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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF FIRE TECHNOLOGY
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**INVESTIGATION OF THE SURFACE BURNING
CHARACTERISTICS OF A 16 MIL THICK PVC
DECORATIVE FILM, ADHERED TO 0.5 IN.
THICK FIBERGLASS REINFORCED CEMENT
BOARD WITH 3M FASTBOND 30NF
MATERIAL ID: SPECTRIM FINISH #07 MEDIUM
CHERRY (TEST #4)**

FINAL REPORT

Consisting of 6 Pages

SwRI Project No.: 01.04913.01.246d

Test Date: September 19, 2002

Report Date: October 2, 2002

Prepared for:

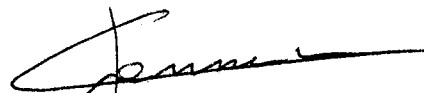
**T.C. MILLWORK, INC.
600 CENTER AVENUE
BENSALEM, PA 19020**

Prepared by:



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INTRODUCTION

This report presents the results of an ASTM E 84 test on a specimen submitted by the Client, tested at Southwest Research Institute's (SwRI's) Department of Fire Technology, located in San Antonio, Texas. The test is conducted in accordance with the procedure outlined in ASTM E 84-01, "Standard Test Method for Surface Burning Characteristics of Building Materials" (NFPA 255, ANSI/UL 723 and UBC 8-1).

This test method for the comparative surface burning behavior of building materials is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period. These tests are conducted with the material in the ceiling position.

The purpose of this test method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame Spread and Smoke Developed index are reported. However, there is not necessarily a relationship between these two measurements.

For each test, a specimen measuring at least 21 in. wide x 24 ft long is required. The specimen may consist of a continuous, unbroken length, or of sections joined end-to-end. When requested by the Client, specimens are prepared at SwRI following the Client's instructions. Unless otherwise indicated by the Client, test specimens are conditioned as appropriate in an atmosphere maintained between 68 and 78°F and 45 to 55% relative humidity.

Immediately prior to the test, the specimen is mounted in the furnace with the side to be tested facing the test flame. Sometimes, because of the nature of the material undergoing testing, additional support (e.g. wire, wire and rods, rods, and/or bars) is used to ensure that the specimen will remain in position during the test. The use of supporting materials on the underside of the test specimen may lower the Flame Spread Index from that which might be obtained if the specimen could be tested without such support, and the test results do not necessarily relate to indices obtained by testing materials without such support.

The flame front position and light obscuration are recorded throughout the 10-minute test and used to calculate the Flame Spread and Smoke Developed indices. The temperature at 23 ft is also recorded.

The Flame Spread and Smoke Developed indices reported herein are relative to the results obtained for mineral fiber-reinforced cement board and select grade red oak (moisture content between 6 and 8%). The mineral fiber-reinforced cement board is the calibration material used to obtain 0 values for Flame Spread and Smoke; red oak decks are used to obtain 100 values for Flame Spread and Smoke.

The results apply specifically to the specimens tested, in the manner tested, and not to the entire production of these or similar materials, nor to the performance when used in combination with other materials.

This standard should be used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions and should not be used to describe or appraise the fire-hazard or fire-risk of materials, products, or assemblies under actual fire conditions. However, results of the test may be used as elements of a fire-hazard assessment or a fire-risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard or fire risk of a particular end use.

