



INDOOR AIR QUALITY EVALUATION FOLLOWING THE REQUIREMENTS OF CDPH/EHLB/STANDARD METHOD	
<b>Product Description</b>	3M® Fire Barrier Moldable Putty Pads MPP+
<b>Customer Information</b>	PAUL FANNIN 3M COMPANY 3M CENTER ST. PAUL, MN 55144
<b>Testing Laboratory</b>	UL Environment • 2211 Newmarket Parkway • Marietta GA 30067-9399 USA
<b>Product Category</b>	Adhesives/Sealants
<b>Product Sub-Category</b>	General Construction Adhesives
<b>Date Received</b>	July 18, 2018
<b>Test Description</b>	The product was received by UL Environment as packaged and shipped by the customer. The package was visually inspected and stored in a controlled environment immediately following sample check-in. Just prior to loading, a 3/8" wide bead 11.5" long was applied to a foil-wrapped plate. The sample was immediately placed inside the environmental chamber, and tested according to the specified protocol.
<b>Test Date</b>	September 17, 2018 - October 1, 2018
<b>Product Area Exposed</b>	length = 0.2920 m
<b>Chamber Volume</b>	0.0882 m <sup>3</sup>
<b>Product Loading Ratio</b>	3.31 m/m <sup>3</sup>
<b>Test Chamber Conditions</b>	Air change rate: 1.00 ± 0.05 1/h Inlet air flow rate: 0.0882 ± 0.004 m <sup>3</sup> /h Temperature: 22.2°C - 23.0°C Relative Humidity: 50% RH ± 5%
<b>Test Method</b>	CDPH - CA Section 01350 <i>Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers</i> Version 1.2.
<b>Released by</b>	<i>Allyson McFry</i> Allyson M. McFry Chemistry Laboratory Director
The temperature range specification is 23°C ± 1°. The actual temperature range listed above may vary slightly. If the range is outside this specification, data was reviewed to ensure a negative impact did not occur.	
This test is accredited under the laboratory's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1297.	

**PHOTOGRAPH OF SAMPLE**



## RESULTS SUMMARY

Product Description		3M® Fire Barrier Moldable Putty Pads MPP+			
Environment	Product Usage	Product Surface Area	Room Volume	Ventilation Rate (ACH)	Product Compliance?
Classroom	Spot Beam Adhesive	10.8 m	231 m <sup>3</sup>	0.82	Yes
Office	Spot Beam Adhesive	1.5 m	30.6 m <sup>3</sup>	0.68	Yes

## PROJECT DESCRIPTION

The product was monitored for emissions of TVOC, individual VOCs, formaldehyde and other aldehydes over the 96-hour test period. Measurements were made and predicted exposures were calculated according to the CA Section 01350 protocol. As specified in this protocol, the results at 96 hours, after 10 days of conditioning, were compared to ½ (one-half) the current Chronic Reference Exposure Levels (CRELs), as adopted from the California OEHHA list. All identified VOCs were also compared to the California-EPA OEHHA Proposition 65 list and the California-EPA Air Resource Board list of Toxic Air Contaminants (TACs).

### Report Outline:

Table 1	<a href="#">Comparison of Data To Method Requirements</a>
Table 2	<a href="#">Chamber Concentrations and Emission Factors</a>
Table 3	<a href="#">Most Abundant Compounds</a>
Table 4	<a href="#">VOC Predicted Air Concentrations And Regulatory Information</a>
Chain of Custody	<a href="#">Chain of Custody</a>

For UL Environment's technical references and resources [click here](#) or <https://industries.ul.com/wp-content/uploads/sites/2/2018/02/Technical-references-and-resources.pdf>

For Product Evaluation Methodologies information [click here](#) or <https://industries.ul.com/wp-content/uploads/sites/2/2018/03/ProductEvaluationMethodologies-PE.pdf>

For Quality Control Program or Environmental Chamber Evaluations information [click here](#) or <https://industries.ul.com/wp-content/uploads/sites/2/2018/02/Quality-Control-Procedures.pdf>

For RSD, Quality Assurance Report or other quality documents, [Request](#) here or contact ULE.

