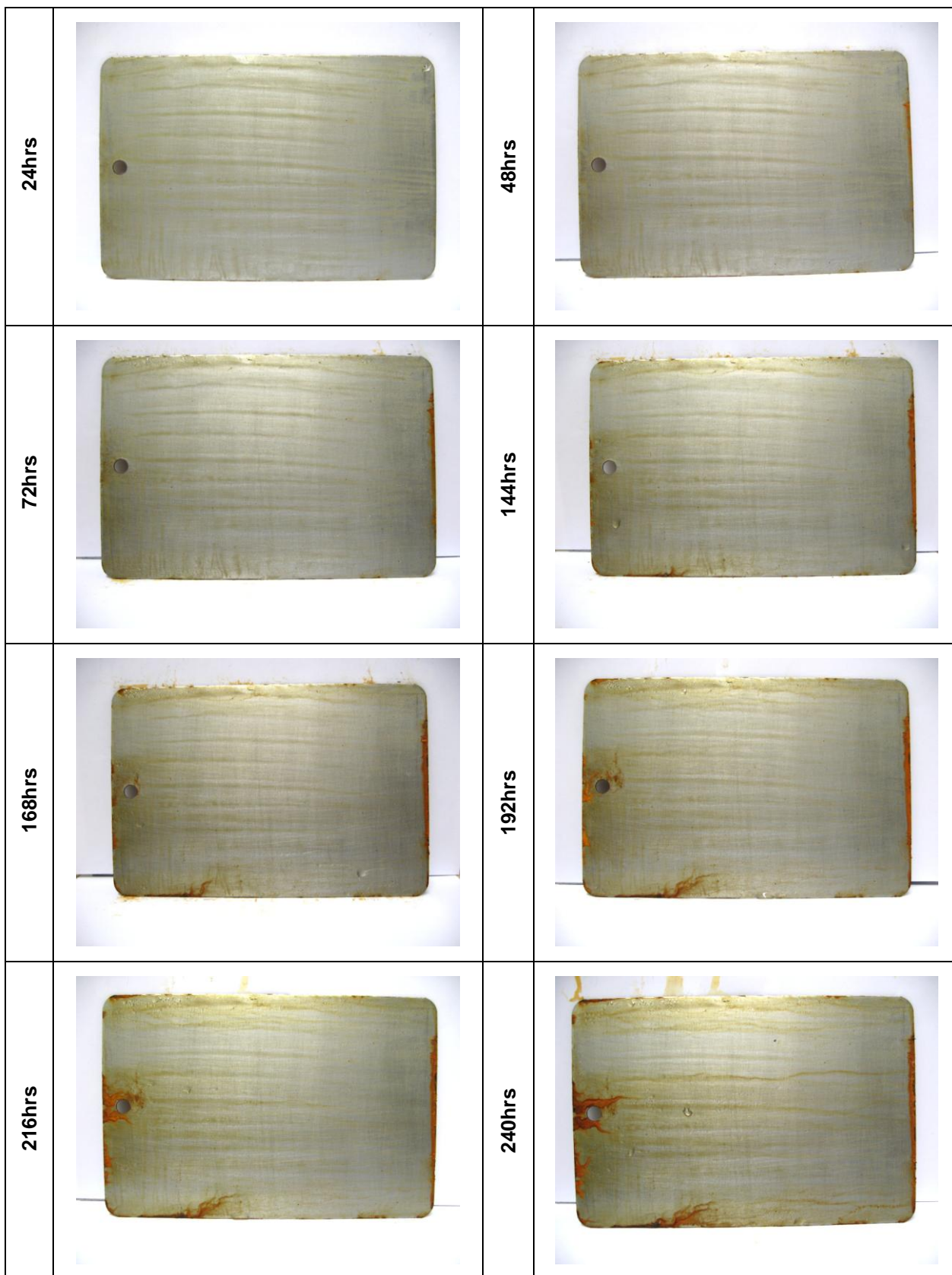


Figure 5: #3a Steel Single Coat

5.3.5 #3b Steel Single Coat

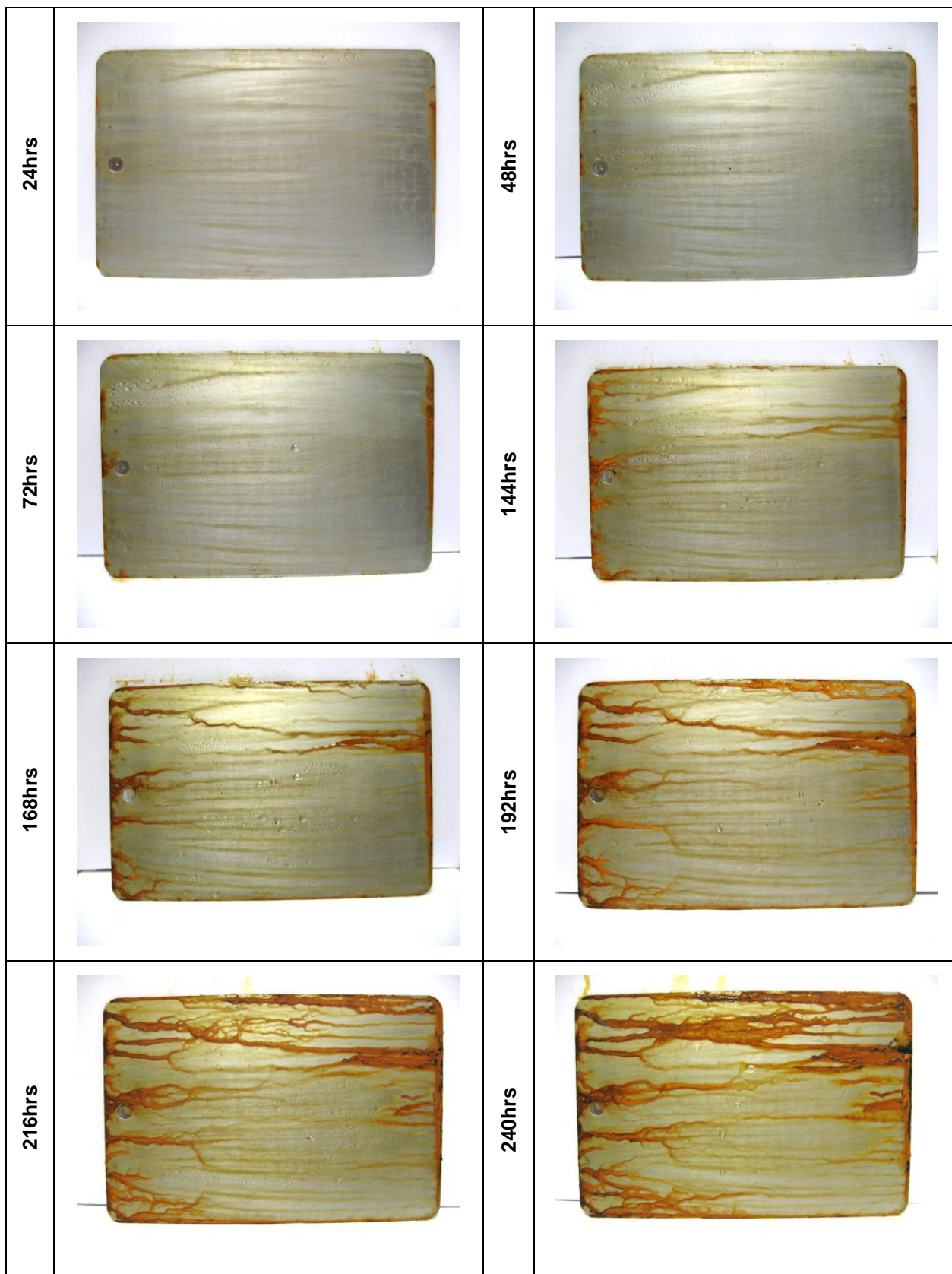


Figure 6: #3b Steel Single Coat

5.3.6 #4a Steel Double Coat

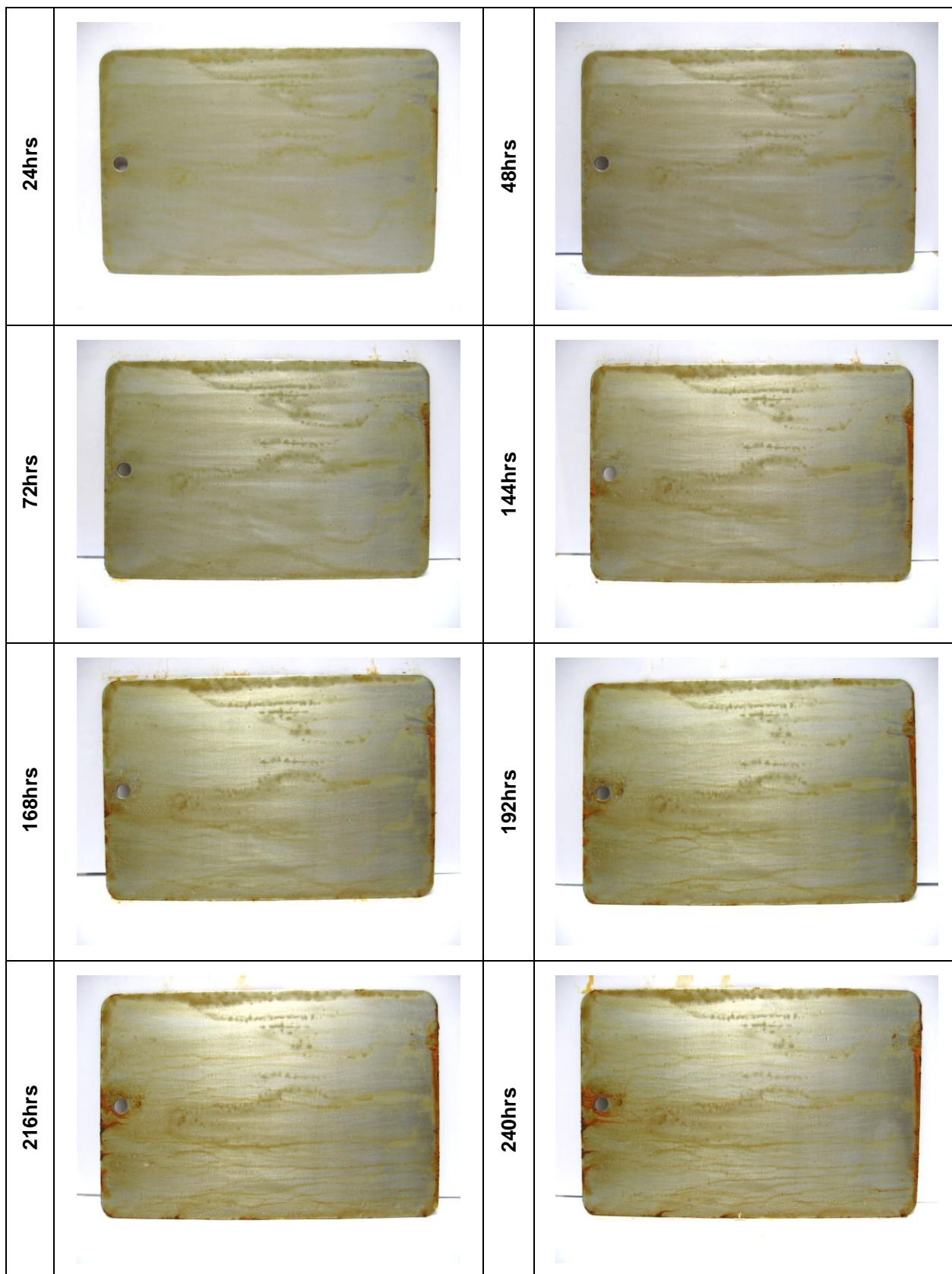


Figure 7: #4a Steel Double Coat

5.3.7 #4b Steel Double Coat

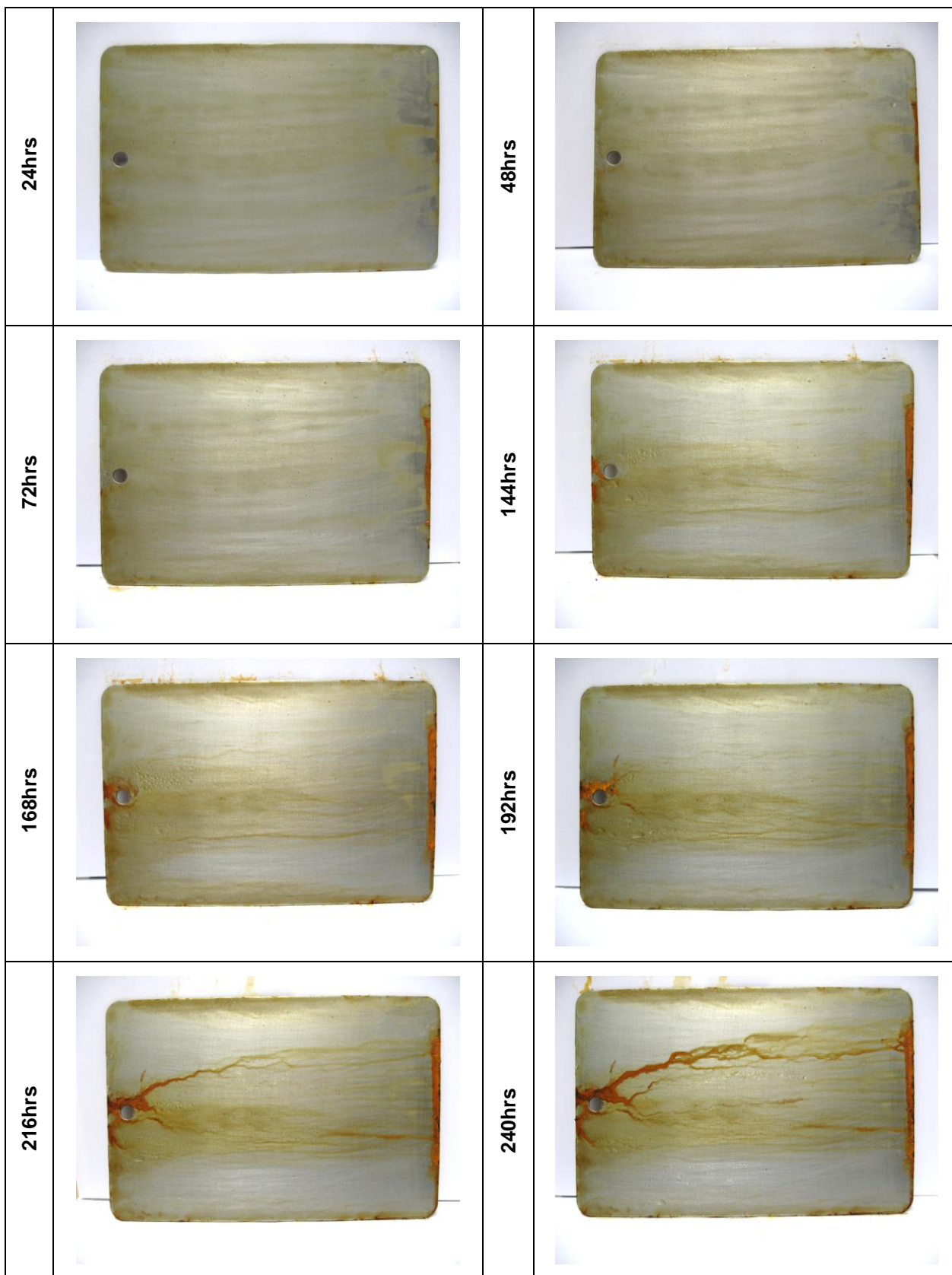


