



Building Green with PROSOCO's Coatings and Sealants

Introducing CALGreen

In early 2010, the State of California adopted CALGreen, the first in the nation green building code. CALGreen is the common name for the California Green Building Standards Code. Formerly voluntary, it was substantially modified and reissued as a statewide mandatory code for all building occupancies effective January 1, 2011. Only federally owned buildings will be exempt.

CALGreen represents a tremendous change in how green building is done as it provides a code requirement for many of the building components rated in the voluntary US Green Building Council LEED scoring systems. CALGreen contains a number of prescriptive mandatory measures designed to improve building energy efficiency as well as reduce water usage and improve the working environment. CALGreen's reach extends outside California as it was used as a building block in the first version of the International Green Construction Code (IGCC) by the International Code Council.

CALGreen Implementation

The goal of CALGreen sounds simple enough: implement a statewide building code for all occupancies. The reality is a little more complicated. During a forum at GreenBuild 2010, some of the key players in writing CALGreen shared their perspectives on the good, bad and ugly of this new code. Some issues are being resolved and some will result in modifications on the fly over the next year and into the next revision cycle.

Here are some issues readers should be aware of:

CALGreen includes both mandatory and voluntary measures for residential and nonresidential construction. Guidance documents for residential and nonresidential CALGreen conformance and commissioning are created by separate California agencies and located on separate websites; sometimes with inconsistent language.

This summary document contains basic information about CALGreen as it relates to PROSOCO's coatings and sealant products. It is not intended to be comprehensive. It includes a cross-reference with LEED conformant products. For current lists of conformant products, contact PROSOCO's Customer Care department. This document and additional updates will be made available through PROSOCO's Environmental Initiatives webpage at <http://www.prosoco.com/Green/Green.asp>.

- Building code standards are administered through five separate agencies in California. As of November, 2010, only the commercial and residential standards have been published. Schools will operate under base provisions of CALGreen, but generally have more stringent standards in place. Healthcare and high-rise residential standards are not yet complete.
- Local jurisdictions can adopt more stringent Tier requirements in CALGreen; however, they are subject to a burden of proof for

necessity based on local climate or geological conditions. This may interfere with existing local green building standards such as preference for the LEED ratings system.

- Code enforcement officials in larger municipalities are confident in their ability to interpret and enforce CALGreen provisions. There is some concern about the ability of smaller jurisdictions to come up to speed and provide even review and enforcement.
- Architects are concerned about CALGreen setting a new definition for their standard of care in building design. Green building practitioners working on LEED projects are accustomed to working with many CALGreen

elements; however, they will now have to put their professional credentials on the line for complicated product and assembly performance criteria.

- Code enforcement officials are concerned about DIY oriented products that may be used in commercial buildings causing compliance issues. This is complicated by the product inventories on hand that won't comply with CALGreen standards sitting in big box stores and construction supply yards.
- CALGreen in its current form is largely the result of a political process and priorities and may yet be subject to challenges in the legal system.

Coatings and Sealants CALGreen Conformance

The CALGreen pollutant control sections (Sections 4.504 and 5.504) prescribe usage of low emitting and reduced VOC content building materials including sealants, caulks and coatings. The goal is to assure that building occupants will not be adversely affected by VOC emissions from construction products. Unlike LEED V3 optional interior use credit criteria, CALGreen's limits as written are mandatory and cover both interior and exterior product applications. The first edition of the *Guide to the Nonresidential CALGreen Code* is consistent with CALGreen as written. The first residential guide was published in August, 2010 and contains some contradictory information regarding interior versus interior/exterior application.

CALGreen nonresidential resources:

<http://www.bsc.ca.gov/CALGreen/default.htm>

CALGreen residential resources:

<http://www.hcd.ca.gov/CALGreen.html>

Sealants and caulks are specifically regulated under CALGreen. The code incorporates by reference the South Coast Air Quality Management District (SCAQMD) Rule 1168 categories and limits. This is already the primary rule for the State of California. Rule 1168 defines sealants as any material with adhesive properties formulated primarily to fill, seal, or waterproof gaps or joints between two surfaces. PROSOCO's R-GUARD® branded products comply with this CALGreen requirement.

The rules for paints and coatings may cause specifier, manufacturer and user confusion. CALGreen incorporates by reference the new California Air Resource Board (CARB) 2007 Suggested Control Measure (SCM) categories and limits. In 2007, CARB performed a top to bottom review and rewrite of this model rule used by 35 districts outside of the SCAQMD. Many categories were merged and renamed and the majority feature reduced VOC limits.

