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DOW SILICONES
TEST REPORT

SCOPE OF WORK
CDPH 01350 Standard Method Version 1.2 on DOWSIL™ 756 SM Building Sealant

REPORT NUMBER
105806919GRR-001a

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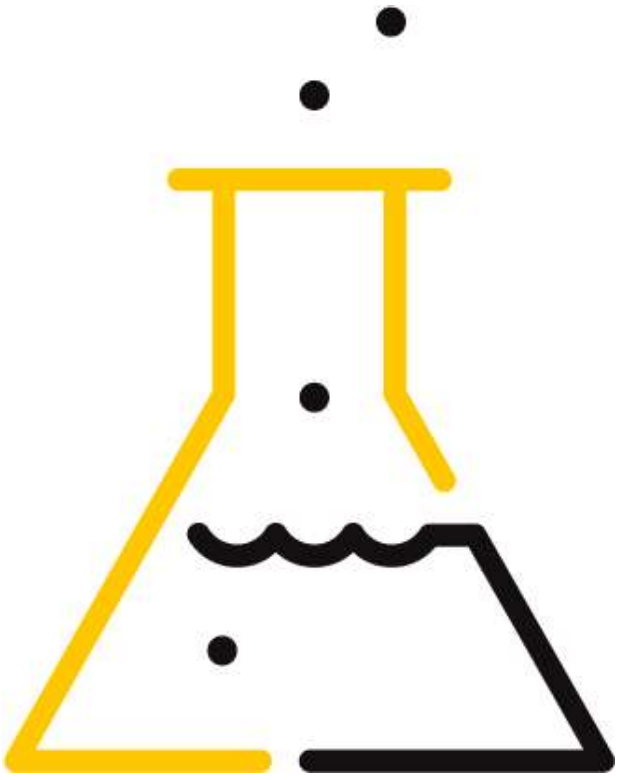

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TEST REPORT FOR DOW SILICONES CORPORATION

Report No.: 105806919GRR-001a
Date: 30-May-2024
P.O.: 4516032615
Revision Date: 31-May-2024

SECTION 1

CLIENT INFORMATION

Attention: Kelly Allore
Dow Silicones Corporation
2200 W Salzburg Road
Auburn, MI 48686
Phone: +1 (989) 496-7088
Email: k.allore@dow.com

Logan Albertson
Project Engineer

Lindsay Delamarter
Project Reviewer

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SECTION 2
SUMMARY AND CONCLUSION

Test Method:	Standard Method Version 1.2 for CDPH 01350
Modeling Scenario:	Private office (PO), school classroom (SC) and single family residence (R)

CLIENT PROVIDED SAMPLE INFORMATION

Manufacturer / Location	Dow Silicones Corporation / Elizabethtown, KY
Product Name	DOWSIL™ 756 SM Building Sealant
Product Number	Not Specified
Product Description	Silicone sealant
Date of Manufacture	01-March-2024
Date of Collection	01-March-2024
Date of Shipment	08-March-2024

DESCRIPTION OF SAMPLES

Date Received by Lab	12-March-2024
As Received Sample Condition	Good Condition
Lab Sample ID	GRR2403120005-1
Material Submitted	Eleven (11) tubes of sealant

WORK REQUESTED/APPLICABLE DOCUMENTS

VOC Emissions Analysis:	CDPH Standard Method v1.2
Intertek Quote:	Qu-01430473

TEST RESULTS

CDPH Standard Method v1.2, Table 4.1

MODELING SCENARIO	RESULT (PASS/FAIL)
Private Office (PO)	**PASS**
School Classroom (SC)	**PASS**
Single Family Residence (R)*	**PASS**

*Note: The single family residence scenario is not yet a CDPH requirement. It is provided for informational purposes only.

LEED v4 Total Volatile Organic Compounds (TVOC)

MODELING SCENARIO	TVOC (mg m^{-3})
Private Office (PO)	**0.1**
School Classroom (SC)	**< 0.1**
Single Family Residence (R)*	**0.1**

*Note: The single family residence scenario is not yet a CDPH requirement. It is provided for informational purposes only.