Figure 8: #4b Steel Double Coat

5.3.8 #5a Steel Single Coat Scored

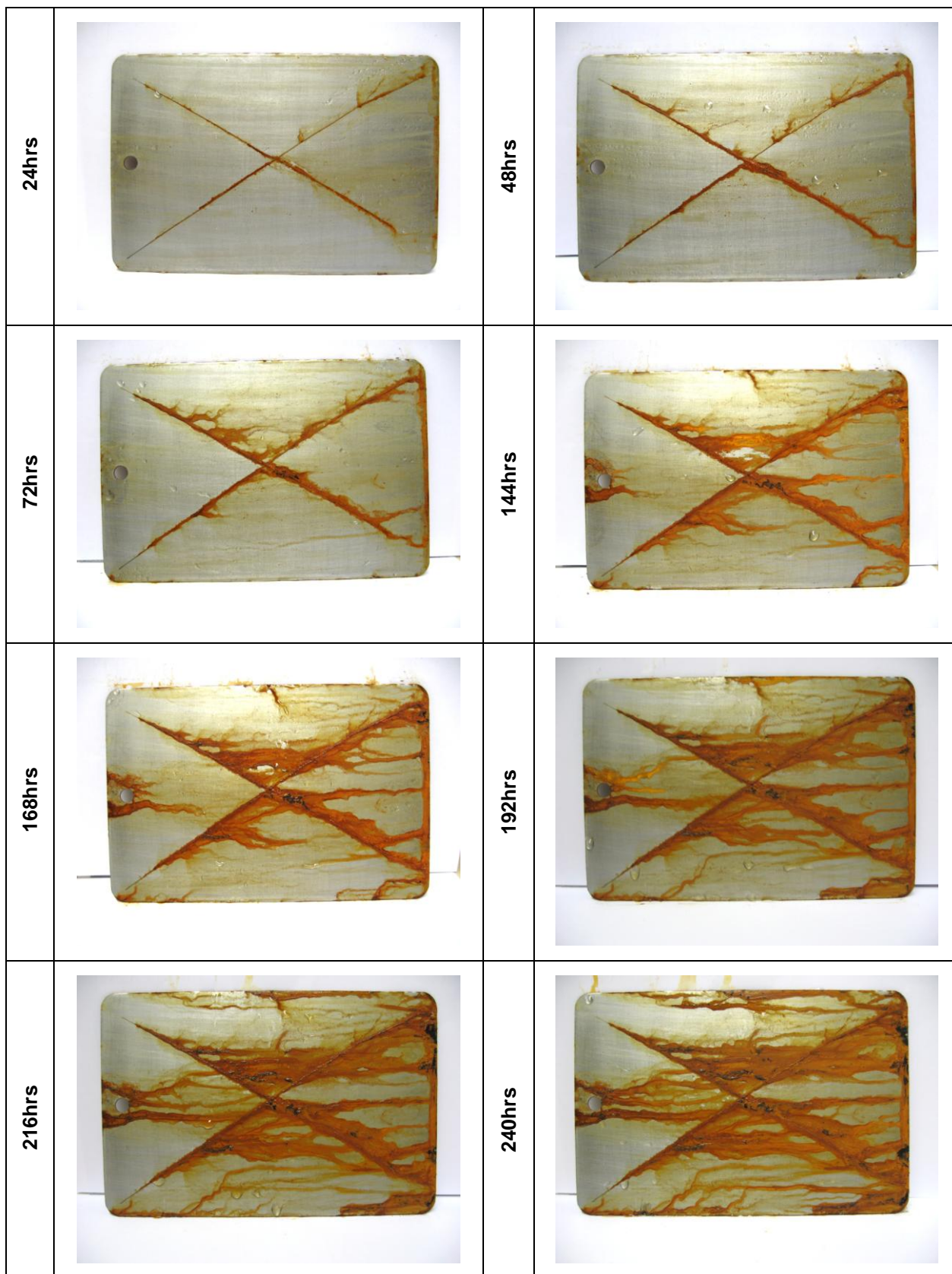


Figure 9: #5a Steel Single Coat Scored

5.3.9 #5b Steel Single Coat Scored

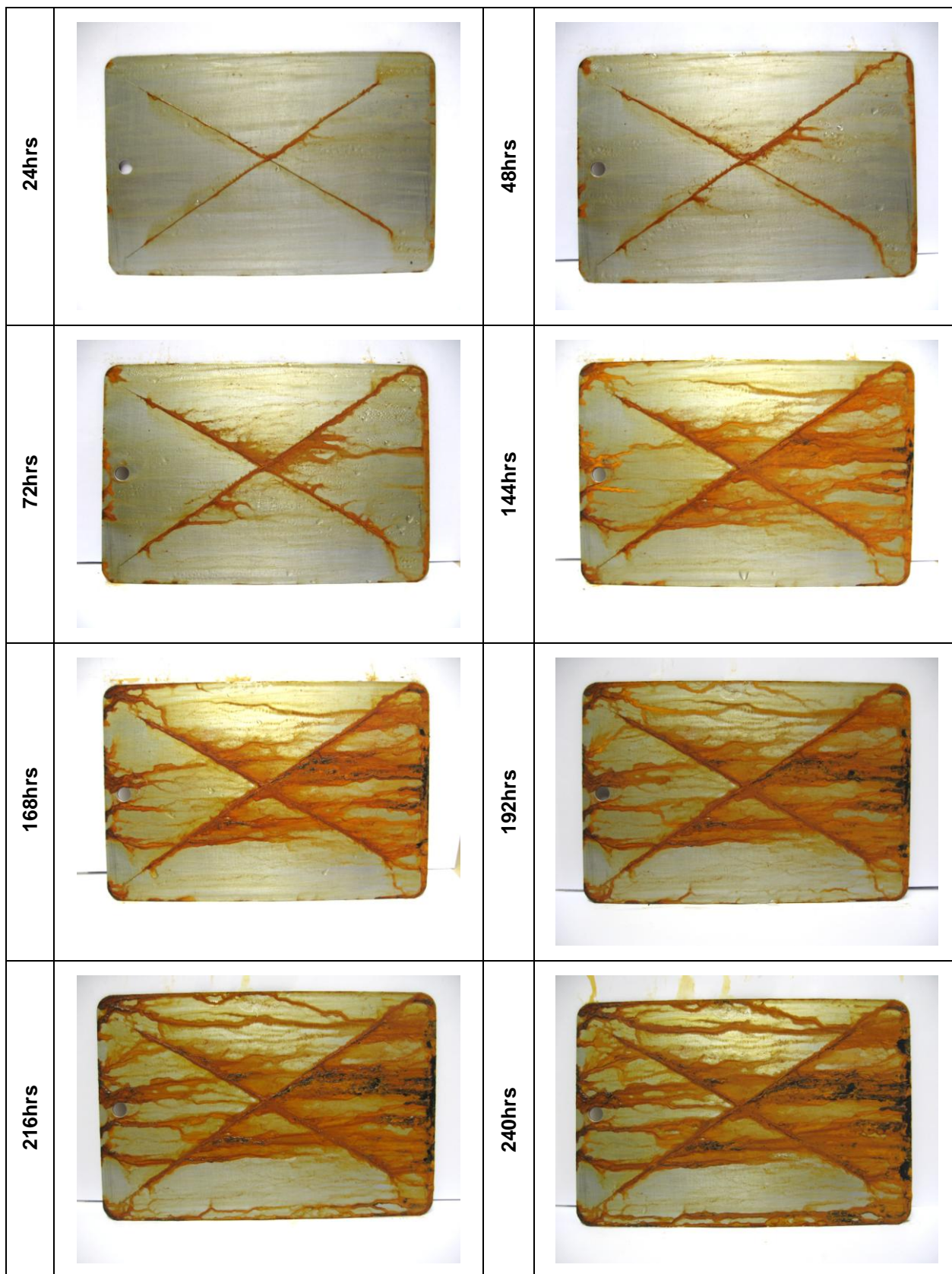


Figure 10: #5b Steel Single Coat Scored

5.3.10 #6a Steel Double Coat Scored

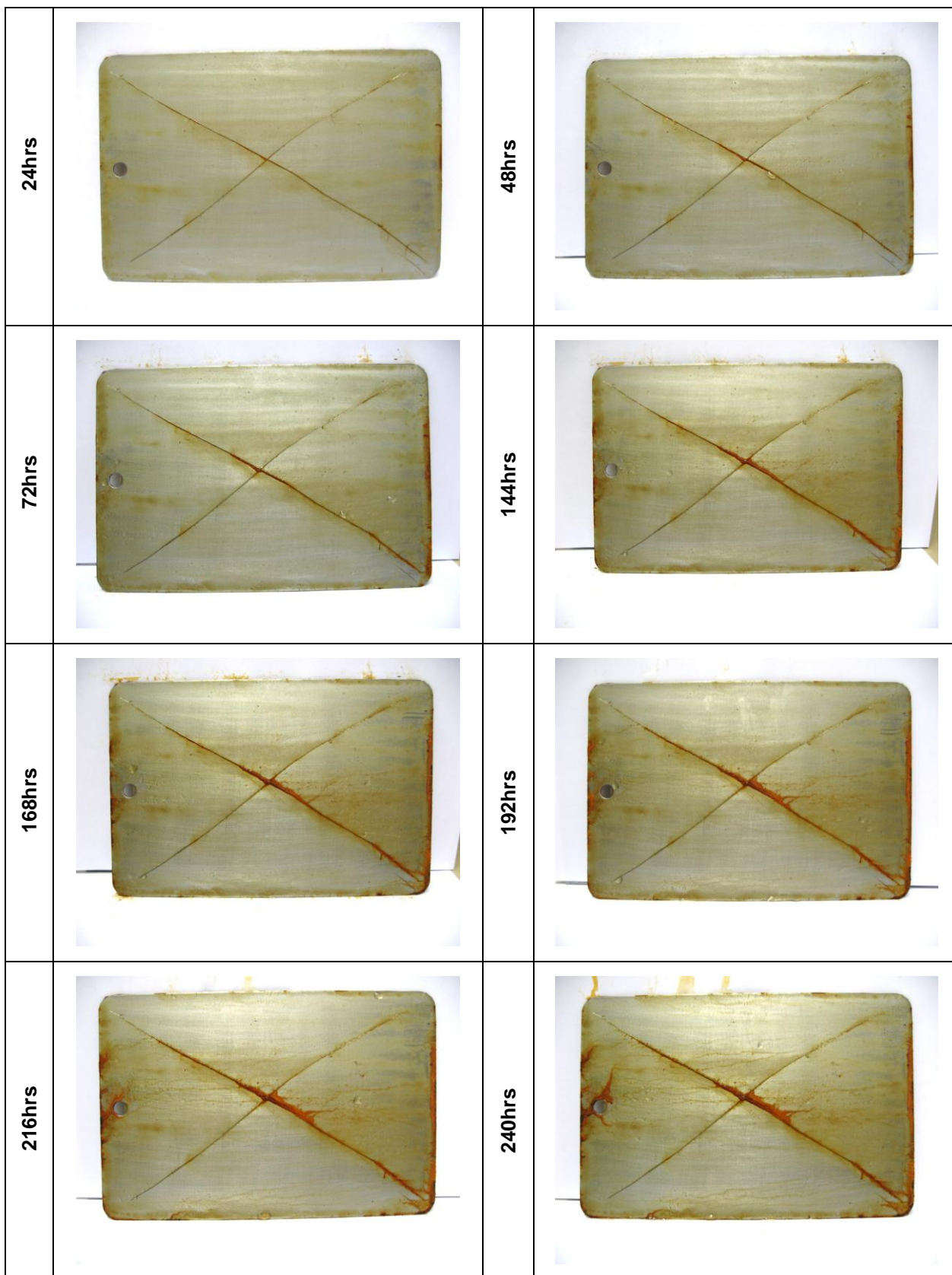


