



# MECHANICAL SOLUTIONS

## TECHNICAL BULLETIN

### Owens Corning® SSL II® with ASJ Max Fiberglas™ Pipe Insulation – Fully Compliant Listed and Labeled Plenum Insulation Rated Over Plastic Pipe Assemblies

Associated with this Bulletin is Underwriters Laboratories Test Report SR50521641, Revised Date: February 2, 2022; clarifying that Owens Corning® SSL II® with ASJ Max Fiberglas™ Pipe Insulation is Plenum Rated and fully compliant per the International Mechanical Code (IMC) as a Listed and Labeled Pipe Insulation by Underwriters Laboratories (UL) File R14111, Category: INSULATED PLASTIC PIPE ASSEMBLIES (BSMP) for installation over polymer pipes (i.e., PVC, polyethylene, and polypropylene).

UL Test Report SR5052164 addresses the reference of the 2012, 2015, 2018, and 2021 International Building Code:

- Section 7.20.7 Insulation and coverings on pipe and tubing.
  - Exception: Insulation and coverings on pipe and tubing installed in plenums shall comply with the International Mechanical Code.

Per 2012, 2015, 2018, and 2021 International Mechanical Code:

- Section 602.2.1 Materials within plenums. Materials within the plenums shall be non-combustible or shall be listed and labeled with flame spread index not more than 25 and smoke developed index not more than 50 when tested per ASTM E84 or UL 723.
  - Exception #5: Combustible materials fully enclosed within one of the following:
    - 5.3 Material listed and labeled for installation within a plenum.

Owens Corning® SSL II® with ASJ Max Fiberglas™ Pipe Insulation is in full compliance with the Fire Hazard Classification (FHC) Flame Spread Index 25/Smoke Developed Index 50 as tested over  $\frac{3}{4}$ -inch PVC and  $\frac{1}{4}$ -inch polypropylene, and is the only fully Listed and Labeled Fiberglass Pipe Insulation, carrying the following labeling on all pipe boxes:

INSULATED PLASTIC PIPE ASSEMBLY – PIPE COVERING CERTIFIED IN ACCORDANCE WITH IMC, SECTION 602.1, EXCEPTION 5.3 DURING INSTALLATION, A MINIMUM 1-INCH-THICK OWENS CORNING POLYPROPYLENE-KRAFT-SCRIM FOIL-FACED PIPE COVERING IS REQUIRED TO COVER PVC PIPES WITH A MAXIMUM  $\frac{3}{4}$ -INCH WALL THICKNESS AND POLYPROPYLENE PIPES WITH A MAXIMUM 1/4-INCH WALL THICKNESS.

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OR

INSULATED PLASTIC PIPE ASSEMBLY CERTIFIED IN ACCORDANCE WITH IMC, SECTION 602.1, EXCEPTION 5.3 PVC AND POLYPROPYLENE PIPE. DURING INSTALLATION, THE PIPE IS TO BE COVERED WITH MINIMUM 1 in. THICK OWENS CORNING POLYPROPYLENE-KRAFT-SCRIM-FOIL FACED PIPE COVERING DESIGNATED "FHC 25/50"

R14111

For additional information, contact Owens Corning at 1-800-GETPINK.

For Listing, go to UL Online Certifications Directory; File Number type: R14111

<sup>1</sup> Per attached UL test Report:  $\frac{3}{4}$ -inch PVC Test Data located on pages T2-1 to 4;  $\frac{1}{4}$ -inch Polypropylene Test Data located on pages T1-1 to 4.



File Number: R14111  
Project Number: SR5052164

Issued: August 10, 2018  
Revised: February 2, 2022

REPORT

on

**Owens Corning® Pipe Insulation with ASJ Max Jacket and SSL II®  
Closure Insulated Plastic Pipe Assemblies (BSMP)**

Under the

CLASSIFICATION PROGRAM

Owens Corning  
Toledo, OH

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## DESCRIPTION

## PRODUCT COVERED:

The Product covered by this Report is a hollow-cylindrical section of cured insulation with a **WMP-ASJ** (polypropylene-kraft-scrim-foil, **trade name ASJ Max**) facing, intended for use in Insulated Plastic Pipe Assemblies.