**TABLE 1**

Product Description		3M® Fire Barrier Moldable Putty Pads MPP+					
COMPARISON OF DATA TO METHOD REQUIREMENTS AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING							
Compound	CAS Number	½ CREL (µg/m³)	Chamber Concentration (µg/m³)	Emission Factor†† (µg/m•hr)	Classroom Predicted Concentration (µg/m³)**	Office Predicted Concentration (µg/m³)**	Meets ½ CREL? (Classroom/Office)
Acetaldehyde	75-07-0	70	BQL	BQL			Yes
Benzene	71-43-2	1.5	BQL	BQL			Yes
Carbon disulfide	75-15-0	400	BQL	BQL			Yes
Carbon tetrachloride	56-23-5	20	BQL	BQL			Yes
Chlorobenzene	108-90-7	500	BQL	BQL			Yes
Chloroform	67-66-3	150	BQL	BQL			Yes
Dichlorobenzene (1,4-)	106-46-7	400	BQL	BQL			Yes
Dichloroethylene (1,1)	75-35-4	35	BQL	BQL			Yes
Dimethylformamide (N,N-)	68-12-2	40	BQL	BQL			Yes
Dioxane (1,4-)	123-91-1	1,500	BQL	BQL			Yes
Epichlorohydrin*	106-89-8	1.5	BQL	BQL			Yes
Ethylbenzene	100-41-4	1,000	BQL	BQL			Yes
Ethylene glycol	107-21-1	200	BQL	BQL			Yes
Ethylene glycol monoethyl ether acetate	111-15-9	150	BQL	BQL			Yes
Ethylene glycol monoethyl ether	110-80-5	35	BQL	BQL			Yes
Ethylene glycol monomethyl ether acetate	110-49-6	45	BQL	BQL			Yes
Ethylene glycol monomethyl ether	109-86-4	30	BQL	BQL			Yes
Formaldehyde	50-00-0	9***	BQL	BQL			Yes

Product Description		3M® Fire Barrier Moldable Putty Pads MPP+					
COMPARISON OF DATA TO METHOD REQUIREMENTS AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING							
Compound	CAS Number	½ CREL (µg/m³)	Chamber Concentration (µg/m³)	Emission Factor <sup>††</sup> (µg/m³·hr)	Classroom Predicted Concentration (µg/m³) <sup>**</sup>	Office Predicted Concentration (µg/m³) <sup>**</sup>	Meets ½ CREL? (Classroom/Office)
Hexane (n-)	110-54-3	3,500	BQL	BQL			Yes
Isophorone	78-59-1	1,000	BQL	BQL			Yes
Isopropanol	67-63-0	3,500	BQL	BQL			Yes
Methyl chloroform	71-55-6	500	BQL	BQL			Yes
Methyl t-butyl ether	1634-04-4	4,000	BQL	BQL			Yes
Methylene chloride	75-09-2	200	BQL	BQL			Yes
Naphthalene	91-20-3	4.5	BQL	BQL			Yes
Phenol	108-95-2	100	BQL	BQL			Yes
Propylene glycol monomethyl ether	107-98-2	3,500	BQL	BQL			Yes
Styrene	100-42-5	450	BQL	BQL			Yes
Tetrachloroethylene (perchloroethylene)	127-18-4	17.5	BQL	BQL			Yes
Toluene	108-88-3	150	BQL	BQL			Yes
Trichloroethylene	79-01-6	300	BQL	BQL			Yes
Vinyl acetate	108-05-4	100	BQL	BQL			Yes
Xylenes (m-, o-, p-)	1330-20-7	350	BQL	BQL			Yes

BQL denotes below quantifiable level of 0.04 µg for individual VOCs, with the exceptions benzene and epichlorohydrin which have a QL of 0.02 µg, based on a standard 18 L air collection volume.