Figure 11: #6a Steel Double Coat Scored

5.3.11 #6b Steel Double Coat Scored

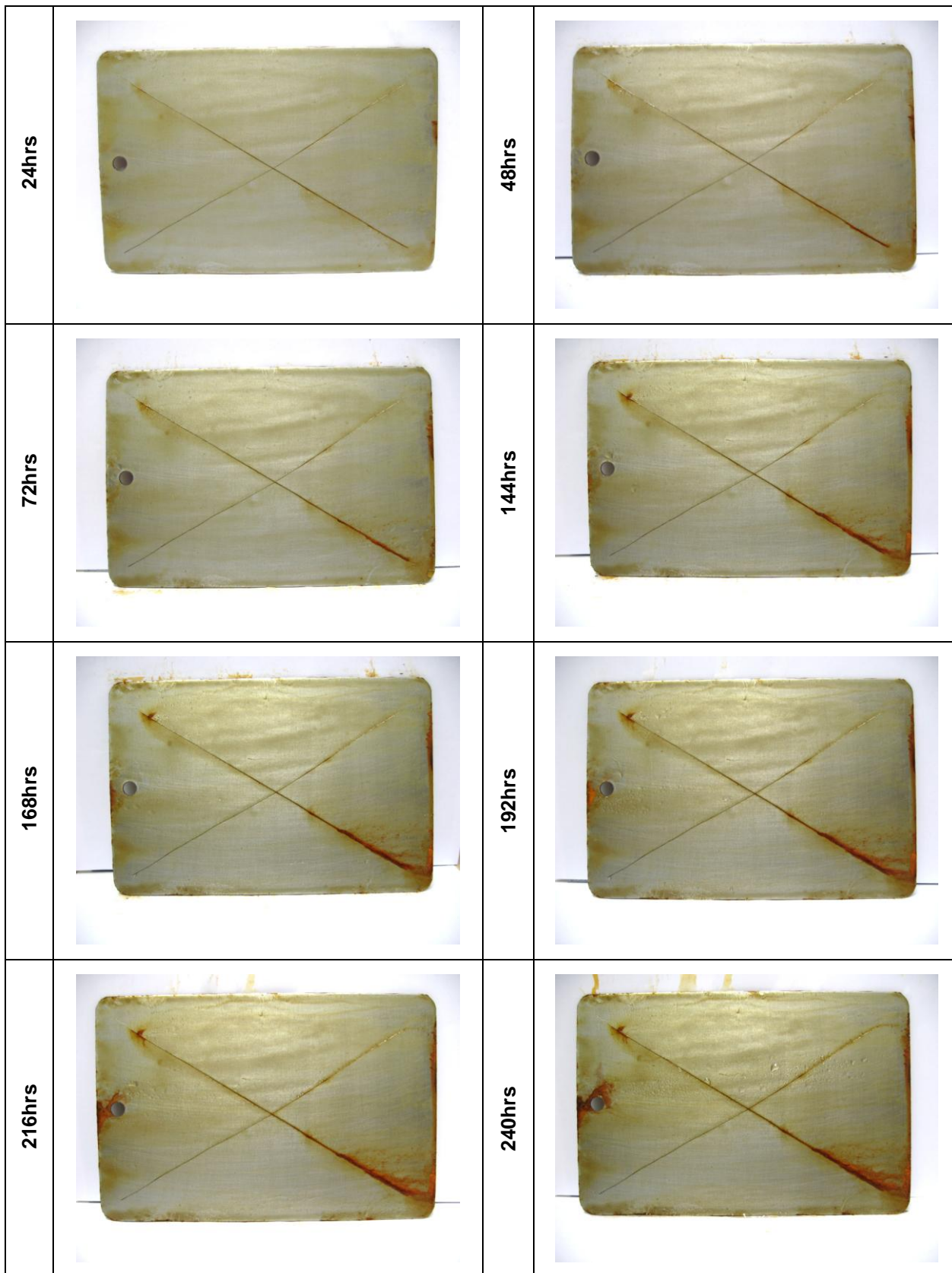


Figure 12: #6b Steel Double Coat Scored

5.3.12 #7a Steel Single Coat

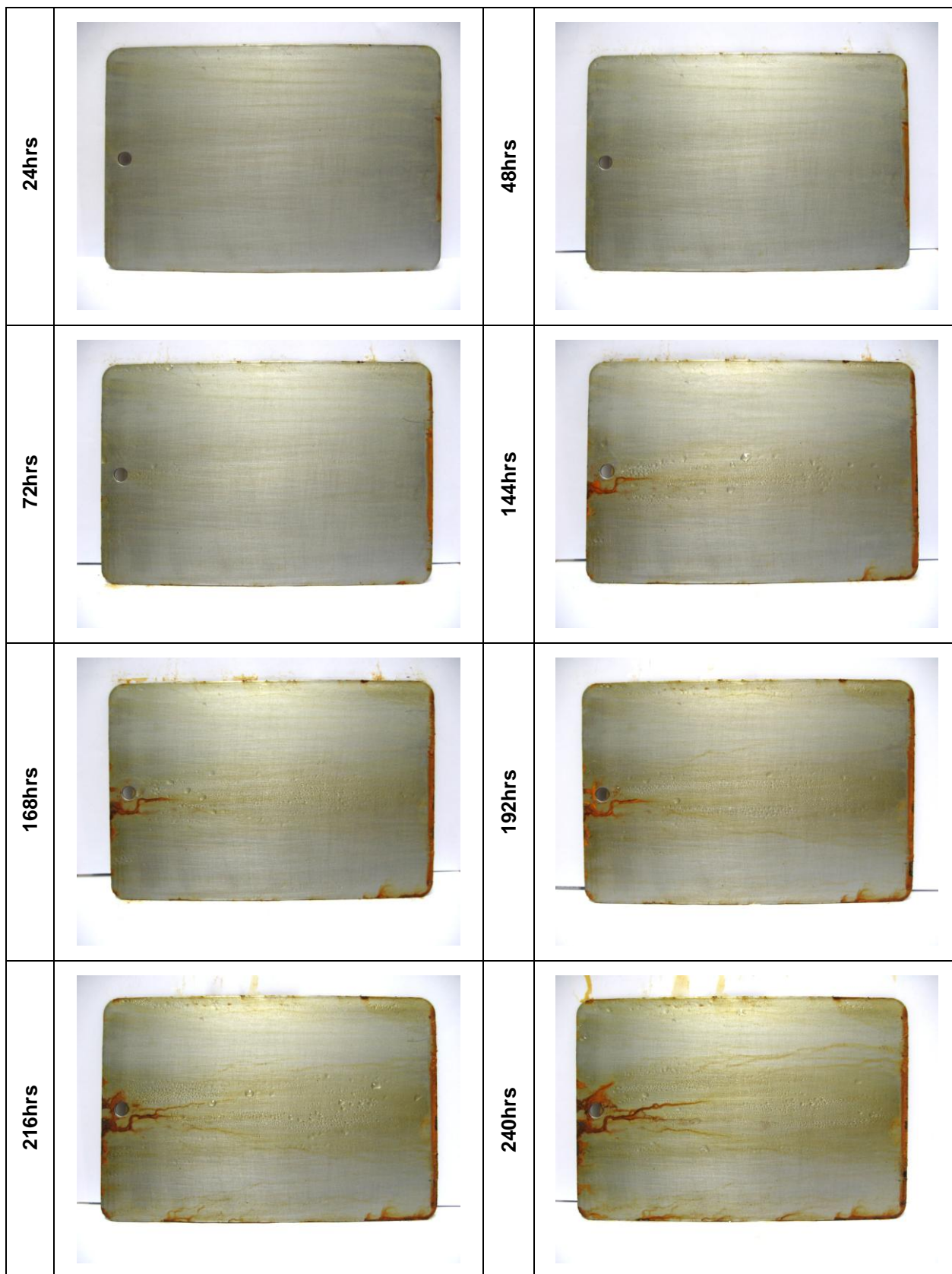


Figure 13: #7a Steel Single Coat

5.3.13 #7b Steel Double Coat

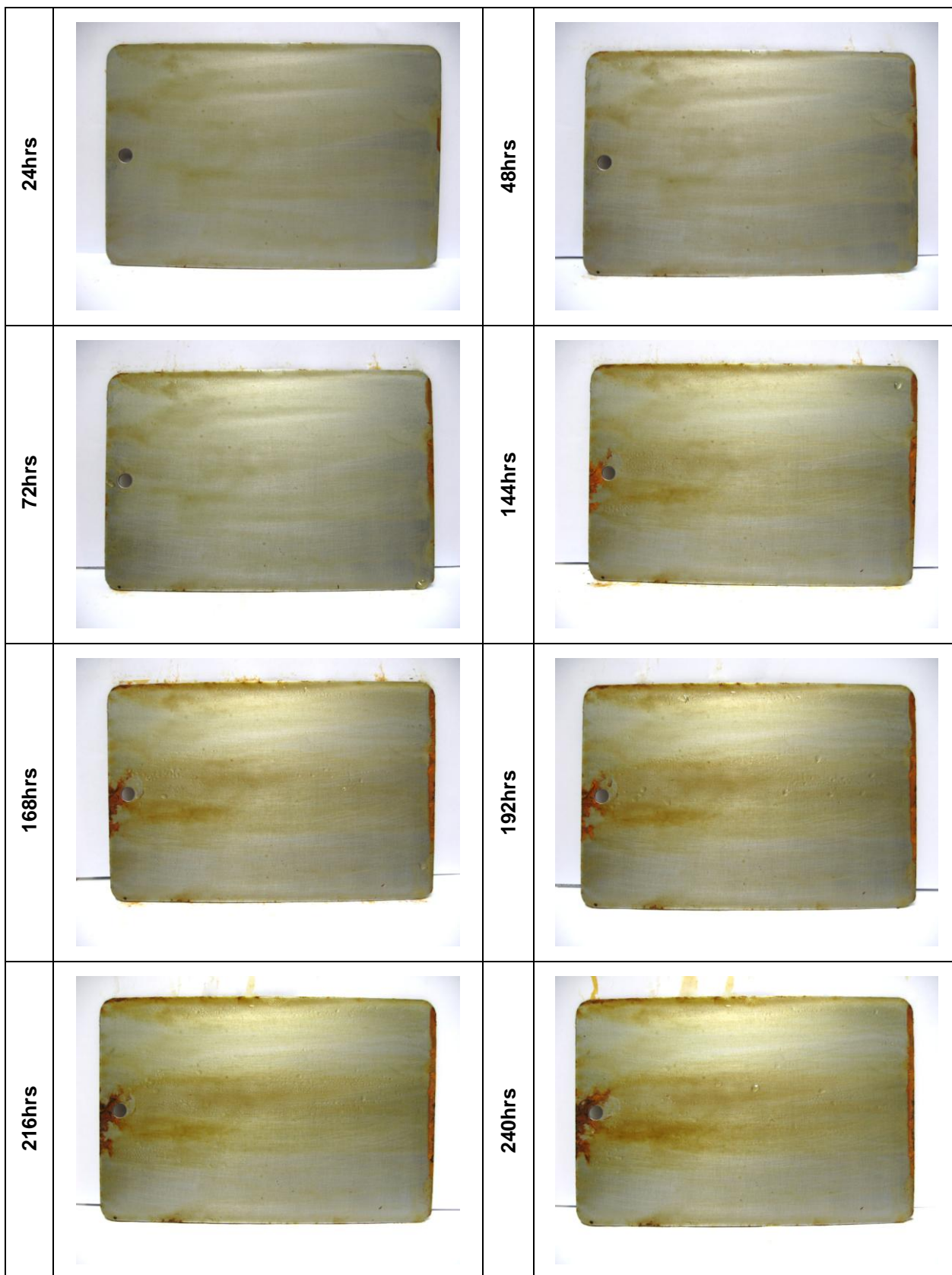


