

In 1990 U.S. Vinyl Manufacturing Corporation developed its trademarked NaMil-Trac[®] fabric-backed vinyl wallcovering. This was in response to requests from customers who needed fabric-backed vinyl wallcoverings that would prevent the growth of mildew or other fungus growth associated with standard cotton fabric wallcovering in warm, moist climates.

Fungus and mildew are living organisms which cannot live without a food source. Standard wallcovering backings that are made from cotton, poly/cotton blends, papers, or synthetics that require bonding adhesives all provide a food source. NaMil-Trac is a special synthetic woven fabric backing designed to bond to vinyl under heat and pressure. The vinyl and NaMil-Trac backing do not provide a food source for fungus and mildew to feed on.

If you have a problem with fungus growth, then U.S. Vinyl's NaMil-Trac wallcoverings provide an excellent defense. On the following page you will find the results and photos of the testing which was performed by an independent research laboratory.

Our NaMil-Trac fabric backing is available on any U.S. Vinyl wallcovering upon request at no additional cost. Minimum requirements and other custom criteria apply. Please contact your U.S. Vinyl representative for additional information.

Please note that NaMil-Trac protects the wallcovering itself. It does not eliminate the need for proper preparation of underlying substrate walls which are also susceptible to fungus growth and damage. All existing fungus growth on substrate walls should be removed and the walls properly treated with mildewcide using manufacturer's instructions.

Products manufactured with NaMil-Trac backing must be installed with our specially formulated NaMil-Trac adhesive. The use of other adhesives is not recommended. Failure to use the recommended adhesive and/or installation instructions negates all warranties expressed or implied.

*for additional information and samples, please fax your request to us at
(706) 638-0137 or email to sampledept@usvinylmfg.com*

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September 26, 1994

Chemistry and Chemical Engineering Division
Department of Applied Chemistry and Chemical Engineering

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Subject: SwRI Project 01-5923-033 "Fungal Testing of Wallcovering" Final Report

Dear Mr. McCloud:

This report presents the results of ASTM G-21 testing of the wallcovering samples you sent.

All fungi were obtained from the American Type Culture Collection as spores and were cultured on slants to provide fresh viable inoculum preparation per ASTM G-21-90. Samples were run in triplicate, and results recorded at 7 and 14 days.

	Growth seen at	
	7 days	14 days
Cotton backed	---	+++
Namil-Trac [®] backed	---	---

Growth was not seen on either type of backing after the first week; after 2 weeks the cotton backing was discolored and some pigmented spots were seen, Black spots are presumed to be *Aspergillus niger*; additionally, some yellow pigmented spots were seen. The NAMIL-TRAC[®] backing remained completely unaffected.

Very truly yours,



Craig Wall, M.S.

APPROVED:



Donald E. Johnson, Ph.D.
Vice President

CW:mal

Use the following test fungi in preparing the cultures:

Fungi	ATCC No. A	MYCO No. B
<i>Aspergillus niger</i>	9642	386
<i>Penicillium pinophilum</i> C	11797	391
<i>Chaetomium globosum</i>	6205	459
<i>Gliocladium virens</i>	9645	365
<i>Aureobasidium pullulan</i>	15233	279C

A American Type Culture Collection, 12301 Parklawn Drive, Rockville, MD 20852.

B Mycological Services, Box 1056, Crawfordsville, IN 47933.

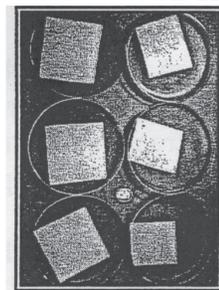
C Historically known as juniculosm.

Maintain cultures of these fungi separately on an appropriate medium such as potato dextrose agar. The stock cultures may be kept for not more than 4 months at approximately 3 to 10°C (37 to 50°F). Use subcultures incubated at 28 to 30°C (82 to 86°F) for 7 to 20 days in preparing the spore suspension.

U.S. Vinyl has now had NaMil-Trac fabric-backed vinyl wallcovering in the field under the most stringent of conditions since 1990. Out of the literally millions of yards installed around the world, not a single yard of NaMil-Trac material has failed to perform.

PROGRESS PHOTOS OF COMPARATIVE TESTING

Cotton NaMil-Trac



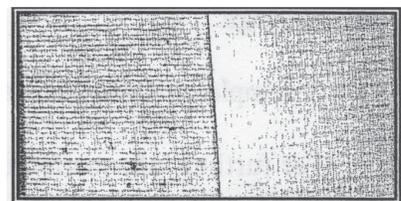
DAY 1 - Beginning of test

Cotton NaMil-Trac



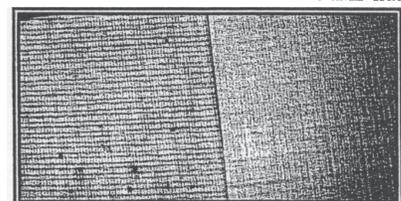
DAY 7 - No growth noted

Cotton NaMil-Trac



DAY 11 - Growth of fungus on cotton sample has started. No growth on NaMil-Trac.

Cotton NaMil-Trac



DAY 14 - Growth of fungus on cotton is very evident. No growth of fungus present on NaMil-



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