The product is Classified by UL LLC (UL) as to Surface Burning Characteristics only.

## USE

\* The product is permitted to be installed in ducts, plenums, and other spaces as permitted by authorities having jurisdiction. **The pipe assembly is intended to be used with PVC and Polypropylene pipes.**

TEST RECORD NO. 1

**PROJECT 4788415886**

GENERAL:

Test results relate only to the items tested.

EXAMINATION OF MATERIALS

The materials used in this investigation were produced under the observation of a representative of UL, in a ready-to-use form. The composition of the finished material is of proprietary nature. Data on the composition is on file at UL for use in the Follow-Up Service Program.

Various physical and chemical tests were conducted on the components and finished products. The results developed from these tests were employed in establishing specifications for use in the factory Follow-Up Service Program.

SURFACE BURNING CHARACTERISTICS:

SAMPLES

The test samples consisted of Owens Corning® ASJ Max jacket (WMP-ASJ polypropylene-kraft-scrim-foil-faced pipe coverings) with SSL II® Closure System and 1/4-inch PVC and polypropylene plastic sheets laid on top of the faced pipe assembly.

Each test consisted of UL Classified Faced Pipe and Equipment Covering, supplied by Owens Corning, with a Flame Spread Index of 25 or less and a Smoke Developed index of 50 or less (designated "FHC 25/50"). For testing purposes, the faced insulation was configured in flat board form. Flat sheets of 1/4-inch pvc and polypropylene plastic were laid atop the insulation, across the tunnel width, butted end-to-end, to form the required 24-foot-long sample.

Each test sample was supported with  $\frac{1}{4}$ -inch-diameter uncoated steel rods and placed at 2-foot intervals.

For each test, a piece of 1-foot-long-by-22-inch-wide-by-1/16-inch-thick uncoated steel plate was placed at the fire end of the tunnel furnace "upstream" from the gas burners to complete the 25-foot chamber length.

The test samples were allowed to condition at a temperature of  $73\pm4^{\circ}\text{F}$  and a relative humidity of  $50\pm5\%$  prior to testing.

METHOD

The tests were conducted in accordance with Standard ANSI/UL723, Eleventh Edition, dated April 19, 2018, "Test for Surface Burning Characteristics of Building Materials," (ASTM E84).

## RESULTS

Data on flame spread and smoke developed appears in the following tabulations. Graphs of flame spread versus time and smoke developed versus time are also provided as part of the Test Record.

## Flame Spread Index

The maximum distance the flame spreads along the length of the sample from the end of the igniting flame is determined by observation.

The Flame Spread Index (FSI) of the material is determined by rounding the Calculated Flame Spread (CFS) as described in UL 723. The CFS is derived by calculating the area under the flame spread distance (ft) versus time (min) curve, ignoring any flame front recession, and using one of the calculation methods as described below.

1. If the total area ( $A_T$ ) is less than or equal to 97.5 min-ft, the CFS shall be 0.515 times the total area ( $FSI=0.515 A_T$ ).
2. If the total area ( $A_T$ ) is greater than 97.5 min-ft, the CFS is to be 4900 divided by 195 minus the total area ( $FSI=4900/(195-A_T)$ ).

Table 1: Flame Spread Summary

Test No.	Sample Description	Maximum Flame Spread (ft)	Time of Maximum Flame Spread (min:s)	Calculated Flame Spread (CFS)
1	WMP-ASJ faced pipe board with 1/4-inch polypropylene sheet backing	4.0	0:13	20.33
2	WMP-ASJ faced pipe board with 1/4-inch pvc sheet backing	4.0	0:14	20.34
3	WMP-ASJ faced pipe board with 1/4-inch polypropylene sheet backing	4.0	0:13	20.33
4	WMP-ASJ faced pipe board with 1/4-inch polypropylene sheet backing	4.0	0:14	20.31

## Smoke Developed Index

The smoke Developed Index is determined by rounding the Calculated Smoke Developed (CSD) as described in UL 723. The CSD is determined by the output of a photoelectric circuit operating across the furnace flue pipe. A curve is developed by plotting values of light absorption (decrease in cell output) against time. The CSD is derived by expressing the net area under the curve for this material as a percentage of the net area under the curve for untreated red oak.