Figure 14: #7b Steel Double Coat

5.3.14 #8 Aluminium No Coat

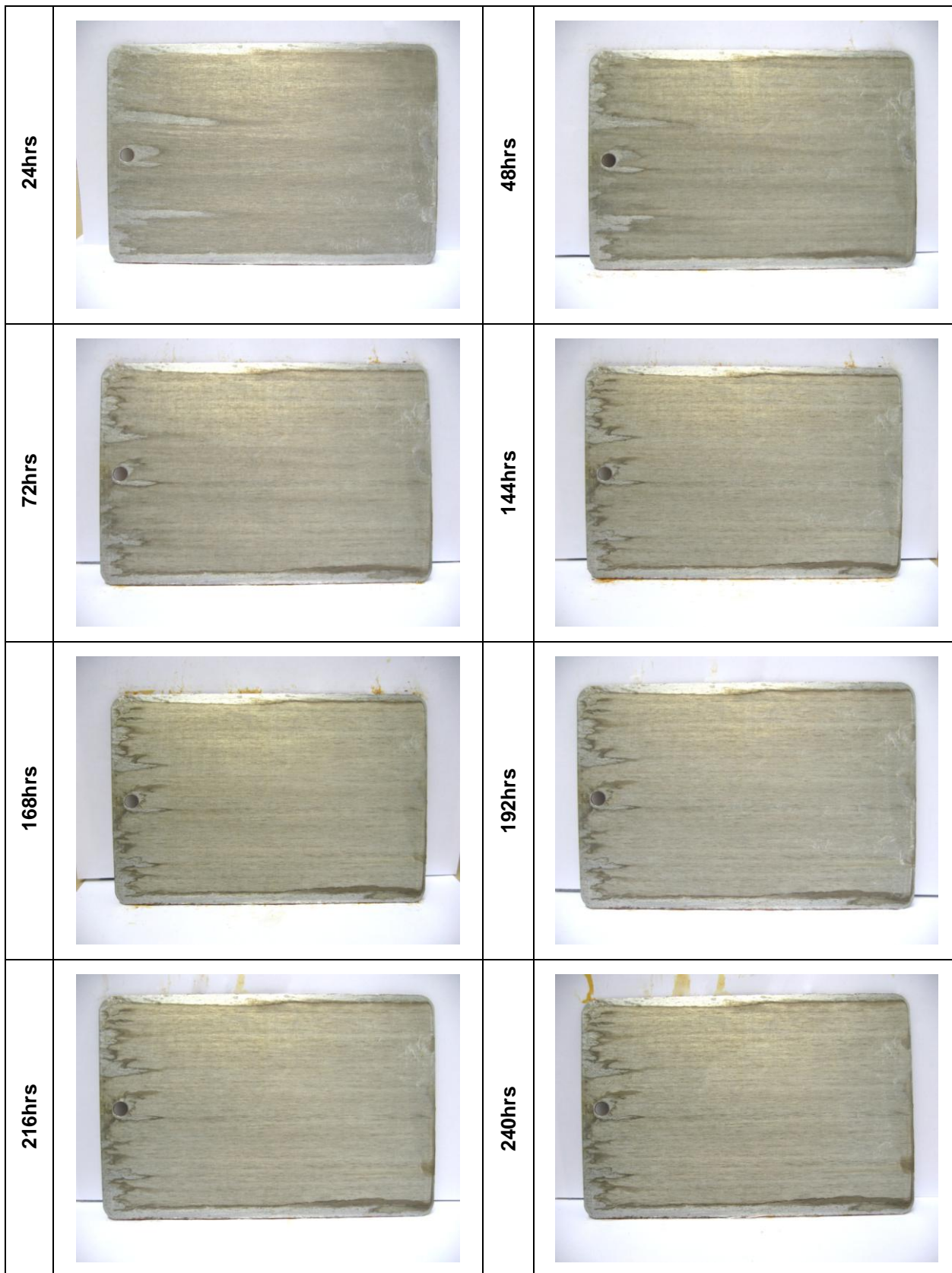


Figure 15: #8 Aluminium No Coat

5.3.15 #9 Aluminium No Coat Scored

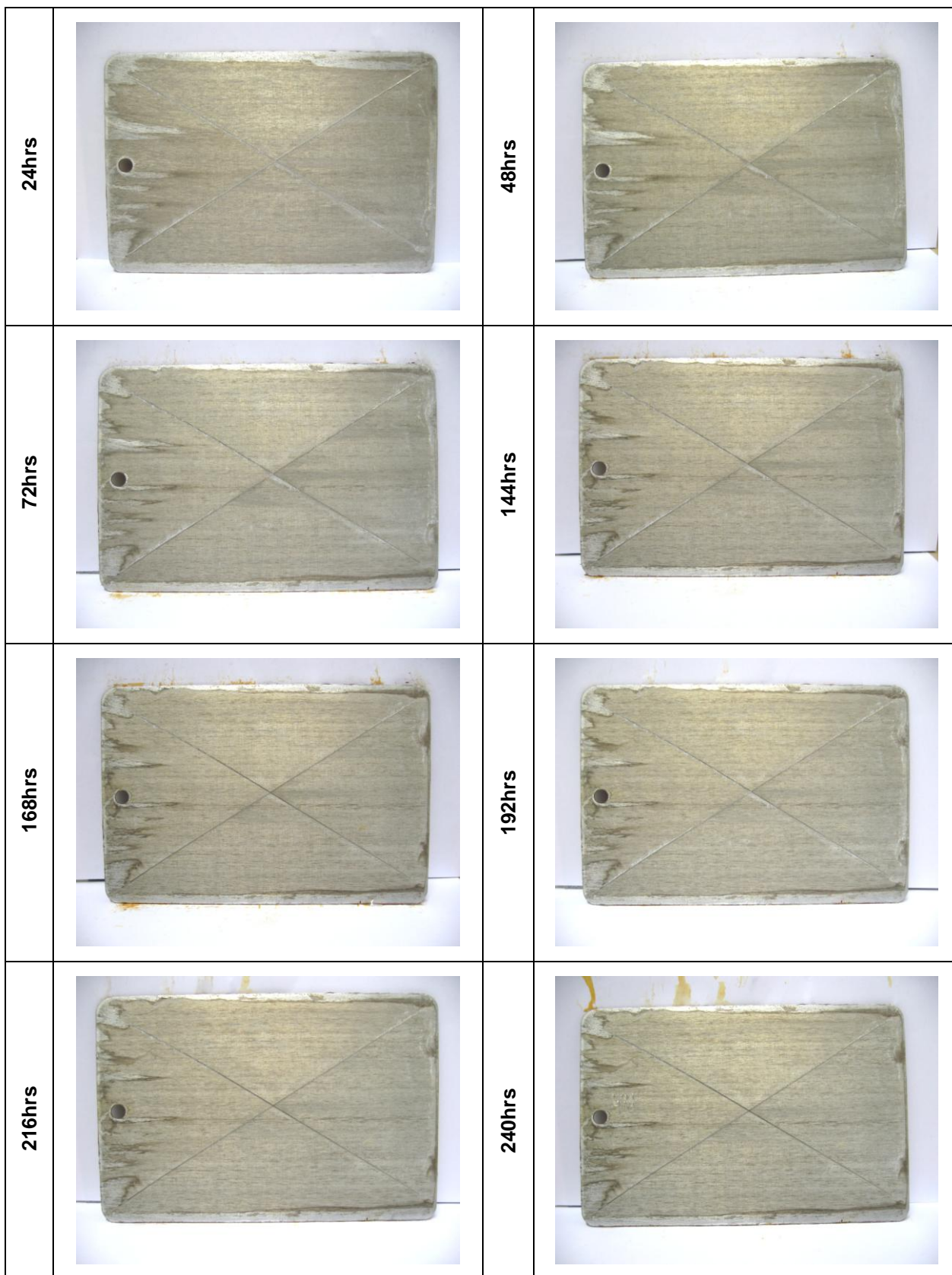


Figure 16: #9 Aluminium No Coat Scored

5.3.16 #10a Aluminium Single Coat

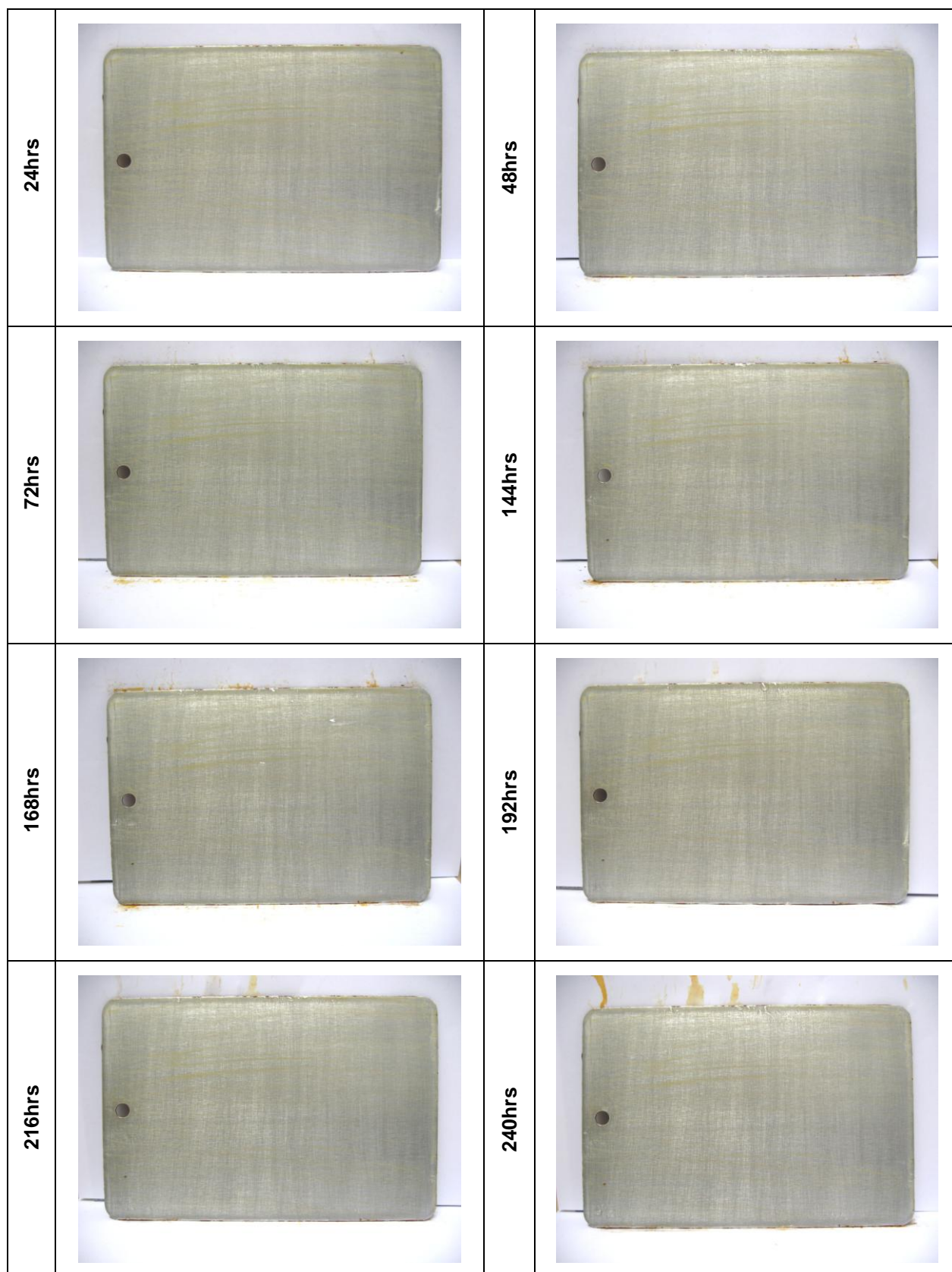


Figure 17: #10a Aluminium Single Coat

