



Mr. Simone Furiato
Ebrille Srl
S S Canelli 53/A
Nizza Monferrato, AT, 14049
IT

February 15, 2018

Reference: File SV29774 Project 4788020292
Subject: Surface Burning Characteristics of “Ebrilsplit” and “Twinsplit”

The following is a summary of the test results obtained on preinsulated copper pipes designated by Ebrille Srl as “Ebrilsplit” and “Twinsplit” under Project 4788020292. The testing was conducted at ULC’s test facility in Toronto, ON and completed on February 6 and 7, 2018.

The tests were conducted in accordance with the Standard, CAN/ULC-S102.2-10, *Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies*, Seventh Edition.

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The sole purpose of this investigation was to provide fire test data for the products submitted, in accordance with the requirements of CAN/ULC-S102.2-10. This data should not be considered representative of test results for other similar products in the absence of testing in accordance with CAN/ULC-S102.2-10.

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Very truly yours,

A handwritten signature in black ink that reads "Beny Spensieri Jr".

Beny Spensieri, Jr., BASc
Project Handler
Building & Life Safety Technologies

SAMPLE DESCRIPTION AND PREPARATION:

Ebrilsplit consists of copper piping jacketed in co-extruded polyethylene foamed plastic insulation and a polyethylene protective facing. Ebrilsplit consists of a single insulated copper pipe. The produced sizes are as follows:

Ebrilsplit							
Copper tube OD	Inch	1/4	3/8	1/2	5/8	3/4	7/8
Outer polyethylene foam insulation thickness	Inch	1/2	1/2	1/2	1/2	1/2	1/2

The minimum Ebrilsplit sample had an outer diameter of 32.10 mm.

The maximum Ebrilsplit sample had an outer diameter of 47.2 mm.

Twinsplit consists of copper piping jacketed in co-extruded polyethylene foamed plastic insulation and a polyethylene protective facing. Twinsplit consists of two insulated copper pipes welded together in a single, continuous jacket. The produced sizes are as follows:

Twinsplit							
First copper tube OD	Inch	1/4	1/4	1/4	3/8	3/8	3/8
Second copper tube OD	Inch	3/8	1/2	5/8	1/2	5/8	3/4
Outer polyethylene foam insulation thickness	Inch	1/2	1/2	1/2	1/2	1/2	1/2

For each product, the maximum and minimum sizes were submitted for testing as representative of the whole product line.

The minimum Twinsplit sample had one length with an outer diameter of 30.97 mm and a second length with an outer diameter of 33.63 mm.

The maximum Twinsplit sample had one length with an outer diameter of 32.79 mm and a second length with an outer diameter of 46.54 mm.

The foamed plastic for all samples was nominally 13 mm thick.

For shipping purposes, only the insulation was tested. As copper piping is non-combustible, it was judged that this would not affect the fire performance of the samples.

32 pieces of each product were submitted. All pieces were approximately 2010 mm long. For each test two lengths were tested, spaced 200 mm on center, one length in line with each burner. Each length consisted of three full pieces and one 1285 mm long piece laid end to end to create a 7320 mm long sample length. All samples were mounted on 6 mm thick, non-combustible cementboard and held in place using non-combustible metal wire.

A total of 8 tests were conducted, four on Ebrilsplit and four on Twinsplit.

The test specimens were conditioned to constant mass at a temperature of $23 \pm 3^{\circ}\text{C}$ and at a relative humidity of 50 ± 5 percent prior to testing.

All test specimens were constructed of a thermoplastic material which will melt and drip when exposed to fire, therefore the samples were tested in accordance with CAN/ULC-S102.2.

The test specimens were laid on the floor of the tunnel furnace on top of ceramic paper. A 350 mm long by 560 mm wide by 1.6 mm thick, uncoated, steel plate was placed on the specimen mounting ledge at the fire end of the tunnel furnace “upstream” from the gas burners to complete the 7620 mm chamber length. An airtight water seal was maintained around the furnace lid during the test.

TEST METHOD:

The tests were conducted in accordance with the Standard, CAN/ULC-S102.2-10, *Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies*, Seventh Edition.

This method defines the relative surface burning characteristics under specific test conditions. Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions. Test results relate only to the items tested.

