

LABORATORY TEST REPORT

June 5, 1970

TESTING PROJECT: 4-993

SUBJECT: DBA evaluation of Carboline materials.

REFERENCE: Report N101.5-1970 of The American National Standards Institute - Protective Coatings for Light Water Nuclear Reactor Containment Facilities.

PURPOSE: To determine whether certain Carboline materials would pass standards for PWR nuclear facilities put down in section 4 and 5 of The American National Standards Institute's Report N101.5-1970 concerning Protective Coatings for Light Water Nuclear Reactor Containment Facilities.

CONCLUSIONS: From the results of this test, it can be concluded that, all Carboline materials tested have passed all the standards set down for PWR in sections 4 and 5 of the above mentioned report.

PROCEDURE:

A) Test Coupon

- 1) As per Paragraph 4.3.1:
2" x 5" x 1/8" sandblasted steel panels.
- 2) As per Paragraph 4.3.2:
2" x 4" x 1" concrete blocks.

B) Systems Tested

- 1) Over Steel Panels:
 - a) 1c Carbo Weld 11
1c Phenoline 305 Finish
 - b) 1c Carbo Zinc 11
1c Phenoline 305 Finish
 - c) 1c Carbo Weld 11
1c Phenoline 368 Finish

From the Carboline Research & Development Laboratory

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PDR FOIA
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LABORATORY TEST REPORT

Page 2
June 5, 1970

TESTING PROJECT: 4-993

PROCEDURE: (Continued)

B) Systems Tested

1) Over Steel Panels:

- d) 1c Carbo Zinc 11
1c Carboline 3912
- e) 1c Phenoline 368 Primer
1c Phenoline 368 Finish
- f) 1c Phenoline 305 Primer
1c Phenoline 305 Finish

2) Over Concrete Blocks:

- a) 1c Carboline 195 Surfacer
1c Phenoline 305 Finish
- b) 1c Carboline 300 Surfacer
1c Carboline 300 White
- c) 1c Phenoline 305 Concrete Primer
1c Phenoline 305 Finish

C) Cure Time

As per Paragraph 5.3.2:

- 1) Between coats - 24 hours @ R.T.
- 2) Final Cure - 2 weeks @ 150° F. \pm 5° F.

D) Repairability

As per Paragraph 5.3.2:

- 1) Remove 1/2 inch diameter of coating down to substrate;
- 2) Paint denuded area with entire coating system;
- 3) Coat area around denuded area with over-coating system;
- 4) After completed, cure for two (2) weeks @ 150° F. \pm 5° F.

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LABORATORY TEST REPORT

Page 3
June 5, 1970

TESTING PROJECT: 4-993

PROCEDURE:

(Continued)

E) Exposure

As per Table 3, Page 8:

- 1) 1 liter of water
- 2) 20 gm Sodium Thiosulfate
- 3) 8 gm Sodium Hydroxide (≤ 0.2 Normal)
- 4) 3 gm boric acid (2000 to 4000 ppm)

F) Test Conditions

As per Figure 1, Page 6:

<u>Temperature</u>	<u>- Interval</u>	<u>Time at Interval</u>
RT	- 285° F.	40 sec.
285°F.	- 270° F.	4 min.
270°F.	- 250° F.	11 min. 40 sec.
250°F.	- 225° F.	13 min. 20 sec.
225°F.	- 215° F.	1 hr. 57 min.
215°F.	- 175° F.	8 hr. 20 min.
175°F.	- 160° F.	16 hr. 40 min.

Total time in test = 27 hr. 26 min. 40 sec.
Maximum Temp. = 290° F.
Minimum Temp. = 150° F.

RESULTS:

As per Paragraph 4.5, there was no effect to any of the steel panels or concrete blocks used in this test. That is, there was no flaking, delamination and/or peeling, blistering or chalking to any degree.

David L. Krombach
David L. Krombach
Testing Department

DLK:glw
OR: Test Dept.
OR: JOL
XC: HDT

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Package Data

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Page 2
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XC: JNT

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