

SECTION 018120

VOLATILE ORGANIC COMPOUND LIMITS FOR ADHESIVES AND SEALANTS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes requirements for volatile organic compound (VOC) content in adhesives and sealants used for the project. The criteria are included as part of the LEED BUILDING requirements for the project.

1.02 RELATED SECTIONS

- A. LEED Submittals: Section 013300.
- B. Construction Indoor Air Quality Management: Section 018119.

1.03 REFERENCES

- A. Rule 1168 – “Adhesive and Sealant Applications”, amended 1 January 2005): South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov.
- B. Regulation 8 (Organic Compounds), Rule 51 (Adhesive and Sealant Products), amended 17 July 2002: Bay Area Air Quality Management District (BAAQMD), State of California, www.baaqmd.gov.

1.04 VOC REQUIREMENTS FOR INTERIOR ADHESIVES

- A. The volatile organic compound (VOC) content of adhesives, adhesive bonding primers, or adhesive primers in this project shall not exceed the limits defined in Rule 1168 – “Adhesive and Sealant Applications” of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits for the interior of a building as defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
 - 1. Unless otherwise specified below, the VOC content of all adhesives, adhesive bonding primers, or adhesive primers shall not be in excess of 250 grams per liter.
 - 2. For specified building construction related applications, the allowable VOC content in grams per liter is as follows:

Architectural Applications	
Indoor carpet adhesive	50
Carpet pad adhesive	50
Outdoor carpet adhesive	150
Wood flooring adhesive	100
Rubber floor adhesive	60

Subfloor adhesive	50
Ceramic tile adhesive	65
VCT and asphalt tile adhesive	50
Drywall (gypsum board) and panel adhesive	50
Cove base adhesive	50
Multipurpose construction adhesive	70
Structural glazing adhesive	100
Single ply roof membrane adhesives	250
Specialty Applications	
PVC welding	285
CPVC welding	270
ABS welding	400
Plastic cement welding	250
Adhesive primer for plastic	250
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Adhesive Primer for Traffic Marking Tape	150
Structural Wood Member Adhesive	140
Sheet Applied Rubber Lining Operations	850
Substrate Specific Applications	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1.05 REQUIREMENTS FOR INTERIOR SEALANTS

- A. The volatile organic compound (VOC) content of sealants or sealant primers used in this project shall not exceed the limits defined in Regulation 8 (Organic Compounds), Rule 51 (Adhesive and Sealant Products) of the Bay Area Air Quality Management District (BAAQMD), of the State of California.
- B. The VOC limits defined by BAAQMD are as follows. All VOC limits are defined in grams per liter, less exempt compounds.

Sealants	
Architectural	250
Marine Deck	760
Roadways	250
Single Ply Roof Material Installation/Repair	450
Non Membrane Roof Installation/Repair	300
Other	
Sealant Primer	
Architectural – Nonporous	250
Architectural – Porous	775
Other	750

PART 2 PRODUCTS

2.01 EXAMPLES OF COMPLIANT ADHESIVES

MATERIAL TYPE /CRITERIA	MANUFACTURER	PRODUCTS /IAQ OR TOXICITY INFO	COMMENTS: Costs are list prices U.O.N.
<p>Adhesives – Carpet</p> <p>Criteria: VOC limits of South Coast Air Quality Management District Rule #1168</p> <p>Indoor carpet adhesive and carpet pad adhesive: 50 g/l</p> <p>Additional Criteria: Adhesives to meet “Green Label” emissions testing criteria of the Carpet and Rug Institute</p>	<p>Chicago Adhesive Products, Co. 1165 Arbor Dr. Romeoville, IL 60446 800-621-0220 630-679-9100 www.chapco-adhesives.com</p>	<p>All Safe-Set Adhesives: zero-VOC, CRI Green Label, 0 g/l VOC, SCAQMD compliant</p>	<p>Non-flammable. Some examples of the many Safe-Set adhesives are as follows: Safe-Set 2: pressure-sensitive adhesive for vinyl-back broadloom & carpet tile; Safe-Set 3: permanent glue-down, for jute & latex-back carpet; Safe-Set 299: pressure-sensitive adhesive for vinyl-back broadloom & carpet tile.</p>
	<p>Mannington Carpets 800-241-2262</p>	<p>MC-411: latex, solvent-free, 0 g/l calculated VOC; MT-711: Acrylic, 0 g/l calculated VOC; MT-733: Acrylic, 0 g/l calculated VOC</p>	<p>MC-411: standard multipurpose adhesive for action-back carpet; MT-711: standard pressure sensitive adhesive for vinyl-back carpet; MT-733: standard multipurpose adhesive for vinyl & HP back 12’ wide carpet.</p>
	<p>MAPEI 1144 E. Newport Center Drive Deerfield Beach, FL 33442 800-42-MAPEI www.mapei.com/MapeiAmericas/en/products_line2.htm</p>	<p>Ultrabond ECO 185: 0 g/l</p>	