RESULTS:

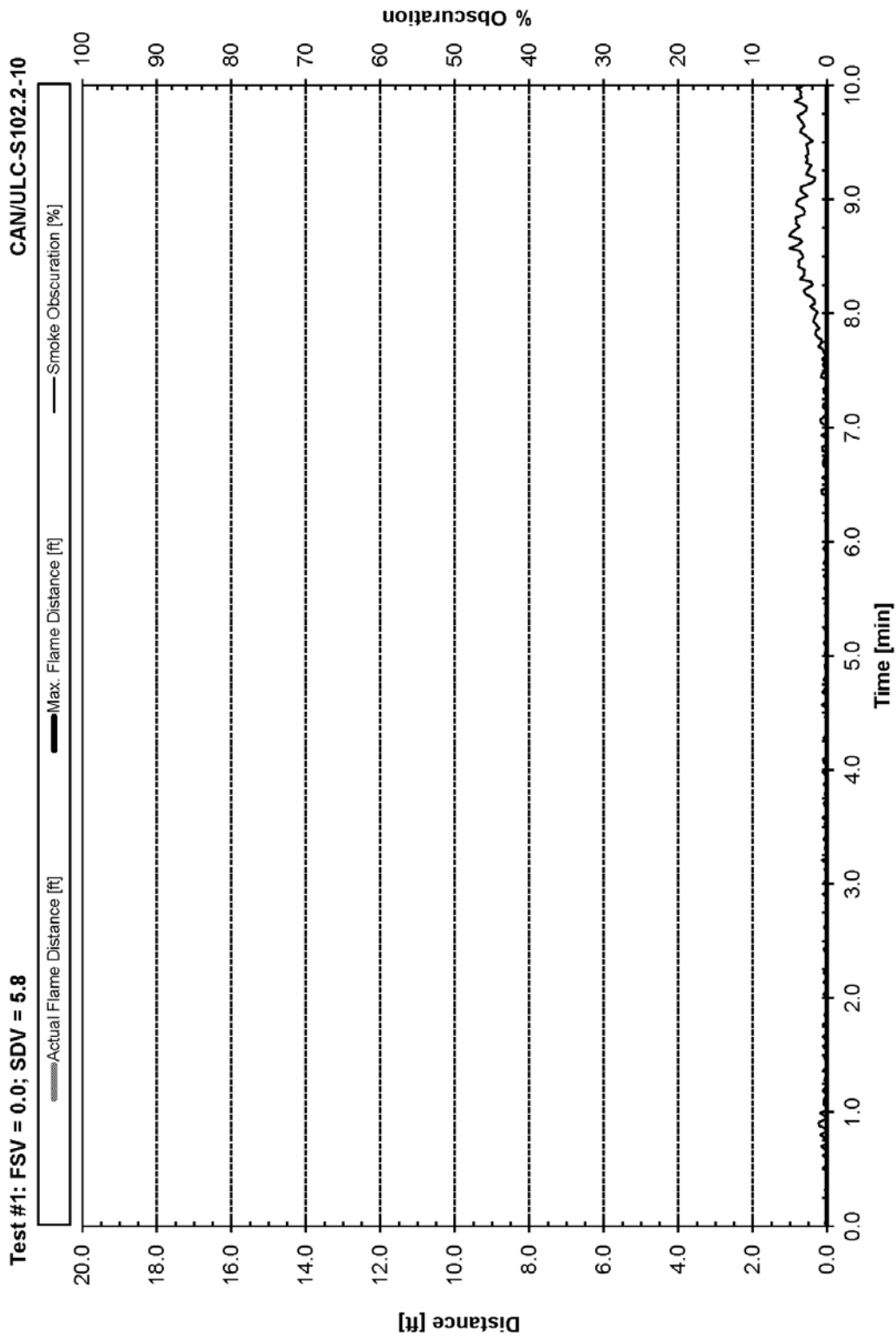
A summary of test results is tabulated below. Graphical plots of flame spread and light transmission data are attached. The test results relate only to the actual samples tested.

Test No.	Sample Description	Calculated Values	
		Flame Spread Value (FSV)	Smoke Developed Value (SDV)
1	Ebrilsplit ID 22.22 mm ID x 13 mm thick	0	5.9
2	Ebrilsplit ID 6.35 mm ID x 13 mm thick	0	4.85
3	Ebrilsplit ID 22.22 mm ID x 13 mm thick	0.39	15.7
4	Ebrilsplit ID 22.22 mm ID x 13 mm thick	1.11	21.44
5	Twinsplit ID 6.35 mm ID & 9.52 mm x 13 mm thick	0.77	17.82
6	Twinsplit ID 9.52 mm ID & 19.05 mm x 13 mm thick	1.3	11.66
7	Twinsplit ID 6.35 mm ID & 9.52 mm x 13 mm thick	0	14.41
8	Twinsplit ID 6.35 mm ID & 9.52 mm x 13 mm thick	0.97	9

The surface burning characteristics of the water meters described herein warrants the assignment of the following rating or classification in comparison to untreated red oak as 100 and inorganic reinforced cement board as 0.