SAMPLE DISPOSITION

At the completion of testing, samples were disposed of in a routine manner.

SECTION 3
CDPH STANDARD METHOD V1.2

Date Received:	12-March-2024
Dates Tested:	03-May-2024 to 17-May-2024

ACCEPTANCE CRITERIA:

Referencing:	CDPH Standard Method v1.2, Table 4.1 LEED v4 - Low Emitting Materials
LEED v4 - TVOC Ranges:	≤ 0.5 mg m^{-3} 0.5 to 5.0 mg m^{-3} ≥ 5.0 mg m^{-3}

TEST NOTES OR DEVIATIONS:

Testing performed without deviation.

TEST SUMMARY:

The emissions testing was performed according to "Standard Method for the Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers Version 1.2". A photograph of the tested sample is included herein. The sample was applied in a 3/8" wide aluminum channel and placed into the test chamber with the top surface exposed. The sample was conditioned outside of the test chamber at 23 ± 2°C and 50 ± 10% RH. Air samples were collected prior to the sample being placed in the test chamber (0 hours) and at 264, 288, and 336 hours after preparation. Samples analyzed for individual VOCs and TVOC were collected on multi-sorbent tubes containing glass wool, Tenax TA 35/60 and Carbograph 5 TD 40/60. These VOC samples were analyzed by thermal desorption-gas chromatography/mass-spectrometry, TD-GC/MS. TVOC was calculated through integration of the chromatogram from n-pentane through n-heptadecane using toluene as a surrogate. Individual VOCs were calculated using calibration curves based on pure standards unless otherwise noted. Samples analyzed for low molecular weight aldehydes were collected on cartridges treated with 2,4-di-nitrophenylhydrazine (DNPH). Low molecular weight aldehydes were analyzed using high performance liquid chromatography, HPLC.

Table 1: Conditioning and test timing

EXPERIMENT PHASE	START DATE	DURATION
Conditioning	03-May-2024	10 Days
Chamber Testing	13-May-2024	4 Days

RESULTS:

Table 2: Sample and Chamber Conditions during Test Period

PARAMETER		SYMBOL	VALUE	UNITS
Sample Dimensions	Length	-	0.143	m
	Width	-	0.095	m
	Thickness	-	-	m
Wet Sample Mass		-	19.7	g
Exposed Sample Surface Area		*A*	0.014	m^2
Chamber Volume		*V*	0.116	m^3
Chamber Loading Factor		*L*	0.12	$m^2\ m^{-3}$
Inlet Air Flow Rate		*Q*	0.116	$m^3\ h^{-1}$
Air Change Rate		N_{ACH}	1.00	h^{-1}
Length Specific Flow Rate		q_A	0.81	$m^2\ h^{-1}$
Chamber Pressure (Range)		P	17.2 (11.8-24.9)	Pa
Average Temperature (Range)		T	22.9 (22.4-23.0)	°C
Average Humidity (Range)		RH	50.0 (47.8-52.7)	% RH
Testing Duration		t	336	h

Table 3: Test chamber background VOC concentrations in µg m^{-3}.

COMPOUND	CAS No.	C_{i0}
Formaldehyde	50-00-0	< 0.6
TVOC	-	< 20

Table 4: Test chamber TVOC and formaldehyde concentrations in µg m^{-3}.

COMPOUND	CAS No.	264 H	288 H	336 H
Formaldehyde	50-00-0	0.8	0.8	0.7
TVOC	-	504	477	350

Table 5: Test chamber TVOC and formaldehyde emission factors in µg m^{-1} h^{-1}.

COMPOUND	CAS No.	264 H	288 H	336 H
Formaldehyde	50-00-0	0.6	0.6	< 0.5
TVOC	-	407	385	283

Individual emitted VOCs identified above the lower limits of quantitation are listed in Table 6; VOCs which are listed on chemical of concern lists or have CRELs are indicated.

The measured chamber concentrations and corresponding emission factors of identified individual VOCs and TVOCs are listed in Table 7.