MATERIAL TYPE /CRITERIA	MANUFACTURER	PRODUCTS /IAQ OR TOXICITY INFO	COMMENTS: Costs are list prices U.O.N.
	Mohawk Industries (Adhesive by Parachem) 800-554-6637	NuBroadlok Premium Plus: 0 g/l VOC	NuBroadlok Premium Plus: \$46 for 4 gal pail, standard adhesive for broadloom; Also recommends W.F. Taylor # 2027: see below
	Lees Carpet Commercial Division Burlington Industries 800-523-5647	Unibond Wet Set: 0 g/l VOC	\$29.85 for 4 gal pail, standard adhesive for broadloom
	W.F. Taylor Company, Inc. 11545 Pacific Avenue Fontana, CA 92337 800-868-4583 (East) 800-397-4583 (West) www.wftaylor.com	Envirotec Healthguard #2027: 0 g/l calculated VOC, SCAQMD compliant; #2055 "Performance +" Ultra Premium Fast Tack Carpet Adhesive: CRI Green Label, 0 g/l calculated VOC, SCAQMD compliant; #2090: 0 g/l calculated VOC, SCAQMD compliant	#2027: \$48 for 4 gal pail, pressure sensitive releasable acrylic adhesive, standard adhesive recommended by Mohawk Carpet for vinyl backed carpet tile; #2055: \$20 for 4 gal pail, direct glue, double stick, for non-vinyl backed broadloom; #2090: permanent adhesive for vinyl back broadloom, \$48 for 4 gal pail
	W. W. Henry company 400 Ardex Park Drive Aliquippa, PA 15001 724-203-8000 www.henrygreenline.com	Henry Greenline high performance and ultra-low emissions (0 VOC & CRI Green Label) adhesives for Carpet (GL62).	
	Carpet and Rug Institute 800-882-8846 http://www.carpet-rug.com	Listing of additional Green Label approved products and manufacturers	

MATERIAL TYPE /CRITERIA	MANUFACTURER	PRODUCTS /IAQ OR TOXICITY INFO	COMMENTS: Costs are list prices U.O.N.
<p>Adhesives – Ceramic Tile</p> <p>Criteria: VOC limits of South Coast Air Quality Management District Rule #1168</p> <p>Ceramic tile adhesive: 65 g/l</p>	<p>American Formulating & Manufacturing (AFM) 3251 Third Ave. San Diego, CA 92103 800-239-0321 www.afmsafecoat.com</p>	<p>Safecoat 3 in 1 Adhesive: water based, 44 g/l (82 g/l less water) VOC.</p>	<p>For hard composition ceramic, vinyl, parquet, formica, and slate.</p>
	<p>DAP, Inc. 2400 Boston St., Ste. 200 Baltimore, MD 21224 888-327-8477 www.dap.com</p>	<p>D-505 Plus Mortar: Zero-VOC. D-40 Latex Fortified Mortar: Zero-VOC</p>	<p>Thin set mortar.</p>
	<p>W.F. Taylor Company, Inc. 11545 Pacific Avenue Fontana, CA 92337 800-868-4583 (East) 800-397-4583 (West) www.wftaylor.com</p>	<p>#901 Odyssey-Type 1 Multi-Purpose Floor and Wall Ceramic Tile Adhesive: CRI Green Label, 65 g/l VOC, SCAQMD compliant</p>	<p>#901: \$22 for 3 ½ gal pail</p>
<p>Adhesives – Plastic Laminates</p> <p>Criteria: VOC limits of South Coast Air Quality Management District Rule #1168</p> <p>Contact Adhesive: 80 g/l</p>	<p>W.F. Taylor Company, Inc. 11545 Pacific Avenue Fontana, CA 92337 800-868-4583 (East) 800-397-4583 (West) www.wftaylor.com</p>	<p>Envirobond FRP 310 Fiberglass Reinforced Panel Adhesive: solvent-free, CRI Green Label, 65 g/l VOC, SCAQMD compliant; Contact Cement #1 NC: SCAQMD compliant</p>	<p>FRP 310: \$28 for 4 gal pail; #1 NC: \$42 for 4 gal pail, contains solvents, flammable</p>
<p>Adhesives – Resilient Flooring</p> <p>Criteria: VOC limits of South Coast Air Quality Management District Rule #1168</p> <p>Rubber floor adhesive:</p>	<p>Advanced Air-Tech Adhesives, Inc. 424 South Spencer Street P.O. Box 1887 Dalton, GA 30722-1887</p>	<p>#420 Vinyl Tile & Plank Adhesive:</p> <ul style="list-style-type: none"> • Pure acrylic latex based adhesive • Solvent-free • Zero calculated VOCs 	<p>Designed for installations of composite and pure vinyl tile and planks.</p>