Material Details	Rating or Classification	
	Flame Spread Rating (FSR)	Smoke Developed Classification (SDC)
Ebrilsplit	0	15
Twinsplit	0	15

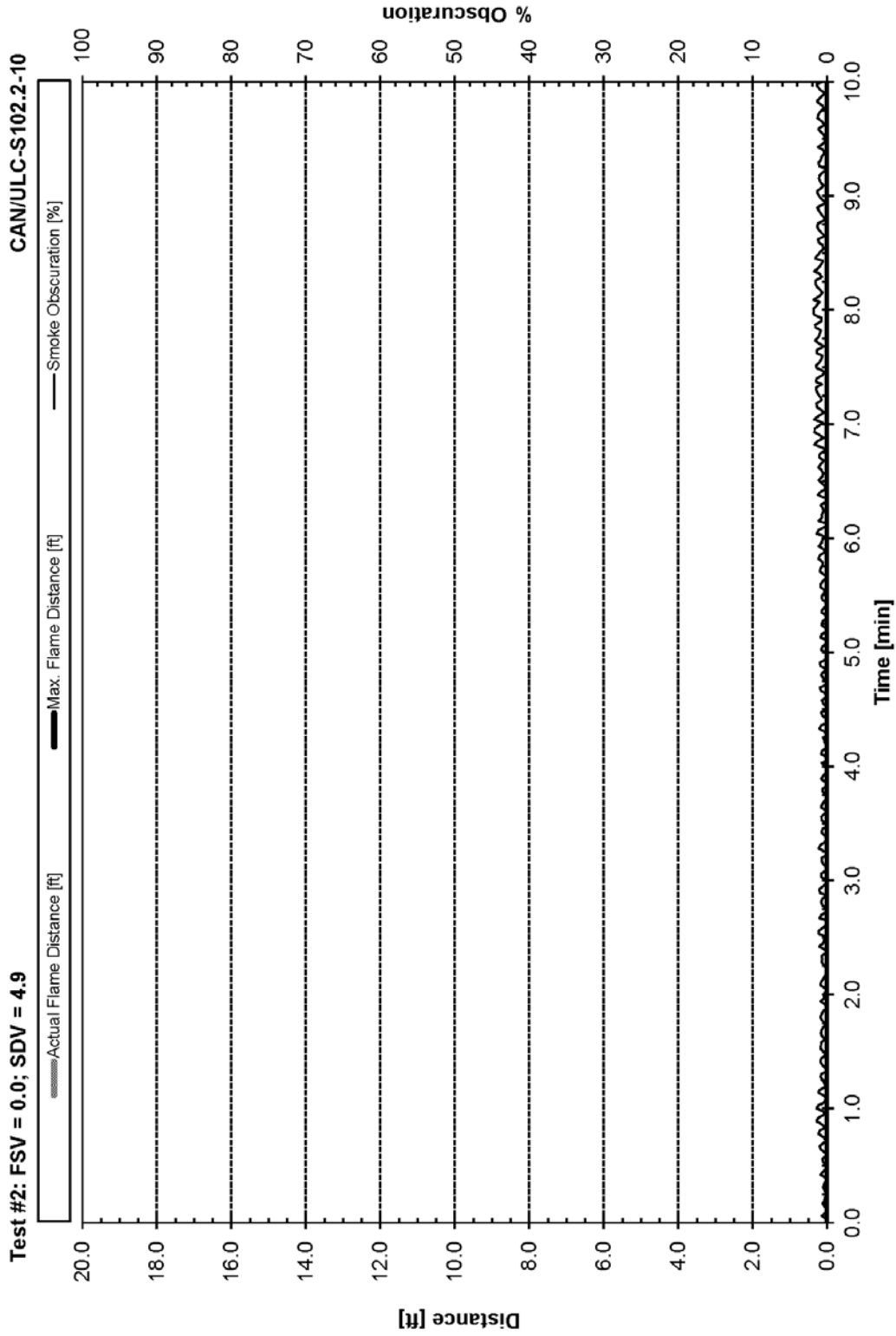
**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Ebrilsplit ID 6.35 mm x 13 mm thick**