The CSD is expressed as:

$$CSD = (A_M/A_{ro}) \times 100$$

Where:

$A_M$  = Calculated Smoke Developed

$A_{ro}$  = The area under the curve for the test material

$A_{ro}$  = The area under the curve for untreated red oak

Table 2: Smoke Developed Summary

Test No.	Sample Description	CSD Calculated Smoke Developed
1	WMP-ASJ faced pipe board with 1/4-inch polypropylene sheet backing	25.8
2	WMP-ASJ faced pipe board with 1/4-inch pvc sheet backing	27.3
3	WMP-ASJ faced pipe board with 1/4-inch polypropylene sheet backing	27.8
4	WMP-ASJ faced pipe board with 1/4-inch polypropylene sheet backing	28.1

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Issued: 2018-08-10

Revised: 2022-02-02

\* Replaces Pages T1-4 to T1-7

## Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in the Standard for Surface Burning Characteristics for Building Materials, UL723, Eleventh Edition (dated April 19, 2018) and, therefore, such products are judged eligible to bear UL's Mark as described below and on the Conclusion Page of this Report.

Any information and documentation provided to you involving UL Mark services are provided on behalf of UL or any authorized licensee of UL.

## Classification Marking:

The Surface Burning Characteristics as shown below in the Classification Marking represent the judgment of UL based upon the results of the examination and tests presented in this Report.



Insulated Plastic Pipe Assemblies  
Control No. or File Number

**CERTIFIED IN ACCORDANCE WITH IMC, SECTION 602.1, EXCEPTION 5.3  
PVC AND POLYPROPYLENE PIPE. DURING INSTALLATION, THE PIPE IS TO BE COVERED  
WITH MINIMUM 1-INCH-THICK OWENS CORNING® POLYPROPYLENE-KRAFT-SCRIM-FOIL-FACED  
PIPE COVERING DESIGNATED "FHC 25/50."**

Test Record by:

A handwritten signature in black ink that reads "Robert S. Kiefer".

Robert S. Kiefer  
Senior Engineering Associate  
Fire Protection Division

Reviewed by:

A handwritten signature in black ink that reads "James F. Smith".

James F. Smith  
Staff Engineering Associate  
Fire Protection Division

TEST RECORD NO. 2  
PROJECT 4790143594

GENERAL:

The scope of this investigation was to Certify the Owens Corning® ASJ Max jacket (WMP-ASJ polypropylene-kraft-scrim-foil-faced pipe coverings) with SSL II® Closure System assembly for use with 3/4-inch PVC pipe.

Test results relate only to the items tested.

EXAMINATION OF MATERIALS

The materials used in this investigation were produced under the observation of a representative of UL, in a ready-to-use form. The composition of the finished material is of proprietary nature. Data on the composition is on file at UL for use in the Follow-Up Service Program.

Various physical and chemical tests were conducted on the components and finished products. The results developed from these tests were employed in establishing specifications for use in the factory Follow-Up Service Program.

SURFACE BURNING CHARACTERISTICS:

SAMPLES

The test samples consisted of Owens Corning® ASJ Max jacket (WMP-ASJ polypropylene-kraft-scrim-foil-faced pipe coverings) with SSL II® Closure System and 3/4-inch PVC plastic sheets laid on top of the faced pipe assembly.

Each test sample was supported with 1/4-inch-diameter uncoated steel rods and placed at 2-foot intervals.

For each test, a piece of 1-foot-long-by-22-inch-wide-by-1/16-inch-thick uncoated steel plate was placed at the fire end of the tunnel furnace "upstream" from the gas burners to complete the 25-foot chamber length.

The test samples were allowed to condition at a temperature of  $73\pm4^{\circ}\text{F}$  and a relative humidity of  $50\pm5\%$  prior to testing.

METHOD

The tests were conducted in accordance with Standard UL723, Eleventh Edition, dated April 19, 2018, "Test for Surface Burning Characteristics of Building Materials," (ASTM E84-21a).

## RESULTS

Data on flame spread and smoke developed appears in the following tabulations. Graphs of flame spread versus time and smoke developed versus time are also provided as part of the Test Record.