In 2011, the CARB 2007 SCM model will be finally come into force through select district and overall CALGreen implementation. Note that in the SCAQMD, Rule 1113 will still be in force with different categories and limits than the rest of the state. This is due to their unique Mediterranean climate.

The vast majority of PROSOCO's current California compliant coatings products conform to the CALGreen requirement. A California specific version of SLX-100 Water and Oil Repellent (<350 g/L) has been introduced in time for the code effective date. While the new Concrete/Masonry Coating category carries a 100 g/L limit, PROSOCO worked with CARB and other stakeholders to create a Reactive Penetrating Sealers category with a limit of 350 g/L.

The CARB 2007 SCM was less than clear on how it applies to fluid applied air and water resistive coatings. This class of coating was an emerging technology as CARB began its data gathering and rulemaking process in 2005. Initially, there was no clear category that fits a fluid applied coating designed and labeled for application over multiple

substrates including masonry block, plywood sheathing and other sheathing materials.

CARB staff recently circulated interpretation to the districts slotting air and water resistive barrier coatings into the Primers, Sealers and Undercoaters category with a 100 g/L limit. This limit is consistent with the SCAQMD Rule 1113 Waterproofing Sealers category limit. The CARB 2007 SCM no longer includes a Waterproofing Sealers category. R-GUARD® products comply with CALGreen and SCAQMD requirements.

One unintended consequence of CALGreen implementation is the effective elimination of a sell-through period for coatings manufactured prior to January 1, 2011 that comply with the current CARB SCM but not the CARB 2007 SCM. Normally, the regulations allow a 2-3 year sell-through period. If CALGreen is evenly enforced by local code officials, specifiers would not be able to utilize coatings that don't conform to the CARB 2007 SCM. PROSOCO advises its distributors to sell down its inventories of future non-conformant products.

Select Concrete/Masonry and Sealant CALGreen Categories: Tables 5.504.4.2 and 5.504.4.3	
Category Name	Limit (g/L)
Architectural Sealant	250
Architectural Sealant Primer (Porous)	775
Flat Coatings	50
Concrete Curing Compounds	350
Concrete/Masonry Sealers	100
Floor Coatings (Opaque)	100
Industrial Maintenance Coatings	250
Low Solids Coatings	120
Primers, Sealers and Undercoaters	100
Reactive Penetrating Sealers	350
Stains	250
Stone Consolidants	450

References: CARB 2007 SCM: <http://www.arb.ca.gov/coatings/arch/docs.htm>

Local Jurisdiction Adoption Options

While CALGreen as a whole is a mandatory part of the larger suite of California building codes, local jurisdictions have the option to formally adopt additional voluntary measures as prerequisites. The voluntary standards are organized in Tiers, each group with successively higher performance standards. Local jurisdictions may elect to utilize any or all of the items within each Tier. Other than an option for pre-occupancy indoor air quality testing, none are particularly relevant to paints and coatings emissions.

At a base level, CALGreen incorporates by reference the 2008 Title 24 California Building Energy Efficiency

Standards. Tier 1 includes a requirement for energy efficiency reductions 15% beyond that in Title 24. Tier 2 includes a requirement for a 30% reduction beyond Title 24. PROSOCO believes that effective sealant and integrated air barrier systems will play a primary role in achieving these aggressive energy use reduction targets.

As noted in the discussion on implementation, the process for local adoption of Tier requirements may be difficult as it requires specific justifications for code modification.

CALGreen and LEED

CALGreen takes a different approach on regulatory VOC limits than the related LEED V3 EQ credits. Recognizing the need for CALGreen conformant coating to perform in all California climate conditions, decision makers opted to use the CARB 2007 SCM.

LEED V3 EQ credits incorporate the SCAQMD Rule 1113 limits in effect on January 1, 2004. Rule 1113 is constructed around the Los Angeles basin's mild, Mediterranean climate conditions. In addition, category limits are dependent on a number of district specific alternative compliance mechanisms including corporate averaging. In contrast, the CARB 2007 SCM was created for all climate conditions in the state and there are no alternative compliance mechanisms other than a general small container exemption.

The outcome is that there will not be complete correlation between CALGreen and LEED credit criteria. In general, the CARB category limits are lower than LEED referenced Rule 1113 limits; however, as the result of substantive CARB SCM revisions the category names and definitions vary between the two. PROSOCO maintains reference materials for conforming products in both systems.

The best available summary comparison between CALGreen and LEED comes from the California Chapter of the AIA. In collaboration with California building code officials and other stakeholders, AIACC produced a comparison between CALGreen Commercial and LEED BD+C and one for CALGreen Residential and LEED for Homes. See www.aiacc.org.