Test Date: February 6, 2018 11:00:00 AM

File: SV29774 Project: 4788020292

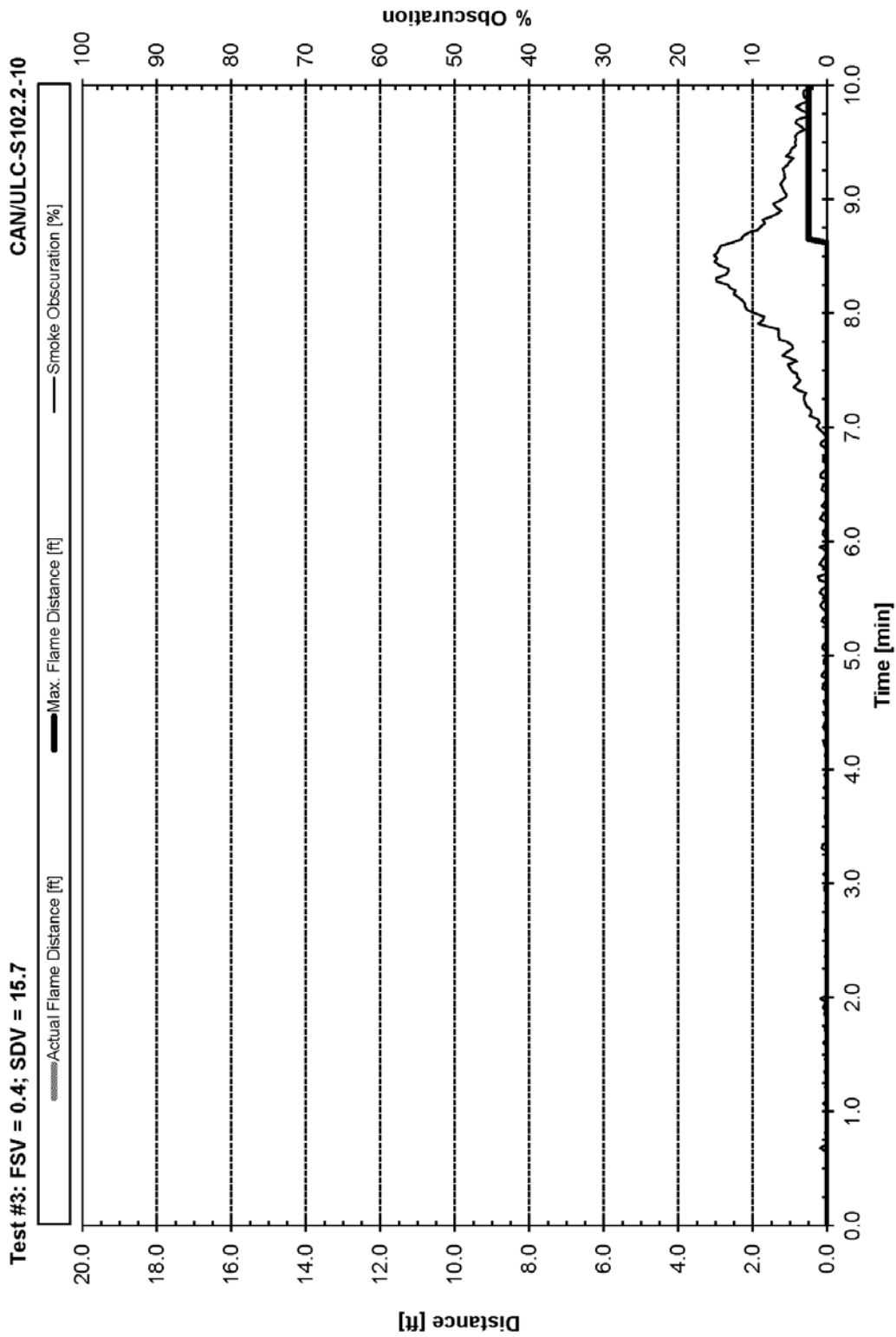
**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Ebrilsplit ID 6.35 mm x 13 mm thick**