<sup>††</sup>The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N<sub>C</sub>), the chamber volume (V<sub>C</sub>), and the product area exposed in the chamber (A<sub>C</sub>) as:  $EF = (CC \cdot V_C \cdot N_C) / A_C$ .

\*Denotes compound is within volatility range of method but no calibration standard was available.

<sup>\*\*</sup>The predicted building exposure concentration (BC) is calculated from the emission factor (EF), the building air change rate (N<sub>B</sub>), the building room volume (V<sub>B</sub>), and the product area exposed in the building room (A<sub>B</sub>) as:  $BC = (EF \cdot A_B) / (V_B \cdot N_B)$ . For more information on Predicted Concentration modeling parameters, [click here](#).

<sup>\*\*\*</sup>Guidance value per CA Standard Method

**TABLE 2**

<b>Product Description</b>		3M® Fire Barrier Moldable Putty Pads MPP+	
<b>CHAMBER CONCENTRATIONS AND EMISSION FACTORS FOR TVOC AND FORMALDEHYDE AT 24, 48, AND 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING</b>			
<b>Elapsed Exposure Hour After 10 Days Conditioning</b>	<b>Chamber Concentration (µg/m³)</b>	<b>Emission Factor<sup>††</sup> (µg/m•hr)</b>	
<b>TVOC<sup>†</sup></b>			
<b>24</b>	150	44	
<b>48</b>	170	51	
<b>96</b>	160	48	
<b>Formaldehyde<sup>‡</sup></b>			
<b>24</b>	BQL	BQL	
<b>48</b>	BQL	BQL	
<b>96</b>	BQL	BQL	

BQL denotes below quantifiable level of 2 µg/m³.

Exposure hours are nominal (± 1 hour).

<sup>†</sup>Defined as the sum of those VOCs that elute between the retention times of n-hexane (C<sub>6</sub>) and n-hexadecane (C<sub>16</sub>) on a non-polar capillary GC column quantified based on a toluene response factor.

<sup>‡</sup>Compound identified and quantified by DNPH derivitization and HPLC/UV analysis.

<sup>††</sup>The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N<sub>c</sub>), the chamber volume (V<sub>c</sub>), and the product area exposed in the chamber (A<sub>c</sub>) as:  $EF = (CC \cdot V_c \cdot N_c) / A_c$ .

**TABLE 3**

Product Description		3M® Fire Barrier Moldable Putty Pads MPP+			
TEN MOST ABUNDANT IDENTIFIED INDIVIDUAL VOLATILE ORGANIC COMPOUNDS (VOCs) AND/OR ALDEHYDES AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING					
CAS Number	Compound	Chamber Concentration (µg/m <sup>3</sup> )	Emission Factor <sup>††</sup> (µg/m <sup>3</sup> ·hr)	Calculated Predicted Exposure Concentration <sup>**</sup> (µg/m <sup>3</sup> )	
				Classroom	Office
---	TVOC <sup>‡‡</sup>	160	48	2.8	13
2404-35-5	Cycloheptane, bromo-*	29	8.8	0.5	2.3
475-20-7	Longifolene	20	6.1	0.3	1.6
107-40-4	2-Pentene, 2,4,4-trimethyl*	12	3.7	0.2	1.0
1137-12-8	1,2,4-Methenoazulene, decahydro-1,5,5,8a-tetramethyl-, [1S-(1α,2α,3aβ,4α,8aβ,9R*)]-*	7.5	2.3	0.1	0.6
541-05-9	Cyclotrisiloxane, hexamethyl	4.3	1.3	0.1	0.3
80-46-6	Phenol, 4-(1,1-dimethylpropyl)*	3.9	1.2	0.1	0.3
1135-66-6	2H-2,4a-Methanonaphthalene, 1,3,4,5,6,7-hexahydro-1,1,5,5-tetramethyl, (2S)*	2.9	0.9	0.1	0.2
39178-69-3	Cyclohexanone, 3-butyl-*	2.1	0.6	<0.1	0.2

Exposure hours are nominal (± 1 hour).