In Tables 5, 7 and 8, emission factors were calculated using equation 3.1 in CDPH Standard Method V1.2:

$$EF_{Ai} = \frac{Q \times (C_{it} - C_{i0})}{A_C}$$

The inlet flow rate, Q ($m^3\,h^{-1}$), is the measured flow rate of air into the chamber. The chamber concentration, C_{it} (µg m^{-3}), is the concentration of a target VOC_i, formaldehyde and other carbonyl compounds measured at time t. The chamber background concentration, C_{i0} (µg m^{-3}), is the corresponding concentration measured with the chamber operating without a test specimen. The exposed surface length of the test specimen in the chamber, A_C (m), is determined from the measurements made at the time of specimen preparation.

Table 6: VOCs detected above lower limits of quantitation in air samples at 336 hours.

VOC	CAS No.	SURROGATE[1]	CREL[2] (µg m^{-3})	CARB TAC[3]	PROP 65 LIST[4]
Formaldehyde	50-00-0	No	9	Yes	Yes
Isopropyl Alcohol	67-63-0	No	7000	No	No
2-Propanone, 1-methoxy-	5878-19-3	Yes	-	No	No
2-Propanol, 2-methyl-	75-65-0	Yes	-	No	No
Methyl acetoacetate	105-45-3	Yes	-	No	No
Cyclotetrasiloxane, octamethyl-	556-67-2	Yes	-	No	No
2,4,6-Trimethyl-2,4,6-trivinyl-1,3,5,2,4,6-trioxatrisilinane	3901-77-7	Yes	-	No	No
Cyclopentasiloxane, decamethyl-	541-02-6	Yes	-	No	No
Cyclohexasiloxane, dodecamethyl-	540-97-6	Yes	-	No	No
Cycloheptasiloxane, tetradecamethyl-	107-50-6	Yes	-	No	No
Unknown Compound	-	-	-	-	-

[1]Indicates which non-listed VOCs were quantified using surrogate compounds, all other compounds were quantified using pure compounds.
[2]Chronic Reference Exposure Level (CREL) as defined by California Office of Environmental Health Hazard Assessment.
[3]Substance is listed on California Air Resource Board's (CARB) Toxic Air Contaminate (TAC) identification list.
[4]Substance known to the state of California to cause cancer or reproductive toxicity according to California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

Table 7: Measured chamber concentrations and corresponding emission factors of individual VOCs listed in Table 4-1 of CDPH 01350 V1.2. at 336 hours.

VOC	CAS No.	CHAMBER CONCENTRATION ($\mu g\ m^{-3}$)	EMISSION FACTOR ($\mu g\ m^{-1}\ h^{-1}$)
Formaldehyde	**50-00-0**	**0.7**	**< 0.5**
Acetaldehyde	75-07-0	< 3.9	< 3.2
Vinyl acetate	108-05-4	< 0.8	< 0.6
Epichlorohydrin	106-89-8	< 0.4	< 0.3
Ethanol, 2-methoxy-, acetate	110-49-6	< 1.0	< 0.8
Isopropyl Alcohol	**67-63-0**	**5.4**	**4.4**
Ethene, 1,1-dichloro-	75-35-4	< 0.3	< 0.2
Methylene chloride	75-09-2	< 0.3	< 0.2
Carbon disulfide	75-15-0	< 0.5	< 0.4
Methyl tert-butyl ether	1634-04-4	< 0.4	< 0.3
n-Hexane	110-54-3	< 0.3	< 0.2
Trichloromethane (Chloroform)	67-66-3	< 0.3	< 0.2
Ethanol, 2-methoxy-	109-86-4	< 0.6	< 0.4
Ethane, 1,1,1-trichloro-	71-55-6	< 0.3	< 0.2
Benzene	71-43-2	< 0.3	< 0.2
Carbon Tetrachloride	56-23-5	< 0.3	< 0.2
2-Propanol, 1-methoxy-	107-98-2	< 0.4	< 0.3
Ethylene glycol	107-21-1	< 40.0	< 32.4
Trichloroethylene	79-01-6	< 0.3	< 0.2
1,4-Dioxane	123-91-1	< 0.3	< 0.2
Ethanol, 2-ethoxy-	110-80-5	< 0.4	< 0.4
Toluene	108-88-3	< 0.3	< 0.2
Formamide, N,N-dimethyl-	68-12-2	< 0.9	< 0.7
Tetrachloroethylene	127-18-4	< 0.3	< 0.2
Benzene, chloro-	108-90-7	< 0.3	< 0.2
Ethylbenzene	100-41-4	< 0.3	< 0.2
Xylene (-m, -p, & -o)	108-38-3, 95-47-6, 106-42-3	< 0.4	< 0.3
Styrene	100-42-5	< 0.3	< 0.2
2-Ethoxyethyl acetate	111-15-9	< 0.8	< 0.6
Phenol	108-95-2	< 0.6	< 0.5
Benzene, 1,4-dichloro-	106-46-7	< 0.3	< 0.2
Isophorone	78-59-1	< 0.6	< 0.5
Naphthalene	91-20-3	< 0.5	< 0.4