Test Date: February 6, 2018 12:23:00 PM

File: SV29774 Project: 4788020292

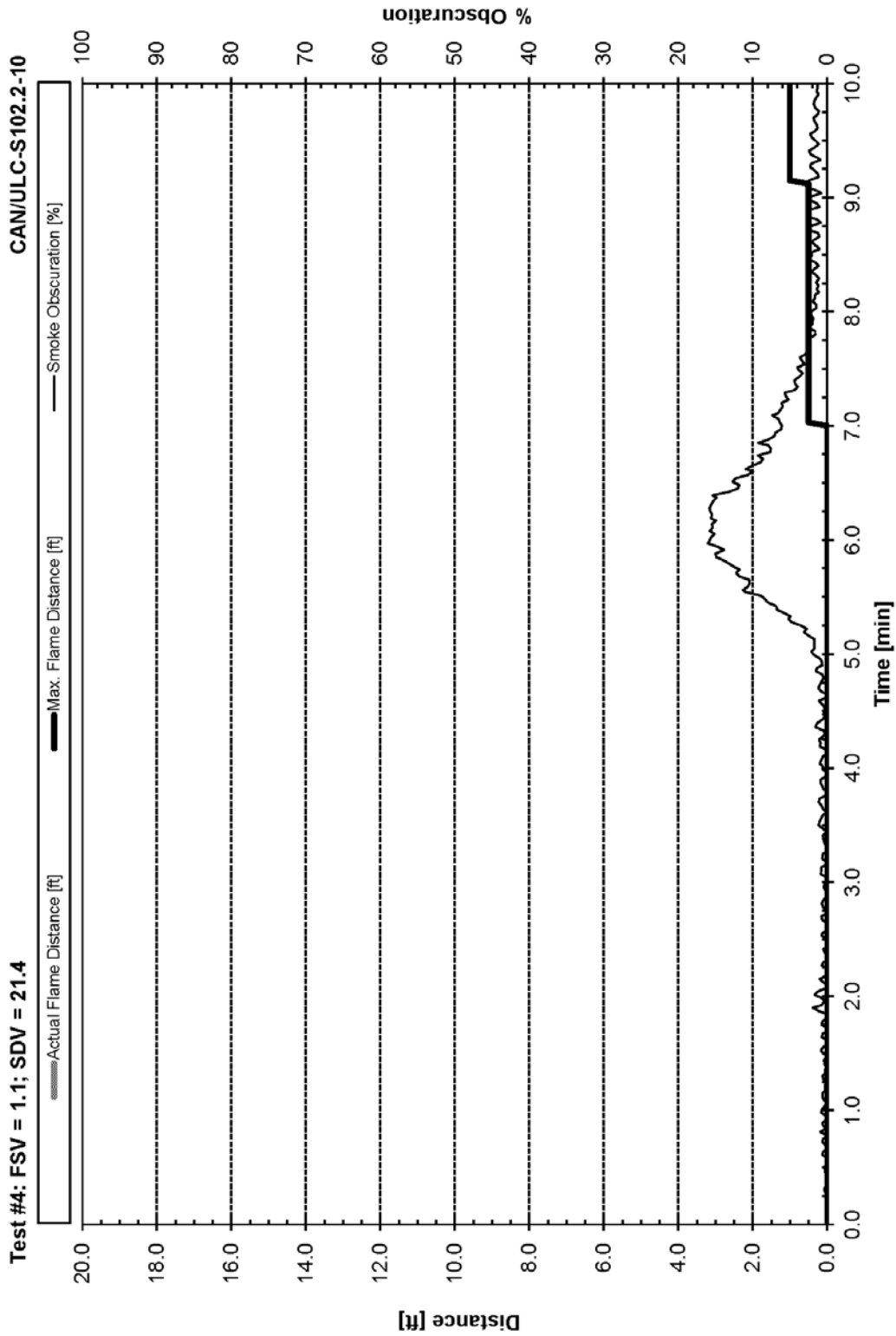
**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Ebrilsplit ID 22.22 mm x 13 mm thick**



Test Date: February 6, 2018 1:58:00 PM

File: SV29774 Project: 4788020292

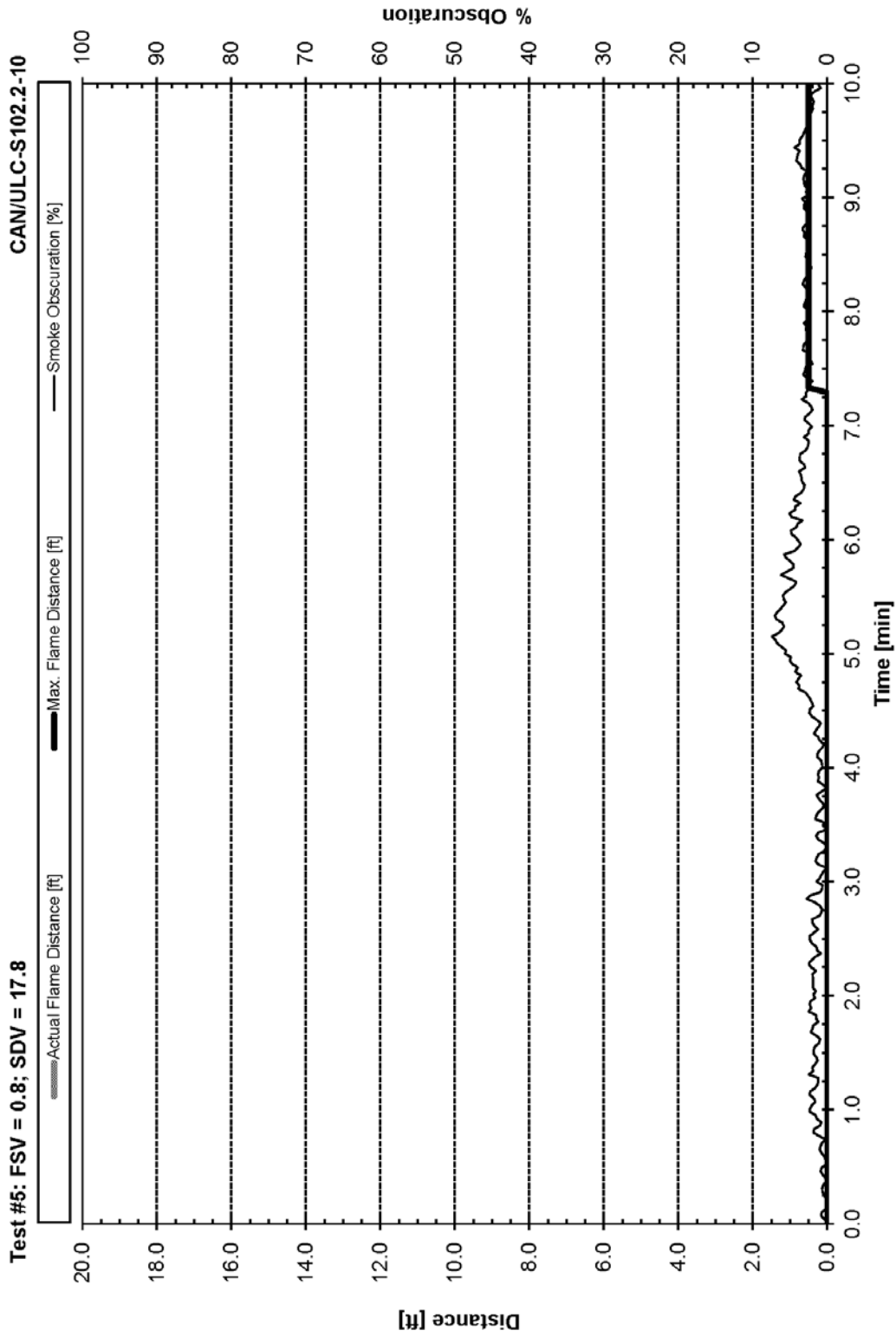
**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Ebrilsplit ID 22.22 mm x 13 mm thick**