This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

APPENDIX VI-E

1997 UNIFORM FIRE CODE

TABLE 8-A---FLAME-SPREAD CLASSIFICATION

Class	Flame-spread Index
I	0-25
II	26-75
III	76-200

ASTM E 84-01 REPORT

CLIENT: T.C. MILLWORK, INC.
SWRI PROJECT NO.: 01.04913.01.246d
TEST DATE: SEPTEMBER 19, 2002
DAILY TEST NO.: 2

DESCRIPTION OF SPECIMEN

DATE RECEIVED: 9-Sep-2002 (received ready-to-test)

MATERIAL ID:* SpecTrim Finish #07 Medium Cherry (Type B - Test #4)

TRADE NAME:* Spectrim - Type B - PVC Film

DESCRIPTION:* Rigid thermoplastic polyvinyl chloride film sheet for vacuum forming and profile wrapping applications. The sheet is composed of .1905 mm colored semi rigid polyvinyl chloride back bonded to .1651 mm thick printed polyvinyl chloride sheet bonded to 2 mil thick clear polyvinyl chloride sheet. (Total thickness = 16 mil or .4 mm or .016 in) Film is adhered to 1/4 in. x 24 x 60 fiberglass reinforced cement board core. Adhesive used to bond thermoplastic sheet to MDF board is 3M Fastbond 30NF.

COMPOSITION:* 16 mil PVC decorative film bonded to cement board

THICKNESS: 0.5 in. (nominal)

UNIT WEIGHT:* 1.04 lbs per sq yd

COLOR:* #07 Medium Cherry

SPECIMEN SIZE: Five sections, 24.0 in. wide x 60.0 in. long

CONDITIONING TIME: 8 days at 70°F and 50% relative humidity

SUPPORT USED: None

* From Client's material description and/or instructions

ASTM E 84-01 REPORT

CLIENT: T.C. MILLWORK, INC.
SWRI PROJECT NO.: 01.04913.01.246d
TEST DATE: SEPTEMBER 19, 2002
DAILY TEST NO.: 2

TEST RESULTS (ROUNDED TO NEAREST 5)

FLAME SPREAD INDEX (FSI): 20
SMOKE DEVELOPED INDEX (SDI): 110

TEST DATA

UNROUNDED FSI: 21.8
UNROUNDED SDI: 110.0
FS*TIME AREA (Ft*Min): 42.4
SMOKE AREA (%*Min): 90.3
FUEL AREA (°F*Min): 4695.2

OBSERVATIONS DURING TEST

IGNITION TIME (Min:Sec): 0:16
MAXIMUM FLAME FRONT ADVANCE (Ft.): 4.6
TIME TO MAXIMUM ADVANCE (Min:Sec): 1:48
MAXIMUM TEMP. AT EXPOSED TC (°F): 519
TIME TO MAXIMUM TEMP. (Min:Sec): 8:48
TOTAL FUEL BURNED (Cu. Ft.): 53.0
DRIPPING (Min:Sec): None
FLAMING ON FLOOR (Min:Sec): 2:34
AFTERFLAME TOP (Min:Sec): None
AFTERFLAME FLOOR (Min:Sec): None

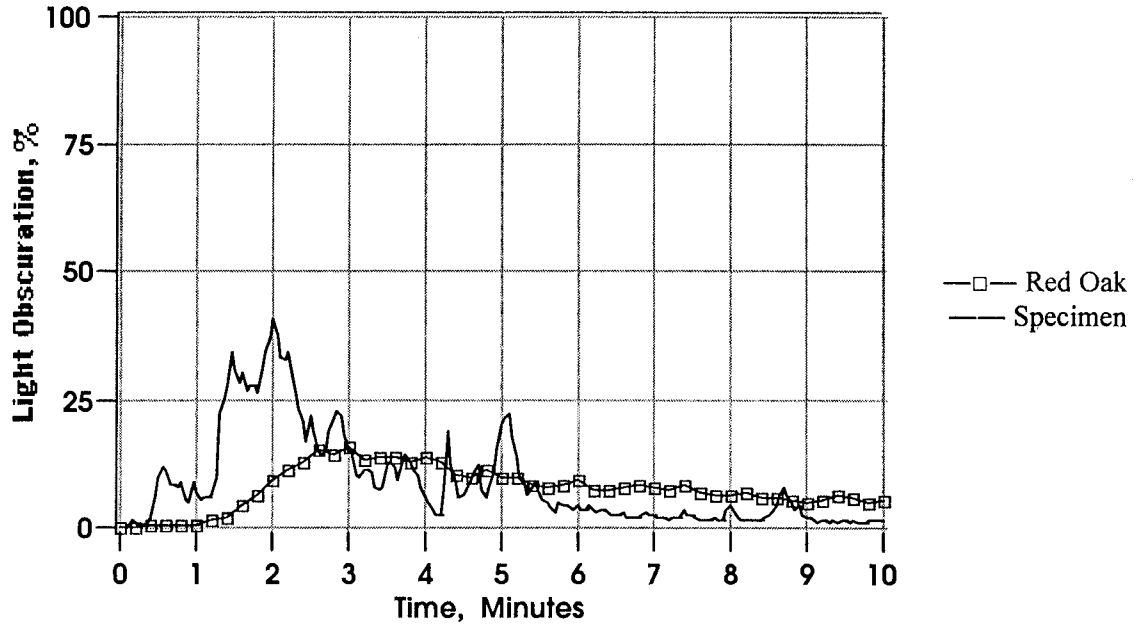
CALIBRATION DATA (LAST RED OAK)