Table 8: Measured chamber concentrations and corresponding emission factors of identified non-listed individual VOCs and TVOC at 336 hours.

VOC	CAS No.	CHAMBER CONCENTRATION (µg m^{-3})	EMISSION FACTOR (µg m^{-1} h^{-1})
2-Propanone, 1-methoxy-	5878-19-3	9.4	7.6
2-Propanol, 2-methyl-	75-65-0	31.8	25.8
Methyl acetoacetate	105-45-3	202	164
Cyclotetrasiloxane, octamethyl-	556-67-2	13.0	10.6
2,4,6-Trimethyl-2,4,6-trivinyl-1,3,5,2,4,6-trioxatrisilinane	3901-77-7	8.4	6.8
Cyclopentasiloxane, decamethyl-	541-02-6	25.1	20.3
Cyclohexasiloxane, dodecamethyl-	540-97-6	16.2	13.2
Cycloheptasiloxane, tetradecamethyl-	107-50-6	3.5	2.9
Unknown Compound	-	15.1	12.3
TVOC	-	350	283

Exposure Scenario Modeling and Evaluation:

Estimated building concentrations for the listed scenarios were calculated using equation 3.2a of CDPH Standard Method V1.2:

$$C_{Bi} = \frac{EF_{Ai} \times A_B}{Q_B}$$

The area specific emission rate EF_A at 336 hours (14 days) total exposure time is multiplied by the ratio of the exposed length of the installed material in the building, A_B (m), to the flow rate of outside ventilation air, Q_B ($m^3\ h^{-1}$).

The modeling parameters used for the given scenarios are listed in Table 9. The modeled concentrations of identified individual VOCs are listed in Tables 10 & 11. Whether the modeled concentrations meet the maximum allowable concentration requirements specified in Table 4.1 of CDPH Standard Method V1.2 are also indicated.

Table 9: Standard modeling parameters for general purpose sealants.

PARAMETER	SYMBOL	VALUE	UNITS
Exposed Surface length Installed in *Private Office (PO)*	A_B	4.88	m
Air flow rate of *Private Office (PO)*	Q_B	20.7	$m^3\ h^{-1}$
Exposed Surface length Installed in *Classroom (SC)*	A_B	12.2	m
Air flow rate of *Classroom (SC)*	Q_B	191	$m^3\ h^{-1}$
Exposed Surface length Installed in *Residence (R)*	A_B	33.1	m
Air flow rate of *Residence (R)*	Q_B	127	$m^3\ h^{-1}$

Table 10: Modeled concentrations of individual VOCs specified in Table 4-1 of CDPH 01350 V1.2.