Test Date: February 6, 2018 2:54:00 PM

File: SV29774 Project: 4788020292

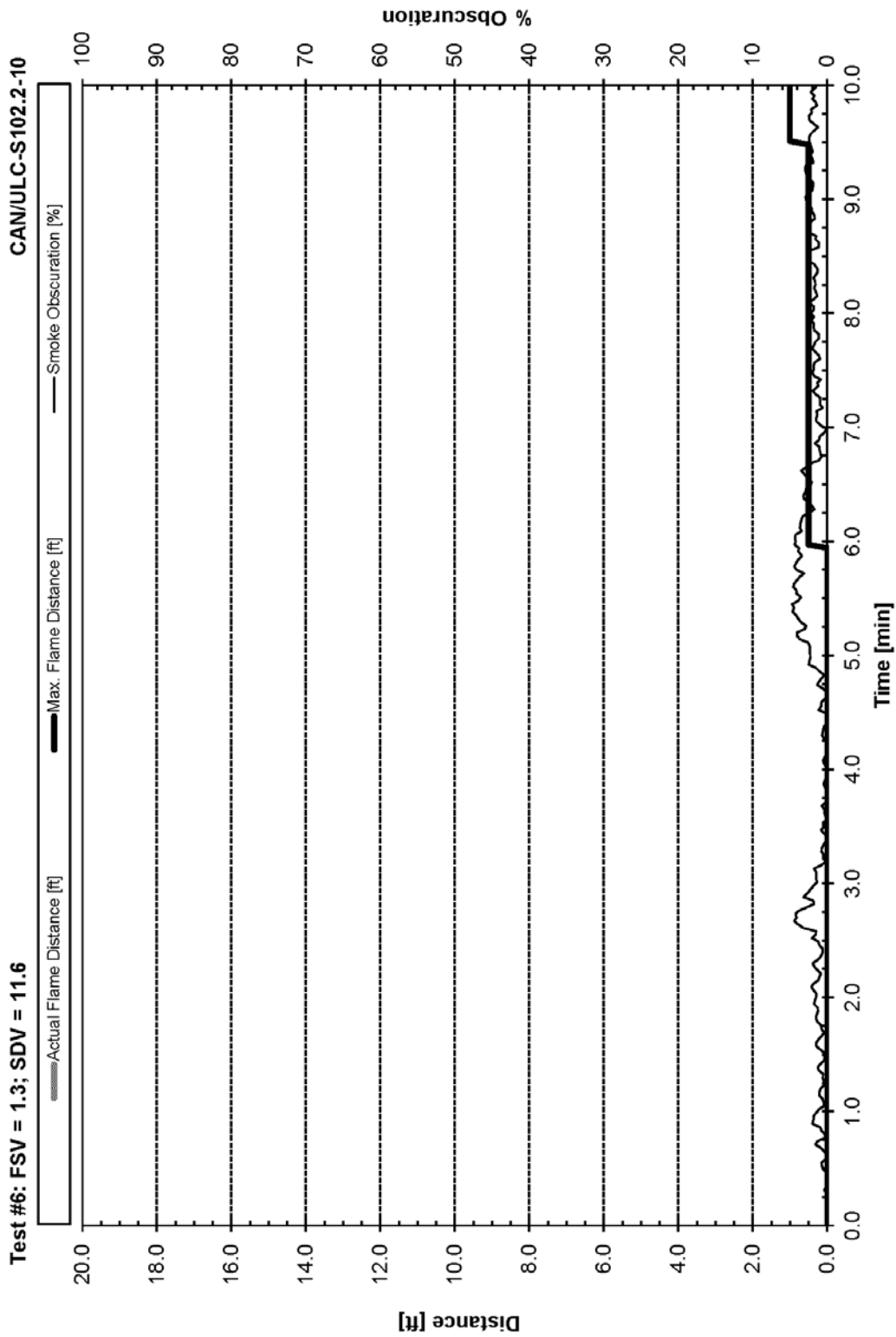
**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Twinsplit ID 6.35 mm 9.52 mm X 13 mm thick**