5.3.17 #10b Aluminium Single Coat

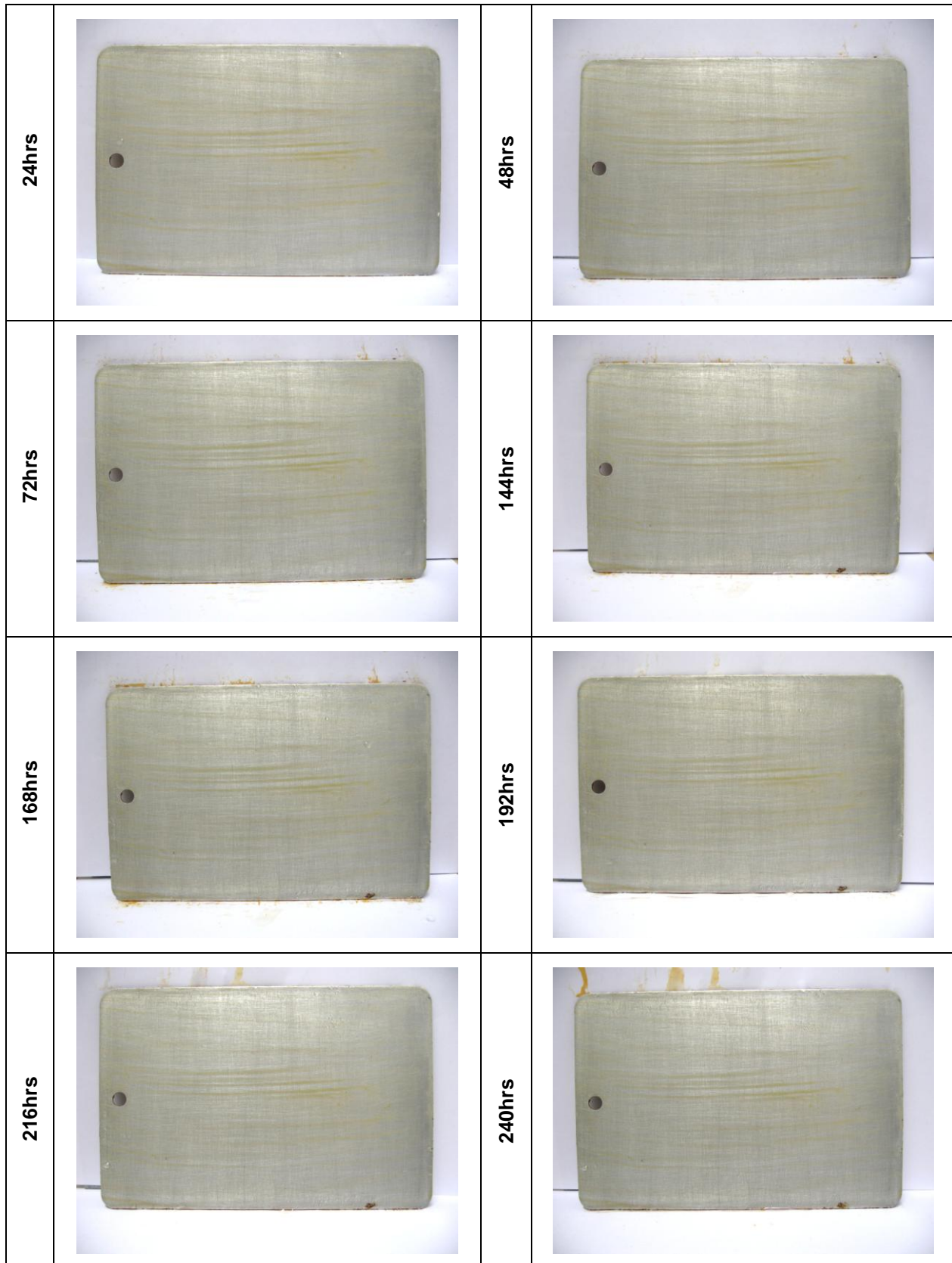


Figure 18: #10b Aluminium Single Coat

5.3.18 #11a Aluminium Double Coat

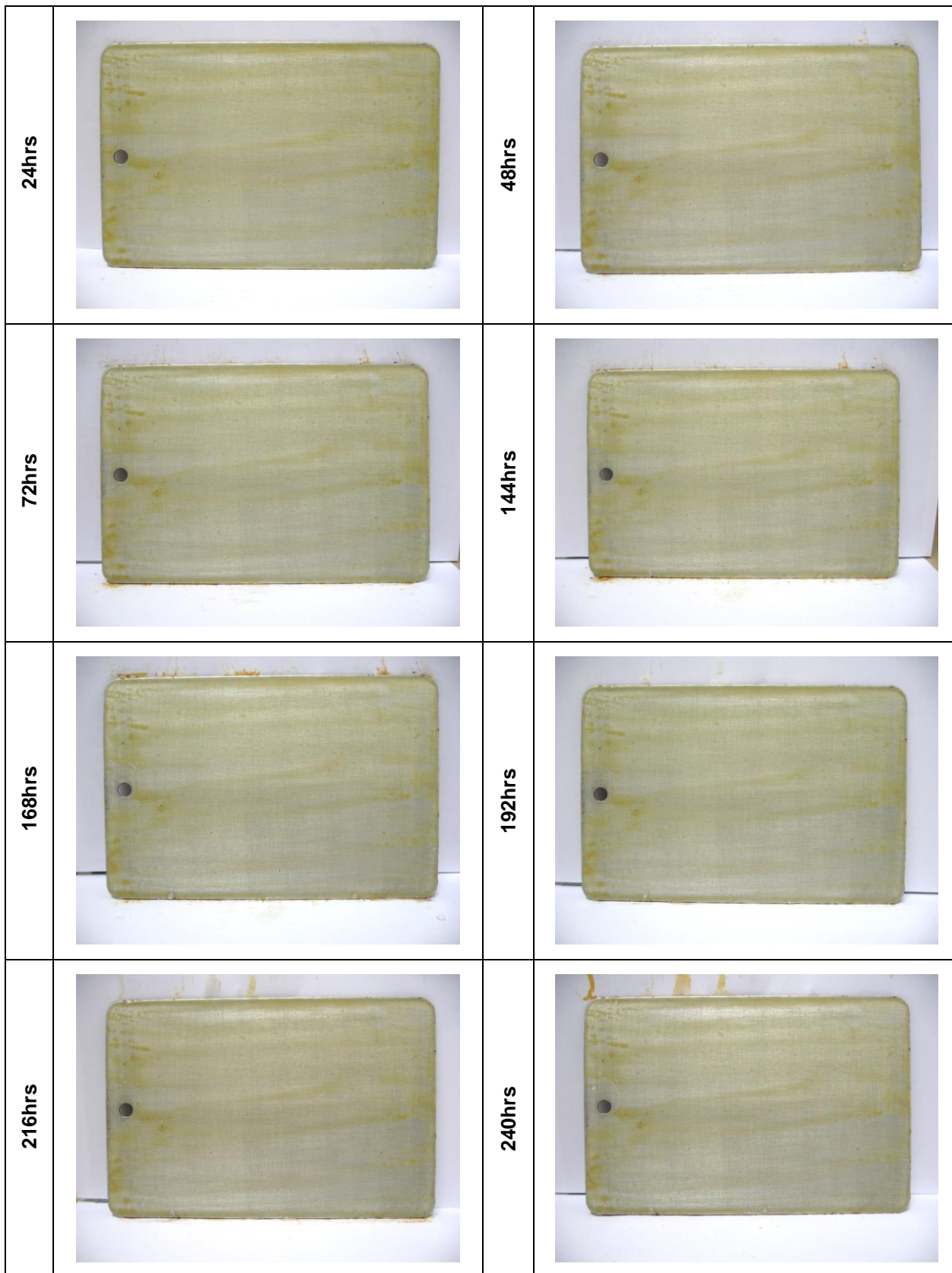


Figure 19: #11a Aluminium Double Coat

5.3.19 #11b Aluminium Double Coat

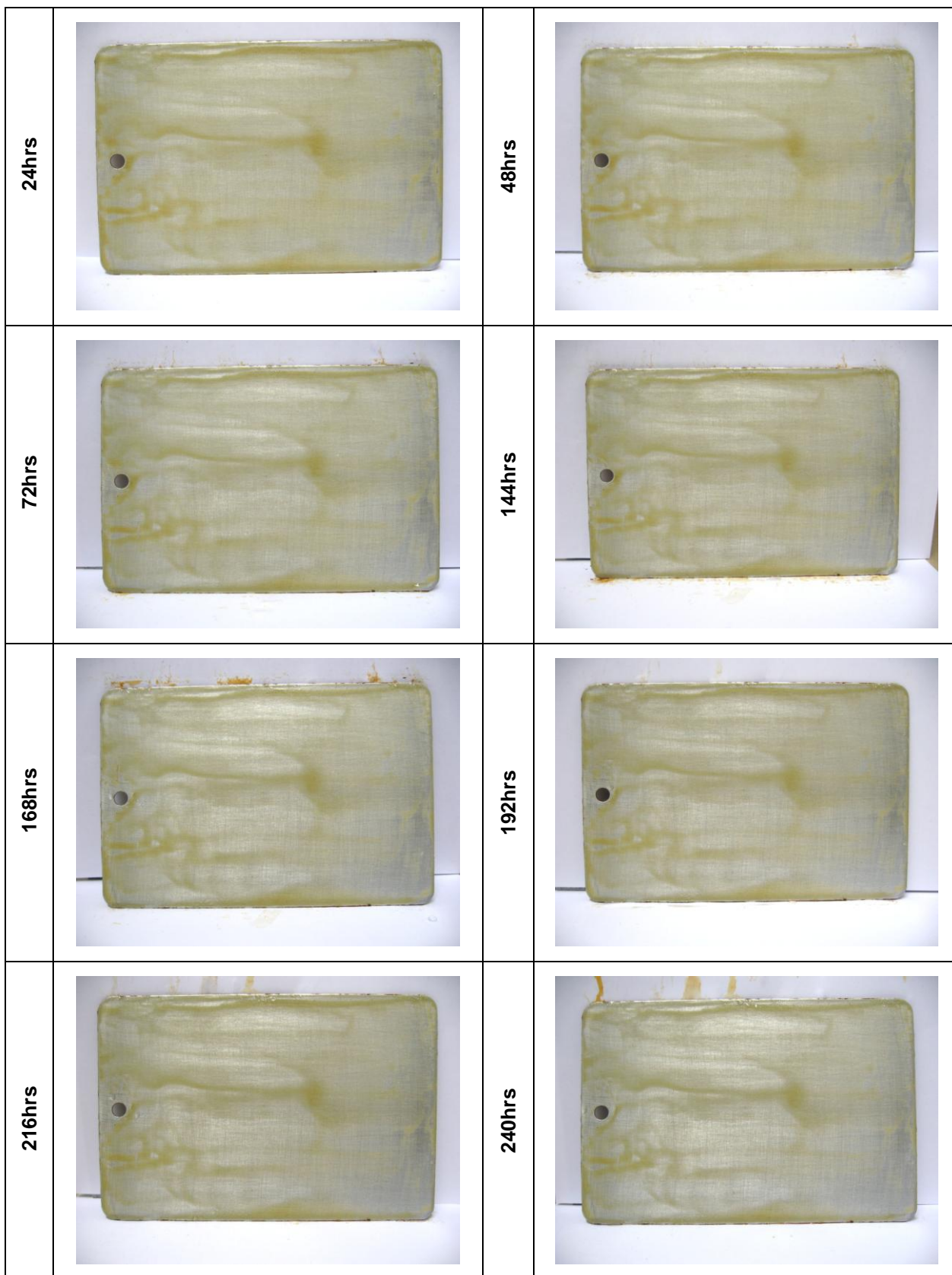


Figure 20: #11b Aluminium Double Coat