VOC	CAS NO.	MODELED CONCENTRATION (µg m^{-3})			CONC. LIMIT (µg m^{-3})	RESULT Pass (P) /Fail (F)		
		PO	SC	R		PO	SC	R
Formaldehyde	50-00-0	< 0.1	< 0.1	< 0.1	9	P	P	P
Acetaldehyde	75-07-0	< 0.7	< 0.2	< 0.8	70	P	P	P
Vinyl acetate	108-05-4	< 0.1	< 0.1	< 0.2	100	P	P	P
Epichlorohydrin	106-89-8	< 0.1	< 0.1	< 0.1	1.5	P	P	P
Ethanol, 2-methoxy-, acetate	110-49-6	< 0.2	< 0.1	< 0.2	45	P	P	P
Isopropyl Alcohol	**67-63-0**	**1.0**	**0.3**	**1.0**	**3,500**	**P**	**P**	**P**
Ethene, 1,1-dichloro-	75-35-4	< 0.1	< 0.1	< 0.1	35	P	P	P
Methylene chloride	75-09-2	< 0.1	< 0.1	< 0.1	200	P	P	P
Carbon disulfide	75-15-0	< 0.1	< 0.1	< 0.1	400	P	P	P
Methyl tert-butyl ether	1634-04-4	< 0.1	< 0.1	< 0.1	4,000	P	P	P
n-Hexane	110-54-3	< 0.1	< 0.1	< 0.1	3,500	P	P	P
Trichloromethane (Chloroform)	67-66-3	< 0.1	< 0.1	< 0.1	150	P	P	P
Ethanol, 2-methoxy-	109-86-4	< 0.1	< 0.1	< 0.1	30	P	P	P
Ethane, 1,1,1-trichloro-	71-55-6	< 0.1	< 0.1	< 0.1	500	P	P	P
Benzene	71-43-2	< 0.1	< 0.1	< 0.1	1.5	P	P	P
Carbon Tetrachloride	56-23-5	< 0.1	< 0.1	< 0.1	20	P	P	P
2-Propanol, 1-methoxy-	107-98-2	< 0.1	< 0.1	< 0.1	3,500	P	P	P
Ethylene glycol	107-21-1	< 7.6	< 2.1	< 8.5	200	P	P	P
Trichloroethylene	79-01-6	< 0.1	< 0.1	< 0.1	300	P	P	P
1,4-Dioxane	123-91-1	< 0.1	< 0.1	< 0.1	1,500	P	P	P
Ethanol, 2-ethoxy-	110-80-5	< 0.1	< 0.1	< 0.1	35	P	P	P
Toluene	108-88-3	< 0.1	< 0.1	< 0.1	150	P	P	P
Formamide, N,N-dimethyl-	68-12-2	< 0.2	< 0.1	< 0.2	40	P	P	P
Tetrachloroethylene	127-18-4	< 0.1	< 0.1	< 0.1	17.5	P	P	P
Benzene, chloro-	108-90-7	< 0.1	< 0.1	< 0.1	500	P	P	P
Ethylbenzene	100-41-4	< 0.1	< 0.1	< 0.1	1,000	P	P	P
Xylene (-m, -p, & -o)	108-38-3, 95-47-6, 106-42-3	< 0.1	< 0.1	< 0.1	350	P	P	P
Styrene	100-42-5	< 0.1	< 0.1	< 0.1	450	P	P	P
2-Ethoxyethyl acetate	111-15-9	< 0.2	< 0.1	< 0.2	150	P	P	P
Phenol	108-95-2	< 0.1	< 0.1	< 0.1	100	P	P	P
Benzene, 1,4-dichloro-	106-46-7	< 0.1	< 0.1	< 0.1	400	P	P	P
Isophorone	78-59-1	< 0.1	< 0.1	< 0.1	1,000	P	P	P
Naphthalene	91-20-3	< 0.1	< 0.1	< 0.1	4.5	P	P	P

Table 11: Modeled concentrations of identified non-listed individual VOCs.

