Memtech Acoustics

ACRYLITE® Soundstop
Combustion Testing – Simulated Brush Fire
EN 1794-2, Annex A

Transparent Noise Barriers

Introduction

This document contains a description and results of a test method used for evaluating the resistance of ACRYLITE® Soundstop noise barrier panels to a fire arising from dry vegetation or other material in close proximity to a sound wall. This test was designed to simulate small brush fire exposure*. It is equivalent to the fire test used in the European Standard EN 1794-2 (Annex A), *Resistance to brushwood fire (low fire load),* which has been in use for many years to evaluate the suitability of materials as road side noise barriers.

European Standard EN 1794-2, Annex A

Two ACRYLITE® Soundstop noise barrier panels 1.5m x 2m x 15 mm thick were exposed to a localized fire at the base, both at the front and back of the sheet. The fire sources consisted of wire baskets that each contained 600 grams of spruce shavings, 0.2 mm thick x 2 mm wide x 50 mm long. The test was conducted with the panels in the vertical position.



1) Test Set Up shown above

Both of the fire sources were lit simultaneously and allowed to burn to completion. After the fires burned to completion, brown discoloration and minor blistering can be seen on the ACRYLITE® Soundstop noise barrier panels. However, the static and acoustic functionality of the test barrier was not affected by the exposure to fire. No holes or cracks developed during the test.



2) Burning of Spruce Shavings

One hour after the burning of the first two baskets, two more baskets of wood shavings were placed on the opposite side of the panels and ignited. Again, only minor discoloration of the panels was noted at the completion of the test.

ACRYLITE® Soundstop XT** was found to comply with the requirements of Class 3 of the EN 1794-2 standard. To meet the Class 3 requirement, the ACRYLITE® Soundstop XT sheet was required to sustain no damage other than discoloration.

* This test is a simulated fire exposure intended to demonstrate the behavior of ACRYLITE® Soundstop noise barrier panels in a specific situation. Actual results may vary due to circumstances outside the conditions of this test.

** In the 2017 test report (GS 3.2/13-288-1), 12mm ACRYLITE® Soundstop XT was used. The test proved that these panels were able to avoid ignition. Thicker materials will have higher thermal masses and will therefore provide more resistance to ignition. For this reason, any ACRYLITE® Soundstop material greater than or equal to 12 mm thickness is expected to pass this test.

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3). ACRYLITE® Soundstop noise barrier panels after completion of the Fire Test

Based on the results of this test, ACRYLITE® Soundstop noise barrier panels are not expected to contribute to the spread of fire from modest amounts of dry vegetation or other brush material in close proximity to the sound wall.

Fire Precautions

ACRYLITE® sheet is a combustible thermoplastic. Precautions should be taken to protect this material from flames and high heat sources. ACRYLITE® sheet usually burns rapidly to completion if not extinguished. The products of combustion, if sufficient air is present, are carbon dioxide and water. However, in many fires sufficient air will not be available and toxic carbon monoxide will be formed, as it will when other common combustible materials are burned. We urge good judgement in the use of this versatile material and recommend that building codes be followed carefully to assure it is used properly.

Compatibility

Like other plastic materials, ACRYLITE® sheet is subject to crazing, cracking or discoloration if brought into contact with incompatible materials. These materials may include cleaners, polishes, adhesives, sealants, gasketing or packaging materials, cutting emulsions, etc. See additional Technical Information from Memtech Acoustics for more details, or contact Memtech Acoustics for information on a specific product.

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