5.3.20 #12a Aluminium Single Coat Scored

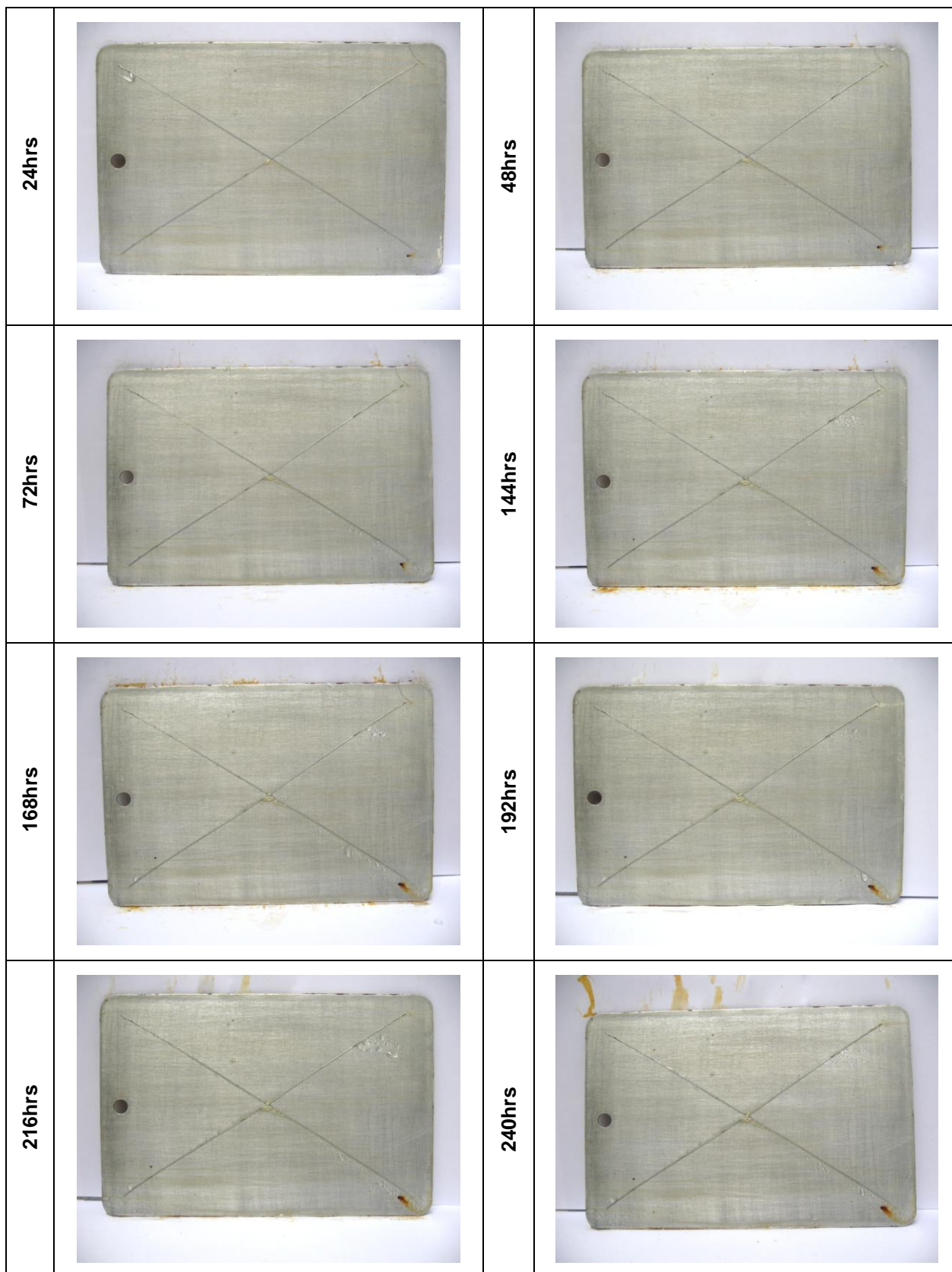


Figure 21: #12a Aluminium Single Coat Scored

5.3.21 #12b Aluminium Single Coat Scored

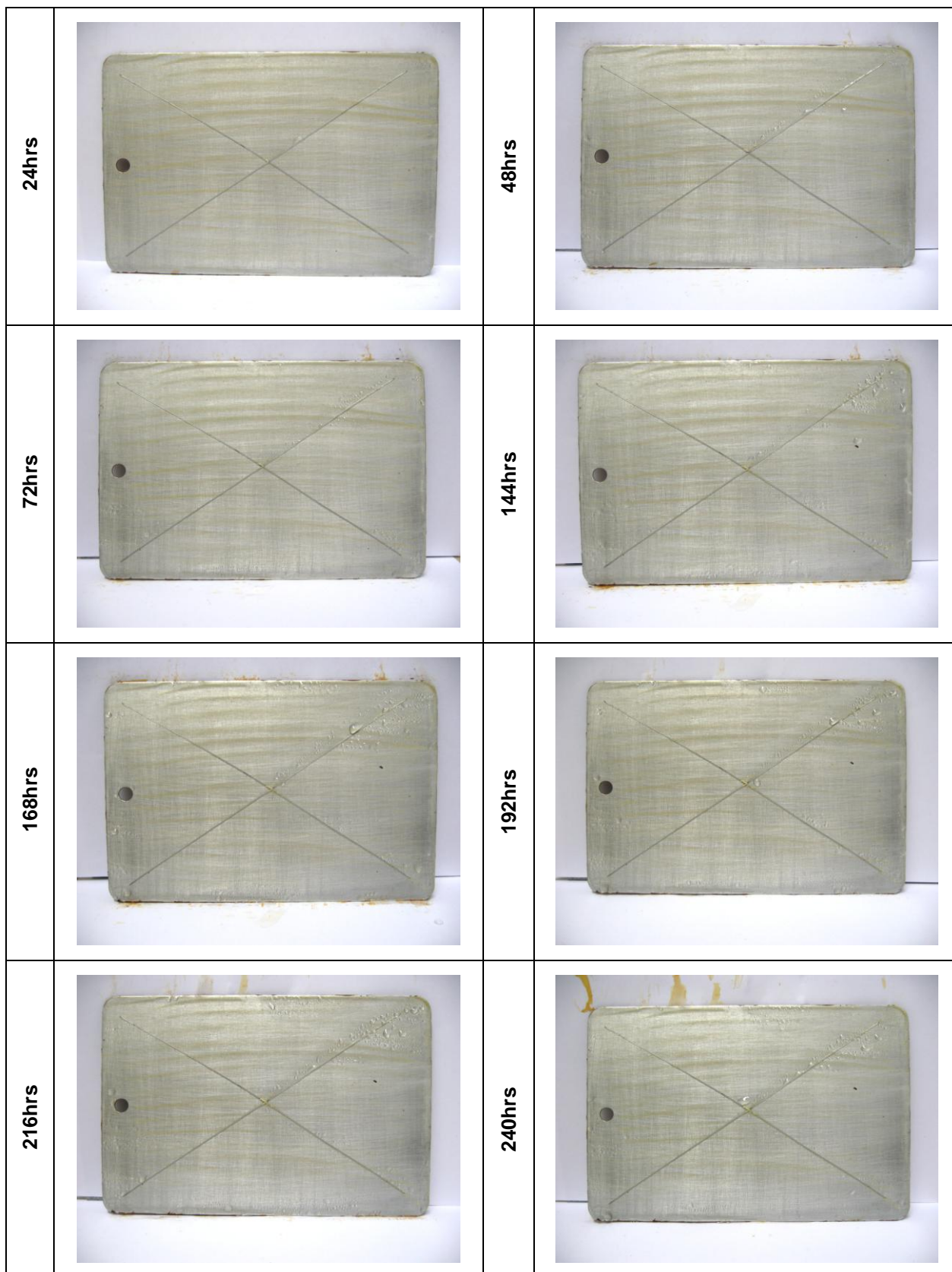


Figure 22: #12b Aluminium Single Coat Scored

5.3.22 #13a Aluminium Double Coat Scored

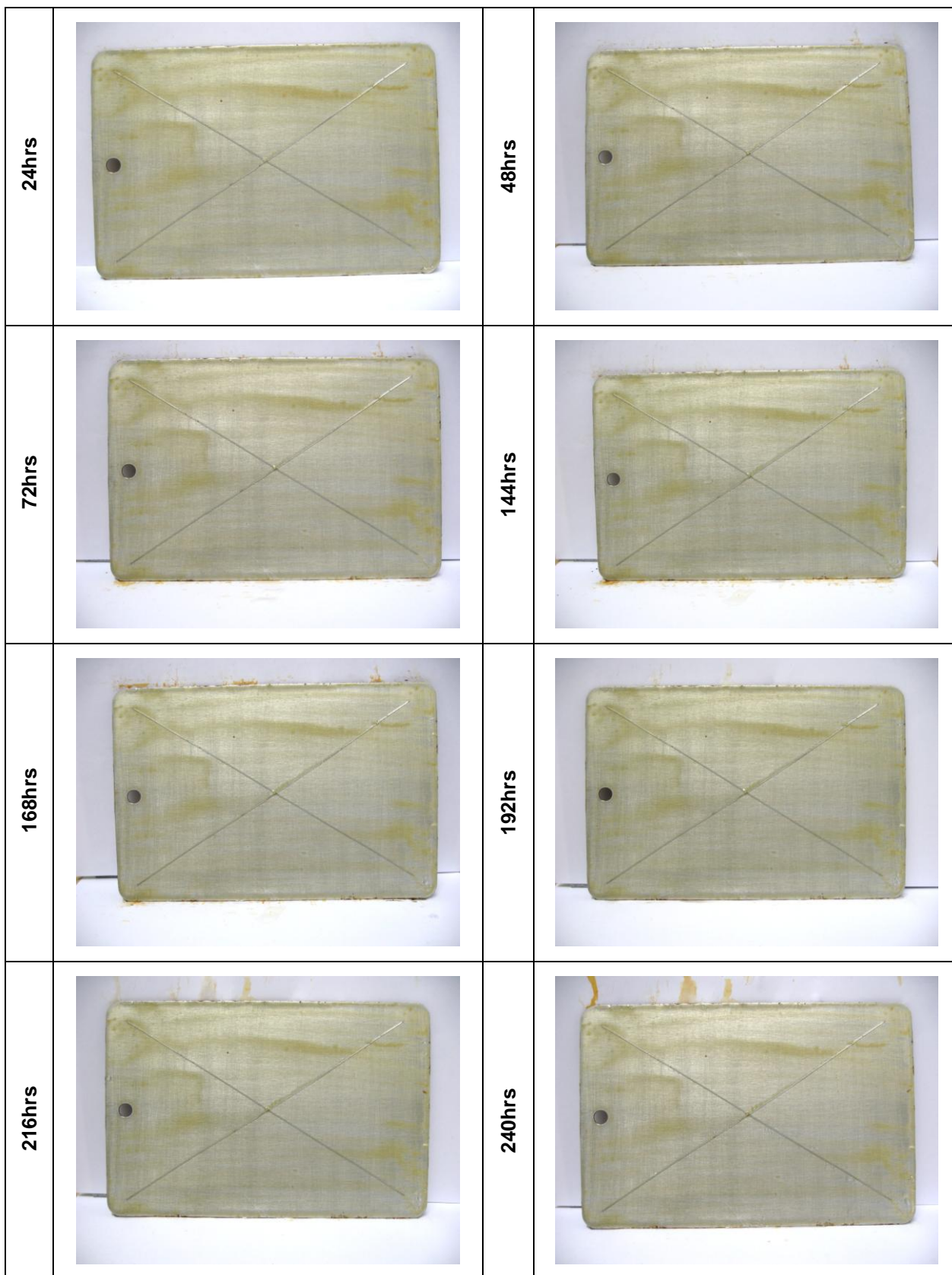