RED OAK SMOKE AREA (%*Min): 77.7
RED OAK FUEL AREA (°F*Min): 8434.0
GRC BOARD FUEL AREA (°F*Min): 5651.0

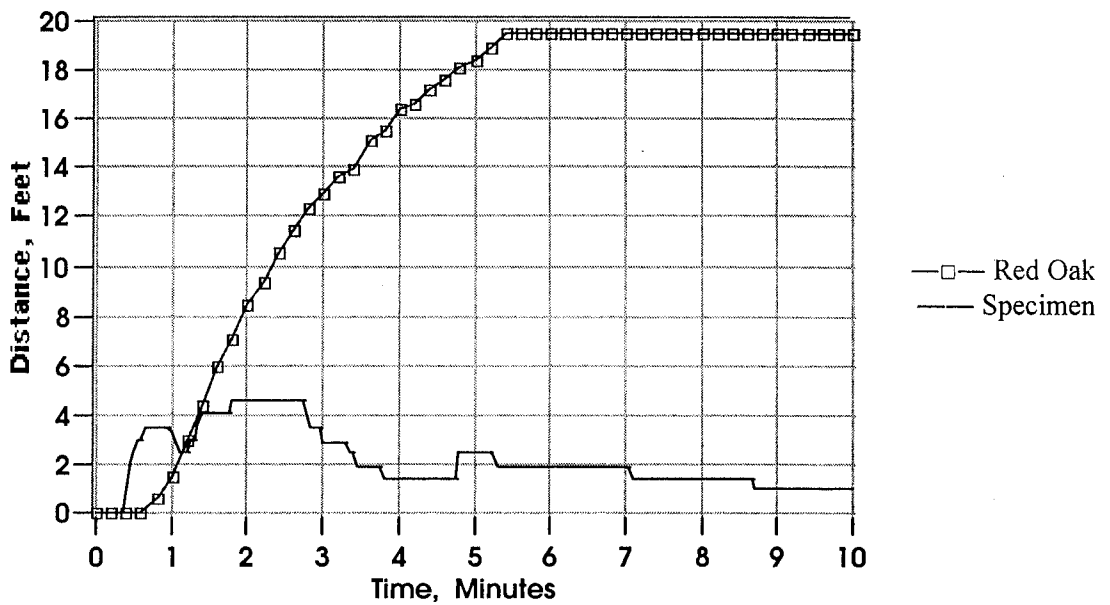
ASTM E 84-01 REPORT

CLIENT: T.C. MILLWORK, INC.
SWRI PROJECT NO.: 01.04913.01.246d
TEST DATE: SEPTEMBER 19, 2002
DAILY TEST NO.: 2

LIGHT OBSCURATION



FLAMESPREAD



SAFETY DATA SHEET

Page 1 of 4
20 December 1999

PRODUCT: COVA PRESS Prints

01 - IDENTIFICATION OF THE PRODUCT, CHEMISTRY AND COMPANY

PRODUCT NAME: Cova Press
CHEMISTRY: Solid. Semi-flexible, printed PVC film laminated to clear semi-flexible PVC film with urethane/acrylic lacquer and prime coat.
COMPANY: Forbo-CP Limited
Station Road
Cramlington
Northumberland NE23 8AQ
United Kingdom.

