



emseal.com

## **EMSEAL JOINT SYSTEMS, LTD**

25 Bridle Lane, Suite 3  
Westborough, MA 01581-1228  
PH: 508-836-0280, FX: 508-836-0281

June 28, 2010  
Page 1 of 1

### **Independent Test Report: FTIR/DSC Certification that the pre-compressed, UL-certified, fire-rated foam sealants listed herein contain no wax.**

The test report that follows this cover page contains the results of Fournier Transform Infrared Spectroscopy (FTIR) and Differential Scanning Calorimetry (DSC) testing conducted by an independent laboratory on EMSHIELD WFR2 from EMSEAL.

The material components and fire-retardant impregnation emulsion chemistry used in the manufacture of the precompressed foam backing of WFR2 are identical to those used in the following list of products.

The conclusions reached in the report, that the material contains no wax or wax compounds, extends by logic to the precompressed foam sealant used in the manufacture of the following materials:

EMSHIELD DFR2  
EMSHIELD DFR3  
EMSHIELD SecuritySeal SSW2  
EMSHIELD SecuritySeal SSF2  
EMSHIELD SecuritySeal SSF3  
EMSHIELD SJS-FR

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F: +1 (905) 823-1446  
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## Analysis of Expansion Joint for the Presence of Wax

A Report to:	Emseal, LLC 120 Carrier Drive Toronto, Ontario M9W 5R1
Attention:	Bill Witherspoon
Telephone:	(416) 740-2090 Ext.220
Email:	<a href="mailto:bwitherspoon@emseal.com">bwitherspoon@emseal.com</a>
Report No.:	10-05-2662-1-5 3 Pages, 2 Appendices
Date:	February 16, 2010

## 1.0 INTRODUCTION

An expansion joint, identified as WFR2, was submitted for characterization using Fourier transform infrared (FTIR) spectroscopy and differential scanning calorimetry (DSC) in an attempt to determine the presence of wax.

The sample was received, logged in and assigned sample number 10-05-A0046.

## 2.0 EXPERIMENTAL AND RESULTS

All raw data are referenced in Lab Book No. 12263.

### 2.1 FTIR

The analysis was carried out using a Nicolet 6700 Fourier transform infrared (FTIR) spectrometer (MII #A16201, calibration valid until 2010-03-30) and a Smart Orbit single reflection horizontal (HATR) accessory (Asset #16211), equipped with a diamond internal reflectance element. A computer-aided search was carried out on the generated spectrum.

Copies of the infrared spectrum and computer-aided search are shown in Appendix A. The infrared spectrum is shown in the full wavelength range of  $4000\text{ cm}^{-1}$  to  $500\text{ cm}^{-1}$ .

Spectrum #1 represents the sample and is generically identified (Search #1A) as an acrylic based composition. The spectrum does not show any evidence of additional absorbance bands at  $2915\text{ cm}^{-1}$ ,  $2848\text{ cm}^{-1}$ ,  $1463\text{ cm}^{-1}$ ,  $729\text{ cm}^{-1}$  and  $719\text{ cm}^{-1}$  that could possibly be associated with the presence of wax.

### 2.2 DSC

Differential scanning calorimetry was carried out using a TA Instruments DSC Q1000 Differential Scanning Calorimeter (MII #A15228, calibration valid until 2010-02-07).

A portion of the sample was cut, accurately weighed and crimped into an aluminum pan for analysis. The sample was heated from ambient to 300°F at 18°F/min in a nitrogen atmosphere flowing at 50cc/min.

A copy of the DSC scan is attached in Appendix B.

Scan #1 represents the WFR2 sample. The DSC scan does not show any indication of low temperature melting endotherms that could possibly indicate the presence of wax.

### 3.0 CONCLUSIONS

Using both FTIR and DSC analyses wax was not detected in the submitted sample WFR2.

Reported by:

  
\_\_\_\_\_  
Susan Hannah  
Technologist  
Polymer Characterization

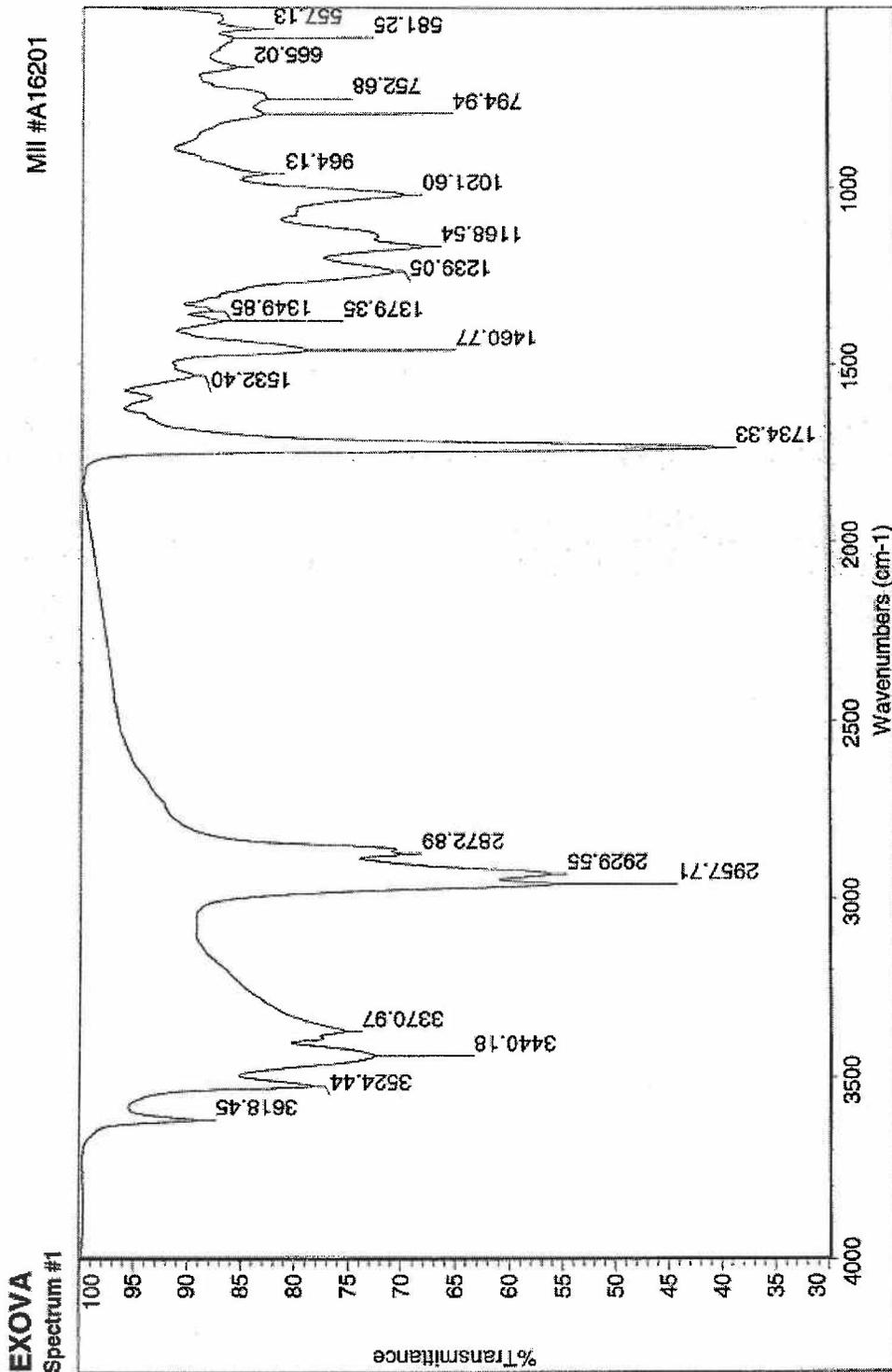
Reviewed and Authorized by:

  
\_\_\_\_\_  
Bryan Wickson, B.Sc. Eng.  
Manager  
Polymer Characterization

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**Appendix A**

FTIR Spectrum and Computer-Aided Search  
(2 pages)



Filename: \*\*\*10266201E

Collection time: Tue Jan 19 10:53:27 2010 (GMT-05:00)

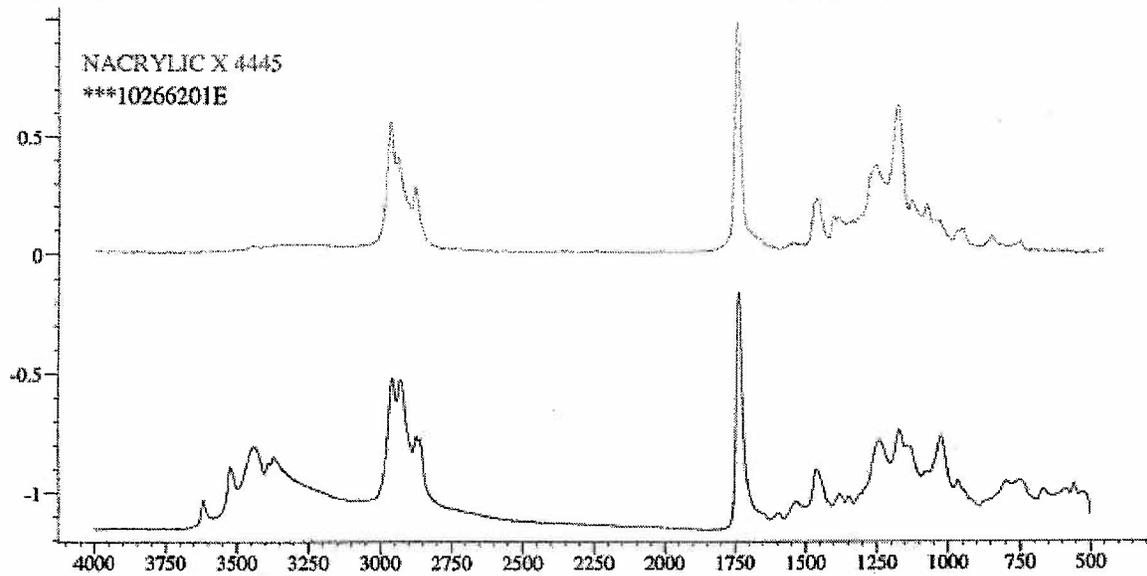
Operator: sdennaf

Date: 2010-01-19

Comments: 20-05-A0046 WFR2

Search #1A

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Name(s):	NACRYLIC X 4445
Technique:	FILM
Comments:	Chemical Description= SELF REACTIVE ACRYLIC COPOLYMER
Content:	Solids Content= 45%
Solution Data:	pH= 3.0
Source Of Sample:	NATIONAL STARCH AND CHEMICAL CORPORATION
Viscosity Data:	(Brookfield)= 100 CPS
Weight:	8.5 LBS

**Appendix B**

DSC Scan  
(1 page)

File: C:\TAIData\2010\DSC\WFI10266201E.001  
Operator: S.V.HANNAH  
Run Date: 19-Jan-2010 15:10  
Instrument: DSC Q1000 V9.8 Build 296

DSC

Sample: WFR2  
Size: 5.0590 mg  
Method: HEATING 10°C/MIN  
Comment: 10-05-A0046, HEATING 10°C/MIN, N2 @ 50CC/MIN