VOC	CAS NO.	MODELED CONCENTRATION (µg m^{-3})		
		PO	SC	R
2-Propanone, 1-methoxy-	5878-19-3	1.8	0.5	2.0
2-Propanol, 2-methyl-	75-65-0	6.1	1.6	6.7
Methyl acetoacetate	105-45-3	38.6	10.4	42.6
Cyclotetrasiloxane, octamethyl-	556-67-2	2.5	0.7	2.8
2,4,6-Trimethyl-2,4,6-trivinyl-1,3,5,2,4,6-trioxatrisilinane	3901-77-7	1.6	0.4	1.8
Cyclopentasiloxane, decamethyl-	541-02-6	4.8	1.3	5.3
Cyclohexasiloxane, dodecamethyl-	540-97-6	3.1	0.8	3.4
Cycloheptasiloxane, tetradecamethyl-	107-50-6	0.7	0.2	0.7
Unknown Compound	-	2.9	0.8	3.2
$TVOC_{Toluene}$	-	66.6	18.1	73.7

PHOTOGRAPHS:

Figure 1: Photograph of sample in test chamber.

SECTION 4

FACILITIES AND EQUIPMENT:

GCMS	
INSTRUMENTATION USED:	Markes TD-100xr Thermal Desorption Agilent 7890A GC Agilent 5975C MS
COLUMN USED:	AGILENT ULTRA 2 (GC)
HPLC	
INSTRUMENTATION USED:	Agilent 1260 Infinity Series
COLUMN USED:	Poroshell 120 EC-C18

SECTION 5

CLIENT PROVIDED CHAIN OF CUSTODY

Ship To:
Attn: VOC Laboratory
4700 Broadmoor Ave SE
Suite 200
Kentwood, MI 49512
Phone: 616-656-7401

Chain of Custody for Chemical Testing	
Intertek Quotation Number:	01430473-0
Purchase Order (enter Company and Number):	
Dow Silicones PO 4515800822	

Customer Information	
Company:	Dow Silicones Corp.
Street Address:	2200 W. Salzburg Rd
City/State/Postal code:	Auburn, MI 48611
Country:	US
Contact Name & Title (for reporting):	
Kelly Allore TS&D Technician	
Contact Phone/Fax Numbers:	989-496-7088
Contact E-mail Address:	k.allore@dow.com
Financially Responsible Co. :	

Shipping Details	
Packed & Shipped By:	Cody Santo
Shipping Date:	3/8/2024
Carrier/Airbill Number:	UPS

Requested Testing	
Test to be performed:	CDPH v1.2

Customer Request for Certification	
Clean Air Silver™ Certification:	☐ YES
Clean Air Gold™ Certification:	☐ YES

Manufacturer Information (If Different)	
Company:	Dow Silicones Corp.
City/State/Country:	Elizabethtown, KY USA
Contact Name/Title:	Jenn Kamara, TS&D
Phone Number/E-mail Address:	512-968-6046/JKamara@dow.com

Special Customer Instructions

Sample Details	
Product Commercial Name*:	DOWSIL™ 756 SM Building Sealant
Product Commercial Part No.(if not part of the name)*:	
Manufacturer Sample Tracking ID:	
Date Manufactured*:	3/1/2024 - 3/2/2024
Product Category & Use*:	
Sample Construction Materials*:	
Plant Name & Location*:	Dow Silicones
Collection Location within Plant:	
Date & Time Collected* :	3/1/2024 - 3/2/2024
Number of Sample Pieces*:	11
Sample Collected by*:	Emily Marquess
Phone/Fax Numbers*:	270-705-8112
E-mail Address*:	emarquess@dow.com

Customer Authorizes Laboratory to Submit Copies of Test Reports To:
Contact:
Email Address:
Organization:
Contact:
Email Address:
Organization:

Intertek Use Only	
Condition of Shipping Package:	Good Condition
Condition of Sample:	Good Condition
Sample ID:	GRR240312000S-1
GIN:	G105806919

*Indicates required field

Sample Handling*				
	Printed Name*	Signature*	Date*	Company*
Relinquished By:	Cody Santo		3/8/2024	Dow
Received by:	LOGAN ALBERTSON		3-12-24	INTERTEK

SECTION 6
REVISIONS MADE TO TEST REPORT

INDEX	DATE	REVISION DESCRIPTION	REVISED BY	REVIEWED BY
1	31-May-2024	Revised the product name.	Logan Albertson	Lindsay Delamarter