VOC data obtained by scanning GC/MS; identification of compound made by retention time and mass spectral characteristics.

<sup>†</sup>Quantified using multipoint authentic standard curve. Other VOCs quantified relative to toluene.

\*Identification based on NIST mass spectral database only.

<sup>‡</sup>Compound identified and quantified by DNPH derivitization and HPLC/UV analysis.

<sup>††</sup>The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N<sub>c</sub>), the chamber volume (V<sub>c</sub>), and the product area exposed in the chamber (A<sub>c</sub>) as:  $EF = (CC \cdot V_c \cdot N_c) / A_c$ .

<sup>‡‡</sup>Defined as the sum of those VOCs that elute between the retention times of n-hexane (C<sub>6</sub>) and n-hexadecane (C<sub>16</sub>) on a non-polar capillary GC column quantified based on a toluene response factor.

<sup>\*\*</sup>The predicted building exposure concentration (BC) is calculated from the emission factor (EF), the building air change rate (N<sub>B</sub>), the building room volume (V<sub>B</sub>), and the product area exposed in the building room (A<sub>B</sub>) as:  $BC = (EF \cdot A_B) / (V_B \cdot N_B)$ . For more information on Predicted Concentration modeling parameters, [click here](#).

**TABLE 4**

Product Description		3M® Fire Barrier Moldable Putty Pads MPP+						
VOC PREDICTED AIR CONCENTRATIONS AND REGULATORY INFORMATION AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING								
CAS Number	Compound	Chamber Concentration (µg/m³)	Emission Factor <sup>††</sup> (µg/m·hr)	Predicted Exposure Concentration <sup>**</sup> (µg/m³)		✓ Indicates Presence On List		
				Classroom	Office	CA PROP 65	CA AIR TOXIC	CREL
---	none	---	---	---	---	---	---	---

<sup>†</sup>Quantified using multipoint authentic standard curve. Other VOCs quantified relative to toluene.

<sup>‡</sup>Compound identified and quantified by DNPH derivitization and HPLC/UV analysis.

<sup>††</sup>The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N<sub>c</sub>), the chamber volume (V<sub>c</sub>), and the product area exposed in the chamber (A<sub>c</sub>) as:  $EF = (CC \cdot V_c \cdot N_c) / A_c$ .

<sup>\*\*</sup>The predicted building exposure concentration (BC) is calculated from the emission factor (EF), the building air change rate (N<sub>B</sub>), the building room volume (V<sub>B</sub>), and the product area exposed in the building room (A<sub>B</sub>) as:  $BC = (EF \cdot A_B) / (V_B \cdot N_B)$ . For more information on Predicted Concentration modeling parameters, [click here](#).

CAL Prop. 65: California Health and Welfare Agency, Proposition 65 Chemicals

1 = known to cause cancer

2 = known to cause reproductive toxicity

CAL Toxic Air Contaminant:

I) Substances identified as Toxic Air Contaminants, known to be emitted in California, with a full set of health values reviewed by the Scientific Review Panel.

IIA) Substances identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

IIB) Substances NOT identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

III) Substances known to be emitted in California, and are NOMINATED for development of health values or additional health values.

IVA) Substance identified as Toxic Air Contaminants, known to be emitted in California, and are TO BE EVALUATED for entry into Category III.

IVB) Substance NOT identified as Toxic Air Contaminants, known to be emitted in California, and are TO BE EVALUATED for entry into Category III.

V) Substance identified as Toxic Air Contaminants, and NOT KNOWN TO BE EMITTED from stationary source facilities in California based on information from the AB 2588 Air Toxic "Hot Spots" Program and the California Toxic Release Inventory.


VI) Substances identified as Toxic Air Contaminants, NOT KNOWN TO BE EMITTED from stationary source facilities in California, and are active ingredients in pesticides in California.