Figure 23: #13a Aluminium Double Coat Scored

5.3.23 #13b Aluminium Double Coat Scored

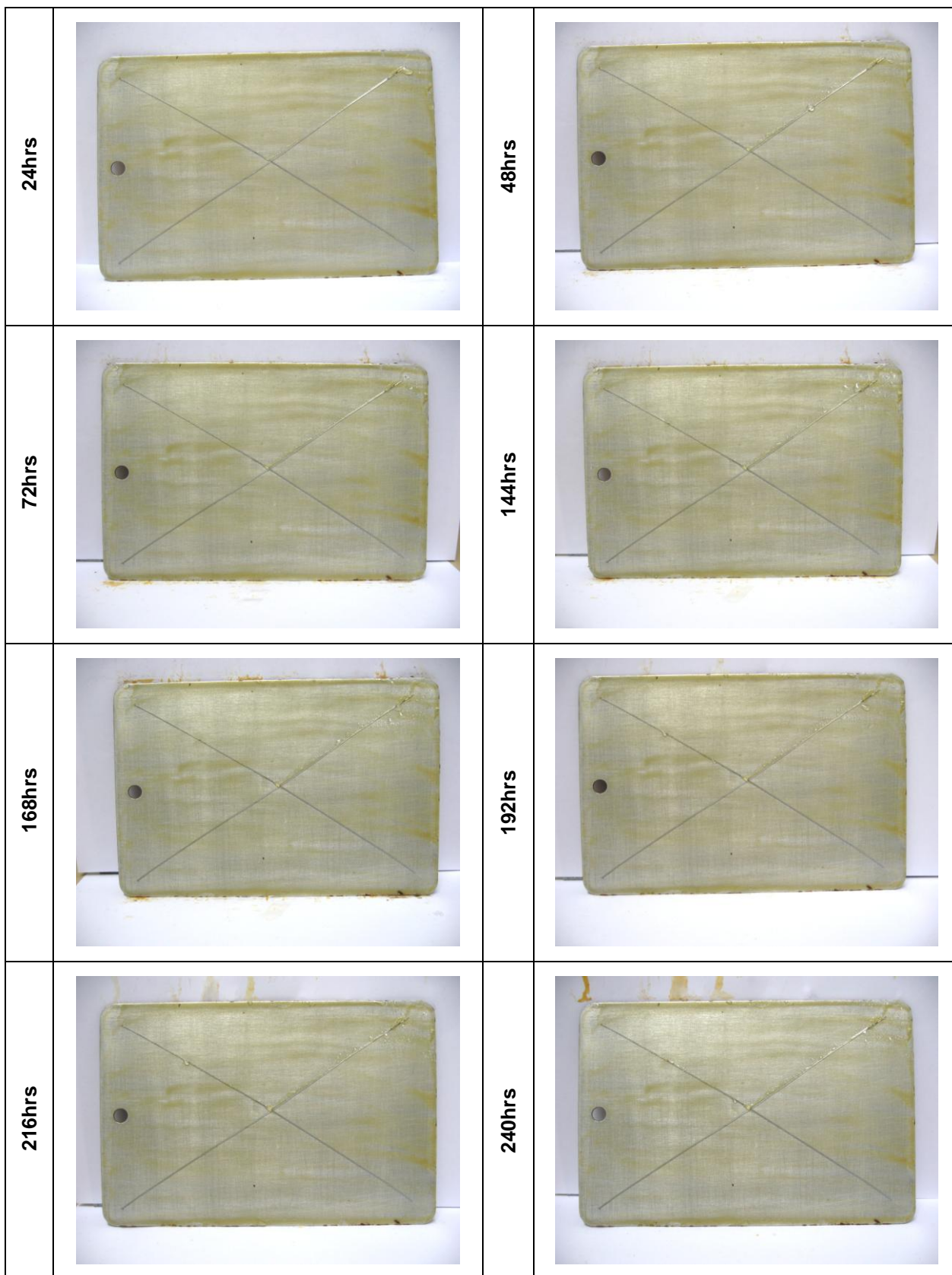


Figure 24: #13b Aluminium Double Coat Scored

5.3.24 #14a Aluminium Single Coat







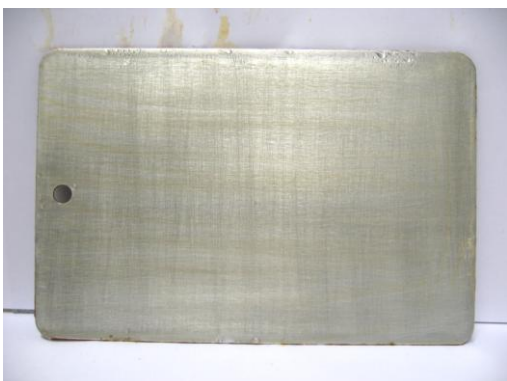

24hrs		48hrs	
72hrs		144hrs	
168hrs		192hrs	
216hrs		240hrs	