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<p>60 g/l</p> <p>Subfloor adhesive: 50 g/l</p> <p>VCT and asphalt tile adhesive : 50 g/l</p> <p>Cove base adhesive: 50 g/l</p>	<p>American Formulating & Manufacturing (AFM) 3251 Third Ave. San Diego, CA 92103 800-239-0321 www.afmsafecoat.com</p>	<p>Safecoat 3 in 1 Adhesive: water based, 44 g/l (82 g/l less water) VOC.</p>	<p>For hard composition ceramic, vinyl, parquet, formica, and slate.</p>
	<p>Armstrong Armstrong World Industries, Inc. Attn: Customer Service Center P.O. Box 3001 Lancaster, PA 17604 1-877-276-7876</p>	<p>S-235: 4 g/l VOC; S-515: 49 g/l VOC; S-575: 79 g/l VOC, not compliant with SCAQMD; S-700: 0 g/l VOC; S-750: 5 g/l VOC; S-760: 5 g/l VOC</p>	<p>Armstrong will not warrantee their flooring products unless Armstrong adhesives are used. S-235: standard adhesive for Armstrong linoleum; S-515: standard adhesive for Armstrong VCT; S-575: only approved adhesive for Armstrong vinyl sheet flooring & solid vinyl tile; S-700: standard adhesive for Armstrong VCT, can be used on a metal substrate, asphalt-based; S-750: standard adhesive for Armstrong VCT; S-760: standard adhesive for Armstrong linoleum</p>

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	<p>Chicago Adhesive Products, Co. 1165 Arbor Dr. Romeoville, IL 60446 800-621-0220 www.chapco-adhesives.com</p>	<p>All Safe-Set Adhesives: zero-VOC, CRI Green Label, 0 g/l VOC, SCAQMD compliant</p>	<p>Non-flammable. Some examples of the many Safe-Set adhesives are as follows: Safe-Set 2: pressure-sensitive adhesive for solid vinyl products; Safe-Set 7: for VCT; Safe-Set 231: hard-set adhesive for solid vinyl & solid linoleum; Safe-Set 299: pressure-sensitive adhesive for solid vinyl products; Safe-Set 321: for felt-back linoleum</p>
	<p>Domco Industries, Ltd. Azrock Industries, Inc. 800-558-2240 713-869-5811, Tech Info www.dmco.com/azrock</p> <p>Local Distributor: Western Carpet 718-782-0333</p>	<p>Domco 100: 49 g/l VOC (less water); Domco 106: 0 g/l VOC (less water); Domco 400: 0 g/l total VOC; Domco 800: 15 g/l VOC (less water);</p>	<p>The following are standard adhesives for Domco & Azrock products: Domco 100: standard clear thin spread adhesive for Azrock VCT; Domco 106: standard black thin spread adhesive for Azrock VCT; Domco 400: standard hard set acrylic adhesive for Azrock sheet vinyl & linoleum; Domco 800: standard pressure-sensitive adhesive for Azrock solid vinyl tile</p>
	<p>Forbo North America P.O. Box 667 Hazelton, PA 18201 10800-842-7839</p>	<p>Forbo L-910-4, a non-solvent linoleum adhesive with zero-VOC content.</p>	

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	<p>MAPEI 1144 E. Newport Center Drive Deerfield Beach, FL 33442 800-42-MAPEI www.mapei.com/MapeiAmericas/en/products_line2.htm</p>	<p>Ultrabond ECO line of adhesives: 0 g/l</p>	
	<p>W.F. Taylor Company, Inc. 11545 Pacific Avenue Fontana, CA 92337 800-868-4583 (East) 800-397-4583 (West) www.wftaylor.com</p>	<p>Envirotec Healthguard #2027 Pressure Sensitive Adhesive: CRI Green Label, 0 g/l calculated VOC, SCAQMD compliant; #2090: 0 g/l calculated VOC, SCAQMD compliant; Envirotec Healthguard #2033 Clear Thin Spread VCT Adhesive: CRI Green Label, 0 g/l VOC; #2080: 0 g/l calculated VOC, SCAQMD compliant; Envirotec Healthguard #2087 EVR-White Sheet Goods Adhesive: solvent-free, CRI Green Label, 0 g/l calculated VOC, SCAQMD compliant;</p>	<p>#2027: \$48 for 4 gal pail, pressure sensitive releasable acrylic adhesive, for solid vinyl tile; #2090: permanent adhesive for vinyl-back sheet vinyl & vinyl-back linoleum, \$48 for 4 gal pail; Envirotec Healthguard #2033: \$25 for 4 gal pail, for VCT; #2080: \$25 for 4 gal pail, for jute-back & solid linoleum; #2087: \$26 for 4 gal pail, for felt back sheet vinyl.</p>
	<p>W. W. Henry company 400 Ardex Park Drive Aliquippa, PA 15001 724-203-8000 www.henrygreenline.com</p>	<p>Henry Greenline high performance and ultra-low emissions adhesives for VCT (GL33) and Linoleum (GL83).</p>	