Chronic REL: California Office of Environmental Health Hazard Assessment (OEHHA), Chronic Reference Exposure Levels

✓ = Found in Listing




<b>Product Description</b> 3M® Fire Barrier Moldable Putty Pads MPP+
<b>CHAIN OF CUSTODY</b>



**UL Environment Chain of Custody**

1080 26489

FOR INTERNAL USE ONLY	Test Information		
 CUSHAC096	Proposal # 12241354	<input type="checkbox"/> Specialized Test for Odors	<input type="checkbox"/> Formaldehyde Only <input type="checkbox"/> 4 Hr <input type="checkbox"/> 24 Hr
	<input type="checkbox"/> RUSH (Confirm with Account Manager prior to submitting product)	<input checked="" type="checkbox"/> CA 01350 CDPH/EHLB/Standard Method V1.2	<input type="checkbox"/> Office <input type="checkbox"/> Classroom <input type="checkbox"/> Residential
Project - Product # <b>18916-040AA</b>	<input type="checkbox"/> 24 Hr TVOC <input type="checkbox"/> with Formaldehyde	<input type="checkbox"/> ANSI/BIFMA M7.1 / X7.1 <input type="checkbox"/> Small Chamber <input type="checkbox"/> Intermediate Chamber <input type="checkbox"/> Large Chamber	
Category <b>Insulation</b>	<input type="checkbox"/> 24 Hr TVOC & IVOCs <input type="checkbox"/> with Formaldehyde	<input type="checkbox"/> Other (Specify test method, non-standard sample preparation, modeling parameters, application rate for wet products, etc.):	
Subcategory <b>Basic Mechanical</b>	<input type="checkbox"/> GREENGUARD Screening Test (24 Hr TVOC, IVOCs, and Aldehydes w/modeling)		
Manufacturer and Contact Details			
Company Name	3M Company	Contact Name	Mitchell Dehler
Street Address	1700 N Minnesota St.	Title	Process Engineer
City, State/Province, Zip/Postal Code	New Ulm, MN 56073	Phone Number	507-359-0326
Country	USA	E-Mail Address	mdehler@mmm.com
Product Details			
Sample ID (Used in Report)	3M™ Fire Barrier Moldable Putty Pads MPP+	Product Collection Location	Vinyl Mastic Line, 3M New Ulm
Product Commercial Name	3M™ Fire Barrier Moldable Putty Pads MPP+	Product Collection Date/Time (mm/dd/yyyy/hh:mm)	07/16/2018/17:10
Manufacturer's Identification Number	88-0400-5526-5	Product Collected By	Mitchell Dehler
Manufactured Date (mm/dd/yyyy)	7/16/2018	Number of Product Pieces	4
Post-Testing Instructions			
<input type="checkbox"/> Return Product (Return Shipper and Manufacturer's Shipping Account # must be provided for product return)		<input checked="" type="checkbox"/> Discard product after testing	
Return Shipper		Manufacturer's Shipping Acct #	
Packed By		Carrier	ups
Ship Date (mm/dd/yyyy)	7/17/18	Air Bill #	1Z5608600142016496
Signature Tracking Details			
Relinquished By (Manufacturer)		Date & Time (mm/dd/yyyy/hh:mm)	
Signature			
Laboratory Receiving Details - FOR INTERNAL USE ONLY			
Received by (Laboratory)	<i>[Signature]</i>	Date & Time (mm/dd/yyyy/hh:mm)	7/18/18 10:30 AM
Signature	<i>[Signature]</i>		
Types of Containers		Shipping Package Notes	
Condition of Shipping Package	<input checked="" type="checkbox"/> Undamaged <input type="checkbox"/> Damaged	Product Condition Notes	
Condition of Product	<input checked="" type="checkbox"/> Acceptable <input type="checkbox"/> Unacceptable		

While - Project File  
 Canary - Sample  
 Pink - Customer Retain

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