

CLIENT: Nova Industries
8011 North 154th East Ave
Owasso, OK 74055

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| Test Report No: TJ1768-4 | Date: June 26, 2014 |
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SAMPLE ID: Duct Armor

SAMPLING DETAIL: Test samples were submitted to the laboratory directly by the client. No special sampling conditions or sample preparation were observed by QAI.

DATE OF RECEIPT: Samples were received at QAI on April 22, 2014.

TESTING PERIOD: 6/16/14 – 6/25/14

AUTHORIZATION: Signed Proposal Number SP060713-2 by Tim Borgne.

TEST PROCEDURE: The units were evaluated in accordance with ASTM E 1494-12, Annex 1 (Test Method to Determine the Cohesion/Adhesion Properties of Friable Spray or Trowel Applied Asbestos-Containing Surfacing Materials). No revisions to this report will be allowed after 90 days of the report date.

TEST RESULTS: The evaluated Duct Armor coating meets the requirements for “Encapsulated Surfacing Materials” as defined in Section 6 of ASTM E 1494-12..

PREPARED BY



Rocky Hale
Material Test Technician

**SIGNED FOR ON BEHALF OF
QAI LABORATORIES INC.**



Jarred L. Johnson
Quality Manager

Test Procedure and Results

ASTM E 1494-12 (Standard Practice for Encapsulation Testing of Friable Asbestos-Containing Surfacing Materials)

Qualifications

The test methods in this practice require disturbance of asbestos-containing materials. Activities that disturb asbestos containing materials are subject to regulations of the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA) and other jurisdictions including certain state agencies.

The test method described in Annex A1 to determine the adhesive and cohesive properties of encapsulated surfacing material can result in a release of asbestos-containing debris. Persons conducting this test must have the appropriate credentials and training to clean up the debris.

Annex 1 (Test Method to Determine the Cohesion/Adhesion Properties of Friable Spray or Trowel Applied Asbestos-Containing Surfacing Materials)

Test Preparation

The Duct Armour product was troweled onto (4) 12" by 12" Hardie Panel Cement Backer Board. The product was allowed to cure in a 70°F / 50% relative humidity environment for 24 hours. Gorilla Epoxy was prepared and placed on the surface of the Duct Armor coating and a 3" by 4" steel plate was placed on top of the epoxy with approximately 5 lbs of force. The assembly was allowed to cure for an additional 24 hours.

Test Procedure

The 12" by 12" assemblies were placed on the bottom of a universal tensile testing fixture. The panels were secured by placing $\frac{1}{4}$ " thick steel plates that over lapped the edges of the backer board panel by $\frac{3}{4}$ ". The 3" by 4" steel plate adhered to the Duct Armor coating was then connected to the top of the universal test fixture. The rate of tension used for this testing was 1 in / min.

Results

| Sample No. | Duct Armor Encapsulated Samples | | | | Un-Encapsulated Samples | | | |
|---|---------------------------------|--------|--------|--------|-------------------------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Failure Point (lbf) | 409 | 313 | 345 | 203 | 413 | 86* | 279 | 304 |
| Failure Point (psi) | 34.08 | 26.08 | 28.75 | 16.92 | 34.42 | 7.17* | 23.25 | 25.33 |
| Failure Point (lbf/ft ²) | 4,908 | 3,756 | 4,140 | 2,436 | 4,956 | 1,032* | 3,348 | 3,648 |
| Duration of Test | 8 sec. | 2 sec. | 4 sec. | 3 sec. | 6 sec. | 2 sec. | 9 sec. | 5 sec. |
| Failure Point Average(lbf/ft ²) | 3,810 | | | | 3,984 | | | |

*Sample was not used in the calculations due to exceeding the acceptable limits

| Sample | Failure Description |
|----------------------------------|--|
| Duct Armor Encapsulated Sample 1 | Cohesive Failure within Un-Encapsulated Material |
| Duct Armor Encapsulated Sample 2 | Cohesive Failure within Un-Encapsulated Material |
| Duct Armor Encapsulated Sample 3 | Cohesive Failure within Un-Encapsulated Material |
| Duct Armor Encapsulated Sample 4 | Cohesive Failure within Un-Encapsulated Material |
| Un-Encapsulated Sample 1 | Cohesive Failure within Un-Encapsulated Material |
| Un-Encapsulated Sample 2 | Cohesive Failure within Un-Encapsulated Material |
| Un-Encapsulated Sample 3 | Cohesive Failure within Un-Encapsulated Material |
| Un-Encapsulated Sample 4 | Cohesive Failure within Un-Encapsulated Material |

Requirements:

The load required to cause adhesion or cohesion failure of the encapsulated matrix shall not be less than the load required to cause failure of the unencapsulated matrix, and in no case shall the load be less than 2.4 kPa (50 lbf/ft²).

***** END OF TEST REPORT *****