Figure 25: #14a Aluminium Single Coat

5.3.25 #14b Aluminium Double Coat

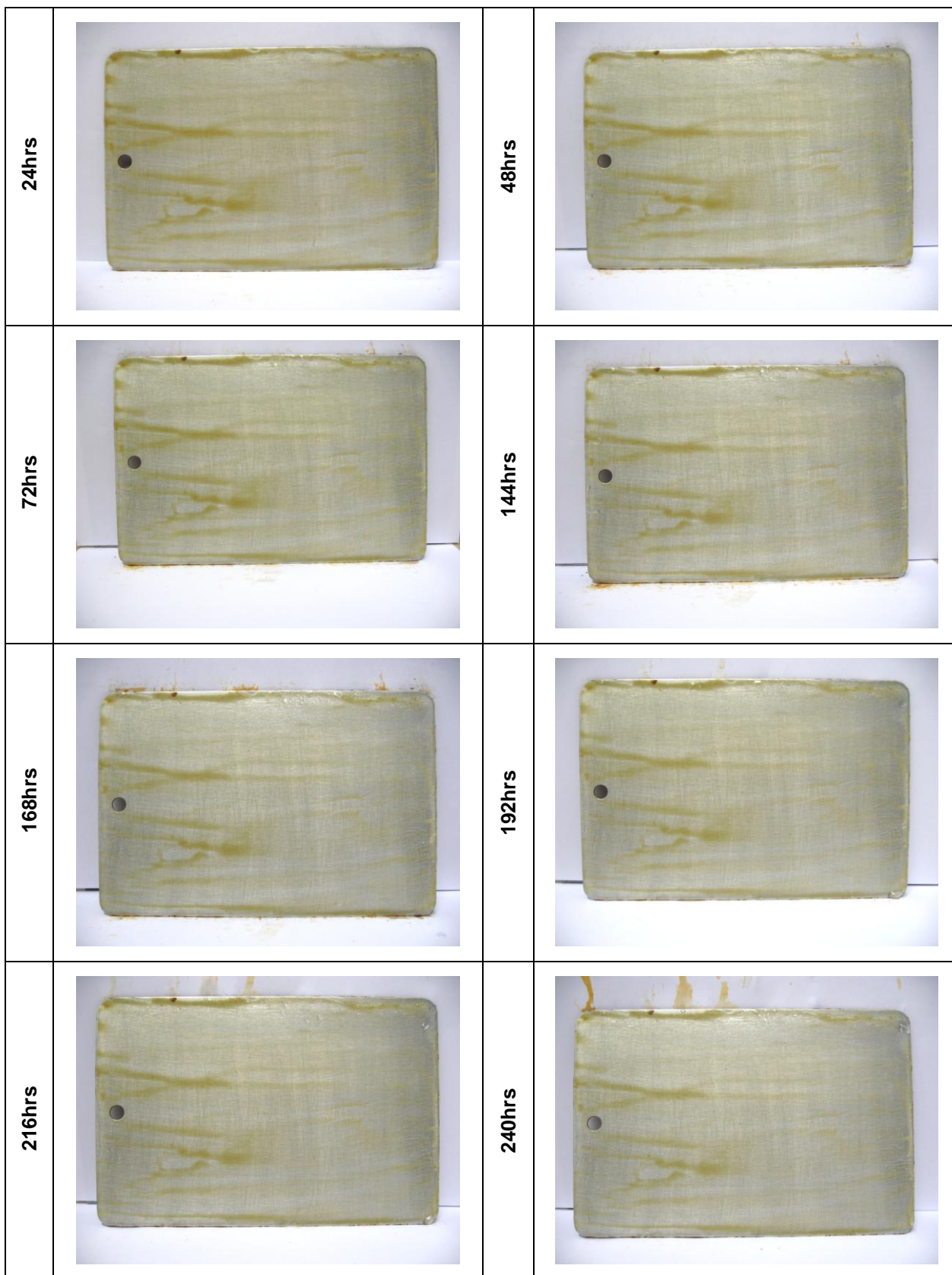


Figure 26: #14b Aluminium Double Coat

6 Conclusions

The test was performed in accordance with the requirements of ASTM B117-07.

7 Document Revision History

Revision Level	Summary of Changes
1	Initial Release

Table 7: Revision History

END OF REPORT