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LEED Credit* and Code Conformance with Technical Criteria

Product Tradename	VOC Content (g/L)	Rule 1113 (2004)	Rule 1168	LEED IEQ CR 4.2	LEED IEQ CR 4.3	Section 01350	LEED for Schools	SCS Certified	LEED EA CR 1	LEED EA CR 7.1	NSF Registered	CalGreen (2011)
Sure Klean® Weather Seal Weather Seal GP	8	X		X								X
Sure Klean® Weather Seal Siloxane WB Concentrate	16-41	X		X	X							X
Sure Klean® Weather Seal Siloxane PD	25	X		X	X							X
Sure Klean® Weather Seal Natural Stone Treatment WB	1	X		X	X							X
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	14	X		X								X
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra	99	X		X								X
Sure Klean® Strippable Masking	5	X		X								X
Sure Klean® Ground Face Block Enhancer WB	78	X		X								X
Sure Klean® Burnished Block Sealer	57	X		X								x
Stand Off® Stone, Tile & Masonry Protector (STMP)	7	X		X	X							X
Stand Off® Stain Barrier	5	X		X	X							X
Stand Off® Gloss N' Guard WB	78	X		X	X							X
Stand Off® Color Enhancer WB	34	X		X	X							X
Stand Off® SLX100® Water & Oil Repellent	377	Note 3.		X	X							
Stand Off® SLX100® < 350 Water & Oil Repellent	349	Note 1.		X	X							X
Defacer Eraser® Sacrificial Coating SC-1	25	X		X								X
Consolideck® Color Enhancer WB	34	X		X	X							X
Consolideck® ColorHard (colorant mixed with Consolideck LS)	74	Note 2.		X	X	X	X	X				X
Consolideck® GemTone Stain (field diluted)	85	X		X	X	X	X	X				X
Consolideck® PolishGuard	<100	X		X	X							X
Consolideck® Saltguard® WB	37	X		X	X							X
Consolideck® LSGuard®	95	X		X	X	X	X	X			X	X

* This chart indicates product conformance with LEED credit criteria. Products are not reviewed or certified under LEED. LEED Credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED, visit www.usgbc.org/leed.

- Notes:**
- Note 1. While LEED EQ Credit conformant based on 2004 Rule 1113 limits, certain products are unavailable in the South Coast AQMD due to current regulations.
 - Note 2. Colorants are not regulated by Rule 1113. ColorHard colorant combined with Consolideck LS as a tint base is still low-VOC and SCS Indoor Advantage Gold certified.
 - Note 3. While LEED EQ Credit conformant based on 2004 Rule 1113 limits, certain products are unavailable in the California market.

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Consolideck® LS/CS®	7	X		X	X	X	X	X			X	X
Consolideck® LS®	20	X		X	X	X	x	X			X	X
Consolideck® SL100 Water Repellent	330	Note 1.		X	X							X
Consolideck® SLX100® < 350 Water & Oil Repellent	349	Note 1.		X	X							X
Consolideck® SLX100® Water & Oil Repellent	377	Note 3.		X	X							
BMC® Breathable Masonry Coating II (all tint bases)	<240	Note 1.		X								
Paver Kare® Penetrating Water Repellent	40	X		X	X							X
Paver Kare® Paver Enhancer WB	34	X		X	X							X
Paver Kare® Deep Sheen WB	78	X		X	X							X
R-GUARD VB	<100	X		X					X	X		X
R-GUARD MVP	<100	X		X					X	X		X
R-GUARD Spray Wrap	28	X		X					X	X		X
R-GUARD Joint & Seam Filler	<30		X	X					X	X		X
R-GUARD Gyp Prime	99		X	X					X	X		X
R-GUARD Fill	75	X		X					X	X		X
R-GUARD Fast Flash™	27		X	X					X	X		X
R-GUARD Air Dam	17		X	X					X	X		X
R-GUARD Cat5	<30		X	X					X	X		X

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Reference Documents and Sources:

- Rule 1113: South Coast Air Quality Management District Rule 1113; Architectural Coatings
- Rule 1168: South Coast Air Quality Management District Rule 1168; Adhesive and Sealant Applications
- SCS Certified: www.scs-certified.com
- NSF Registered: www.nsfwhitebook.org
- CalGreen: 2010 California Green Building Standards Code - Regulates coatings and sealant products in commercial construction effective 2011.

MISSION STATEMENT

PROSOCO strives to be the industry leader by developing innovative solutions for customers devoted to improving the appearance and performance of the built environment.

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