02 - COMPOSITION AND INGREDIENTS INFORMATION

Poly (vinyl chloride) with softeners, pigments, stabiliser and lubricants.

Surface lacquer comprising of reacted urethane/acrylics with matting agents.

Prime coat of rubber/acrylic copolymer.

03 - HAZARDS IDENTIFICATION

Non - hazardous in normal intended applications. Exposure to heat or fire may cause decomposition and the production of hazardous decomposition products.

04 - FIRST AID MEASURES

Inhalation: Not a hazard in supplied form.
Eye Contact: Not a hazard in supplied form.
Skin Contact: No adverse effects are known.
Ingestion: No adverse effects are known.

Page 2 of 4
20 December 1999

05 - FIRE FIGHTING METHODS

Method of extinguishing:

All methods are acceptable.

Specific Hazards:

PVC decomposes in a fire to produce acidic fumes, smoke, carbon dioxide and small quantities of other organic compounds. Avoid inhaling the products of combustion.

Protective Measures in Case of Fire:

For large fires wear self-contained breathing apparatus and chemical-resistant clothing.

Wash surfaces with copious water as soon as possible.

Wash all personnel exposed to fume.

06 - ACCIDENTAL RELEASE MEASURES

The product is supplied in rolls and accidental release is not a hazard.

07 - HANDLING AND STORAGE

Handling: No special precautions. Observe manual handling safety precautions.

Storage: Store dry at normal room temperatures. Store away from sources of heat and strong sunlight.

Packaging: There are restrictions on materials which may be used for packing.

08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

The product is non-volatile. There are no known skin contact problems and the form of supply prevents inhalation or entry into the eyes.

No special precautions are required.

09 - PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Decorative film in rolls.
- Odour: Almost odour free.
- Melting: Decomposition and melting occur at elevated temperatures but these are not experienced in normal use (see section 05).
- Boiling: Not applicable.
- Flash Point: Not applicable.
- Density: 1300 kg/m³ approximately.
- Vapour: Not applicable.
- Solubility: Insoluble in water.
Partially soluble in many organic solvents such as ketones.
Soluble in tetrahydrofuran.
- pH: Not applicable.
- Decomposition: Above 130 degrees Celsius requiring extensive exposure.
Above 220 degrees Celsius requiring only brief exposure.

10 - STABILITY AND REACTIVITY

- Stable under normal use conditions.
- Avoid decomposition at high temperatures (see section 09).
- Hazardous decomposition products:
Hydrogen chloride.
Carbon monoxide.
Particulates of carbon (smoke).

11 - TOXICOLOGICAL INFORMATION

This product has no known toxicological hazards in normal use.

Page 4 of 4
20 December 1999

12 - ECOLOGICAL INFORMATION

Biologically inactive. Slowly biodegradable in extreme situations - not in normal use.

Not a hazard to the natural environment.

13 - DISPOSAL CONSIDERATIONS

Conform to local regulations for disposal of PVC waste.
Consult local waste contractor for disposal routes including incineration.
Recycling with other PVC waste is possible - consult local contractor.

14 - TRANSPORT INFORMATION

Not subject to special regulations.

15 - REGULATORY INFORMATION

Not classified for special labelling.

16 - OTHER INFORMATION

The contents of this data sheet cover the normal applications for which this product is sold. For new uses or in cases of uncertainty, contact the supplier for further information.

Users should follow good general safety practices to safeguard human well-being and the environment.