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## **REPORT**

### ***Test of Low-Temperature Flexibility of an Elastomeric Sealant***

Project Number: 04-371B  
Building Envelope Consultants Ltd

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**February 18, 2005**



## **Introduction**

A mandrel bend test was performed of the **Envelope Seal** single component copolymer sealant to determine the low-temperature flexibility. The test was performed according to ASTM C734-01 “Standard Test Method for Low-Temperature Flexibility of Latex Sealants After Artificial Weathering”. The artificial weathering portion of the test was excluded since the sealant is not exposed to direct sunlight in normal use.

## **Test Apparatus**

- Cold Chamber
- 1” Diameter mandrel

## **Test Specimens**

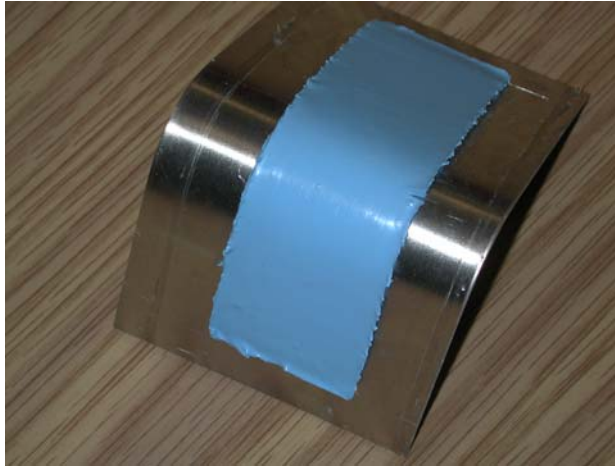
- Three test specimens were prepared
- 3” x 6”, 16 gauge Aluminum Sheet
- 1-1/2” x 5” x 1/8” sealant

## **Test Procedure**

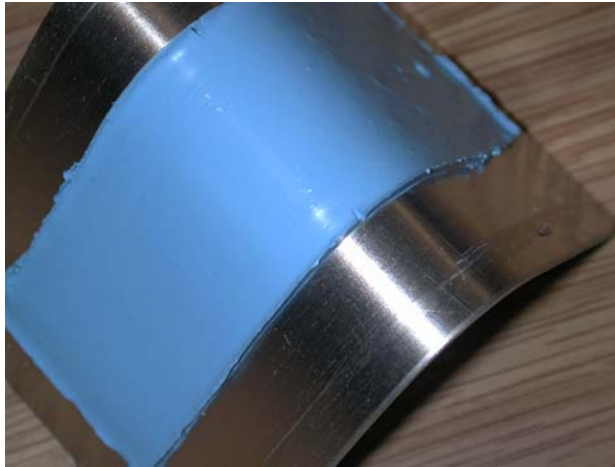
The test specimens were conditioned in the cold chamber at  $-17^{\circ}\text{C}$  for 4 hours. While in the cold chamber the specimens were bent  $90^{\circ}$  over the 1” mandrel within 1s. The specimens were then visually inspected for cracking of the sealant or adhesive failure to the aluminum, or both.

## **Results**

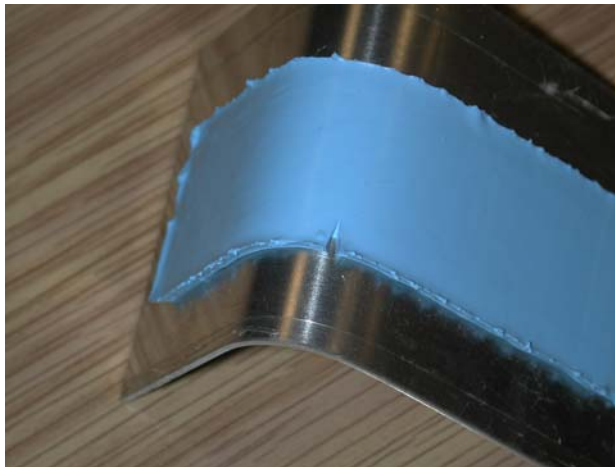
The tested specimens showed a small amount of cracking and tearing at the edges of the sealant in the high stressed region. Figures 1-3 show the specimens after the test.



**Figure 1, Specimen #1**



**Figure 2, Specimen #2**



**Figure 3, Specimen #3**

## **Conclusion**

This test demonstrates that the **Envelope Seal** sealant has good flexibility at  $-17^{\circ}\text{C}$ .

The results contained herein relate only to the items tested. This report should only be reproduced in full and with the permission of the Alberta Research Council.