## Flame Spread Index

The maximum distance the flame spreads along the length of the sample from the end of the igniting flame is determined by observation.

The Flame Spread Index (FSI) of the material is determined by rounding the Calculated Flame Spread (CFS) as described in UL 723. The CFS is derived by calculating the area under the flame spread distance (ft) versus time (min) curve, ignoring any flame front recession, and using one of the calculation methods as described below.

1. If the total area ( $A_T$ ) is less than or equal to 97.5 min-ft, the CFS shall be 0.515 times the total area ( $FSI=0.515 A_T$ ).
2. If the total area ( $A_T$ ) is greater than 97.5 min-ft, the CFS is to be 4900 divided by 195 minus the total area ( $FSI=4900/(195-A_T)$ ).

Table 1: Flame Spread Summary

Test No.	Sample Description	Maximum Flame Spread (ft)	Time of Maximum Flame Spread (min:s)	Calculated Flame Spread (CFS)
1	WMP-ASJ faced pipe board with 3/4-inch PVC sheet backing	5.0	0:18	25.41
2	WMP-ASJ faced pipe board with 3/4-inch PVC sheet backing	5.0	0:19	25.36
3	WMP-ASJ faced pipe board with 3/4-inch PVC sheet backing	5.0	0:19	25.36

**Smoke Developed Index**

The smoke Developed Index is determined by rounding the Calculated Smoke Developed (CSD) as described in UL 723. The CSD is determined by the output of a photoelectric circuit operating across the furnace flue pipe. A curve is developed by plotting values of light absorption (decrease in cell output) against time. The CSD is derived by expressing the net area under the curve for this material as a percentage of the net area under the curve for heptane.

The CSD is expressed as:

$$CSD = (A_M / A_h) \times 100$$

Where:

CSD = Calculated Smoke Developed

$A_M$  = The area under the curve for the test material

$A_h$  = The area under the curve for heptane

Table 2: Smoke Developed Summary

Test No.	Sample Description	CSD Calculated Smoke Developed
1	WMP-ASJ faced pipe board with 3/4-inch PVC sheet backing	26.6
2	WMP-ASJ faced pipe board with 3/4-inch PVC sheet backing	27.3
3	WMP-ASJ faced pipe board with 3/4-inch PVC sheet backing	28.5

## Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in the Standard for Surface Burning Characteristics for Building Materials, UL723, Eleventh Edition (dated April 19, 2018) and, therefore, such products are judged eligible to bear UL's Mark as described below and on the Conclusion Page of this Report.

Any information and documentation provided to you involving UL Mark services are provided on behalf of UL or any authorized licensee of UL.

## Classification Marking:

The Surface Burning Characteristics as shown below in the Classification Marking represent the judgment of UL based upon the results of the examination and tests presented in this Report.



Insulated Plastic Pipe Assemblies  
Control No. or File Number

CERTIFIED IN ACCORDANCE WITH IMC, SECTION 602.1, EXCEPTION 5.3. DURING  
INSTALLATION, THE PIPE IS TO BE COVERED WITH MINIMUM 1-INCH-THICK  
POLYPROPYLENE-KRAFT-SCRIM-FOIL-FACED PIPE COVERING  
DESIGNATED "FHC 25/50"

Test Record by:

A handwritten signature in black ink that reads "Courtney Hudson".

Courtney Hudson  
Engineer Project Associate  
Built Environment

Reviewed by:

A handwritten signature in black ink that reads "Jamila Shawon".

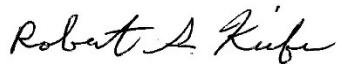
Jamila Shawon  
Staff Engineer  
Built Environment

## Conclusion

Samples of the product covered by this Report have been found to comply with the requirements covering the category, and the products are found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the samples investigated by UL and do not signify UL certification or that the product described is covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the UL Classification Mark on such products which comply with UL's Follow-Up Service Procedure and any other application requirements of UL. The Classification Mark of UL on the product, or the UL symbol on the product and the Classification Mark on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Classification and Follow-Up Service.

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Report by:



Robert S. Kiefer  
Senior Engineering Associate  
Fire Protection Division

Reviewed by:



James F. Smith  
Staff Engineering Associate  
Fire Protection Division





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