MATERIAL TYPE /CRITERIA	MANUFACTURER	PRODUCTS /IAQ OR TOXICITY INFO	COMMENTS: Costs are list prices U.O.N.
Adhesives – Wood Flooring Criteria: VOC limits of South Coast Air Quality Management District Rule #1168 Wood flooring adhesive: 100g/l	American Formulating & Manufacturing (AFM) 3251 Third Ave. San Diego, CA 92103 800-239-0321 www.afmsafecoat.com	Safecoat 3 in 1 Adhesive: water based, 44 g/l (82 g/l less water) VOC.	For hard composition ceramic, vinyl, parquet, Formica, and slate.
	W.F. Taylor Company, Inc. 11545 Pacific Avenue Fontana, CA 92337 800-868-4583 (East) 800-397-4583 (West) www.wftaylor.com	Timberline #2051 Acrylic Co-Polymer Laminated Plank & Wood Flooring Adhesive: CRI Green Label, low-VOC, 10 g/l VOC; #2071 Resin Based Adhesive: 3 g/l VOC,	#2051: \$50 for 4 gal pail; #2071: \$56 for 4 gal pail, for solid wood, engineered wood (finished or unfinished), takes the place of urethane adhesives

2.02 EXAMPLES OF SEALANTS

MATERIAL TYPE /CRITERIA	MANUFACTURER	PRODUCTS /IAQ OR TOXICITY INFO	COMMENTS: Costs are list prices U.O.N.
Sealants – Silicone, Latex, Acrylic Criteria: Bay Area Air Quality Management District Reg. 8, Rule 51 Architectural: 250 g/l	Bostik 1740 County Line Road Huntington Valley, PA 19006 800-523-2678	Chem-Calk 600: 39 g/l VOC (Latex / acrylic)	
	Dow Corning Corporation www.dowcorning.com	995 Structural Silicone Glazing Sealant: Black & white has 30g/l 790: 39 to 43 g/l (in spec)	
	Pecora Corp. 165 Wambold Road Harleysville, PA 19438 800-523-6688	Silicone 864: 12 g/l VOC (in current spec) AC-20: 31 g/l VOC (Latex / acrylic)	

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	Sonneborn, Division of ChemRex www.sealantsandcoatings.com	NP 1 has 93 g/l = Ok, SL 1 has 104 g/l = Ok	
	Tremco 3735 Green Road Beachwood, OH 44140 800-852-3821	Spectrum 2: 0 g/l VOC (Silicone) Proglaze White: 39 g/l VOC (Silicone) Acrylic Latex 834: 0 g/l VOC (Latex / acrylic)	
	USG	Sheetrock Acoustical Sealant: 65 g/l = Ok	
Sealants – Urethane Criteria: Bay Area Air Quality Management District Reg. 8, Rule 51: Architectural: 250 g/l	Pecora Corp. 165 Wambold Road Harleysville, PA 19438 800-523-6688	NR-200 Urexpan: 0 g/l VOC (Urethane)	
	Tremco 3735 Green Road Beachwood, OH 44140 800-852-3821	Dymeric 511: 56 g/l VOC base, curative is 11 g/l (Urethane) (in current spec) THC-900 70 g/l VOC base, curative is 110 g/l (Urethane)	
	W.R. Meadows Inc. 300 Industrial Dr. P.O. Box 338 Hampshire, IL 60140-0338 800-342-5976 www.wrmeadows.com	Pourthane: VOC for part B is 5% by volume (1 gal=11.5 lbs, 0.575 lbs/gal., 68 g/l VOC), part A is 0%. Most times no primer needed. (Urethane)	

MATERIAL TYPE /CRITERIA	MANUFACTURER	PRODUCTS /IAQ OR TOXICITY INFO	COMMENTS: Costs are list prices U.O.N.
<p>Sealants – Primers</p> <p>Criteria: Bay Area Air Quality Management District Reg. 8, Rule 51:</p> <p>Non-porous: 250 g/l</p> <p>Porous: 775 g/l</p>	<p>Tremco 3735 Green Road Beachwood, OH 44140 800-852-3821</p>	<p>Deckline: 580 g/l VOC (for THC-900 on concrete) Primer : 670 g/l VOC (for Dymeric 511 on concrete) Primer 23: 114 g/l VOC (for Spectrum 2 and Proglaze White silicone sealants on porous substrate) Primer 10: 724 g/l VOC (for Spectrum 2 and Proglaze White silicone sealants on non-porous substrate, not compliant with standard)</p>	

PART 3 EXECUTION (Not Used)

END OF SECTION