Test Date: February 7, 2018 9:56:00 AM

File: SV29774 Project: 4788020292

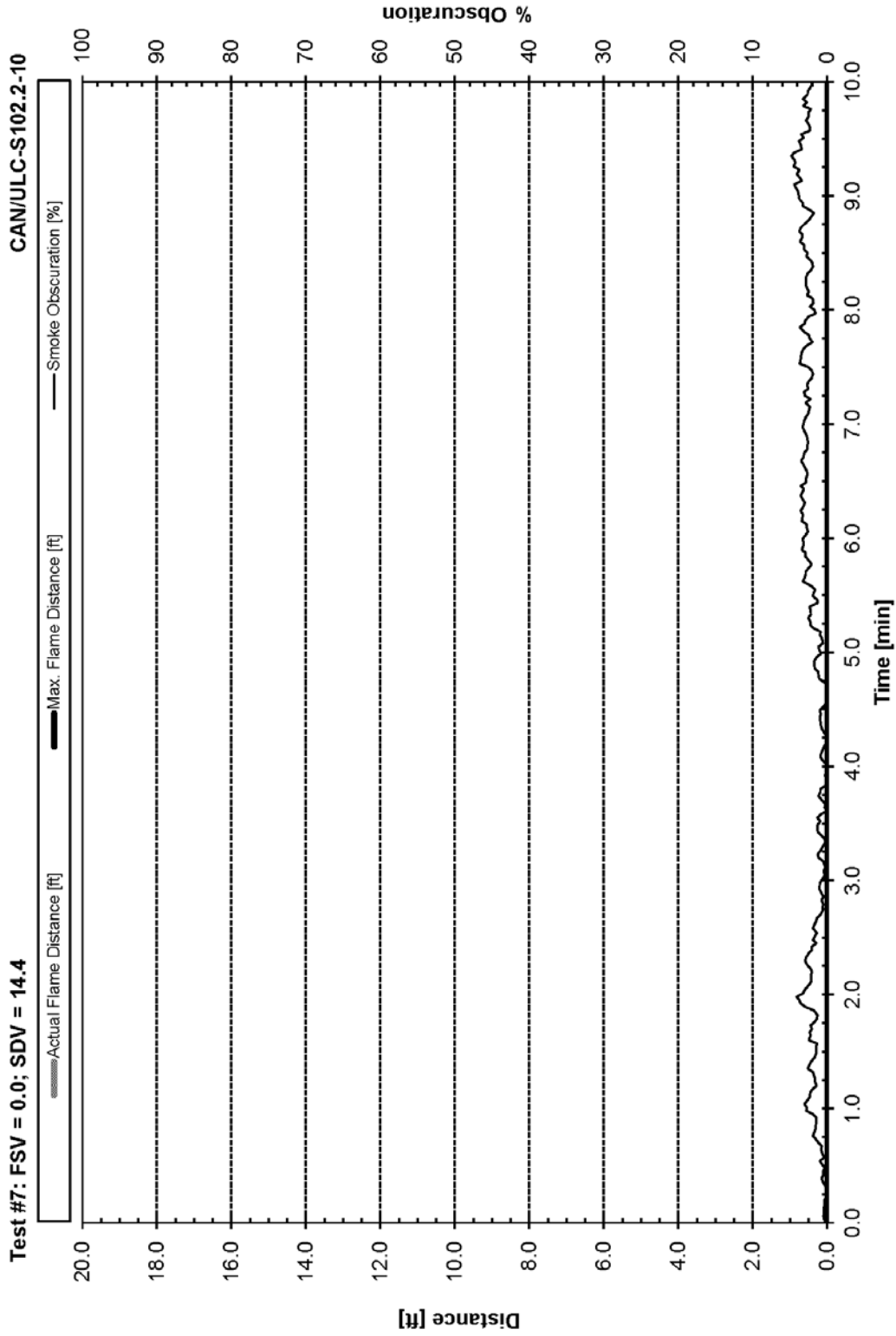
SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Twinsplit ID 9.52 mm 19.05 mm X 13 mm thick



Test Date: February 7, 2018 11:35:00 AM

File: SV29774 Project: 4788020292

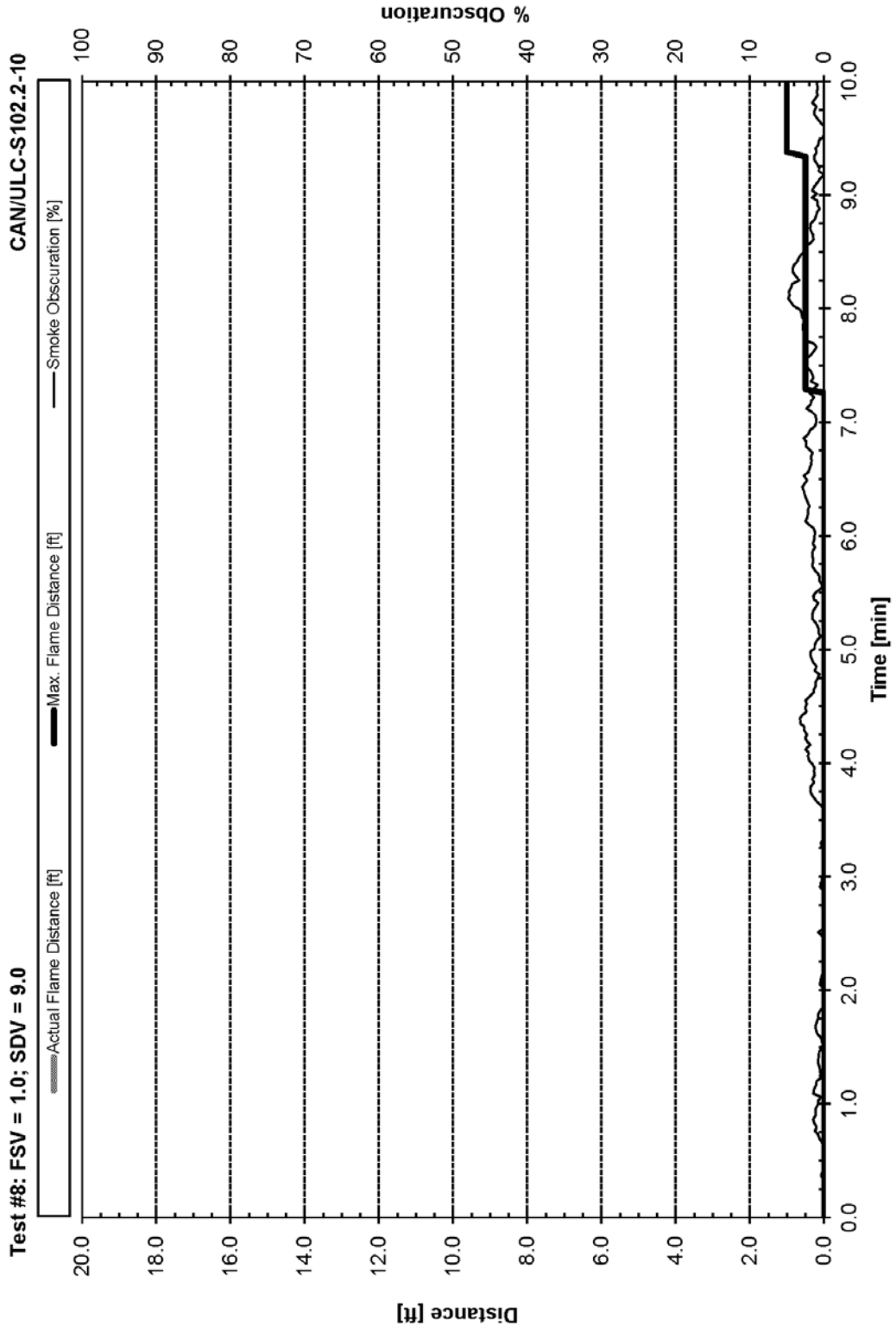
**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Twinsplit ID 6.35 mm 9.52 mm X 13 mm thick**



Test Date: February 7, 2018 1:22:00 PM

File: SV29774 Project: 4788020292

**SURFACE BURNING CHARACTERISTICS
EBRILLE SRL
Twinsplit ID 6.35 mm 9.52 mm X 13 mm thick**



Test Date: February 7, 2018 3:10:00 PM

File: SV29774 Project: 4788020292