

Architectural Coatings Update to 2019 Suggested Control Measure



May 28, 2020

2019 SCM Board Actions



- Board approved updates at the May 2019 Meeting
 - VOC content limits for three new and nine existing categories
- Board directed staff to assess the viability adding a new coating category intended for use on solar panels

Overview of Proposal



- Photovoltaic Coatings provide long term benefits with a one-time emissions increase
- Photovoltaic Coatings cannot be used under current rules
- Goal is to find a way to allow one-time use of coatings without adverse impacts
- Proposed solution is a new category with procedures and restrictions to limit potential adverse impacts

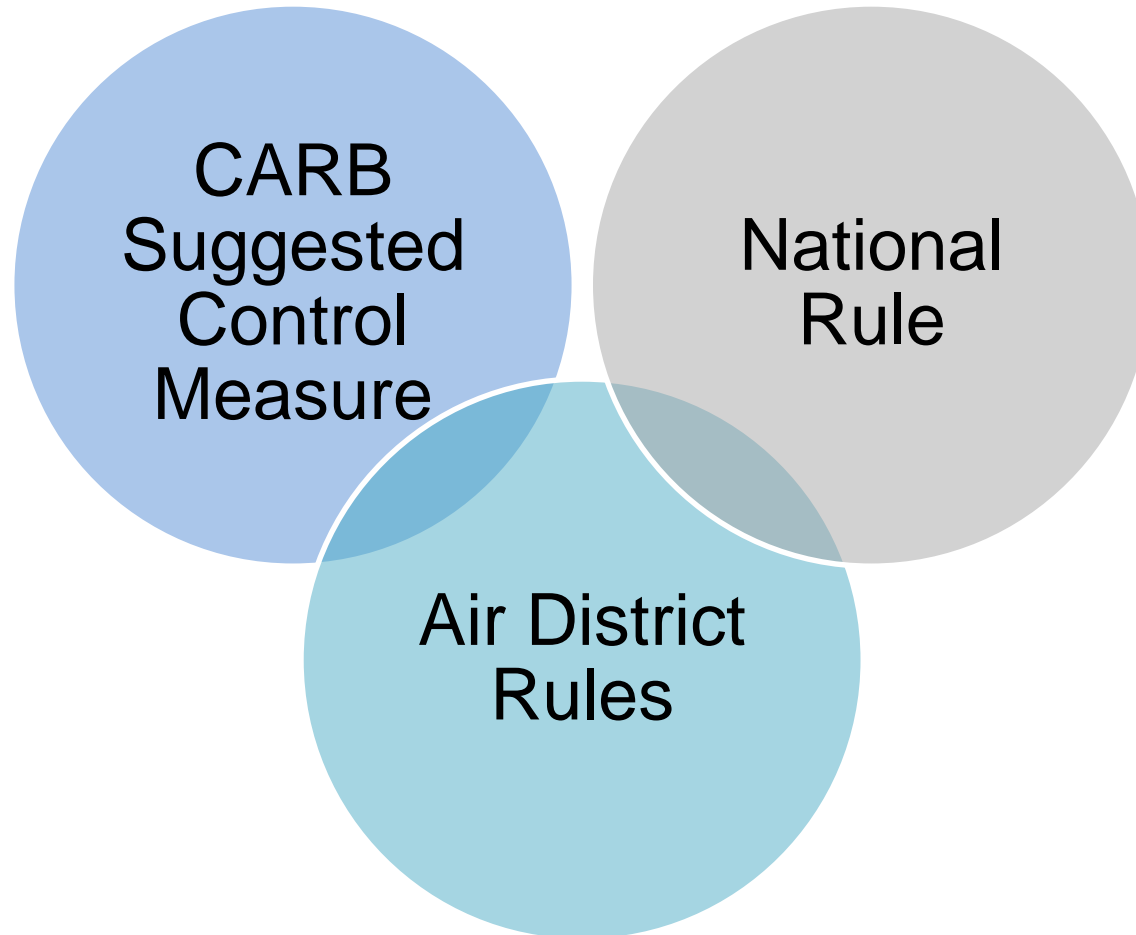
Architectural Coatings SCM Overview

- Coatings applied to stationary structures and their appurtenances

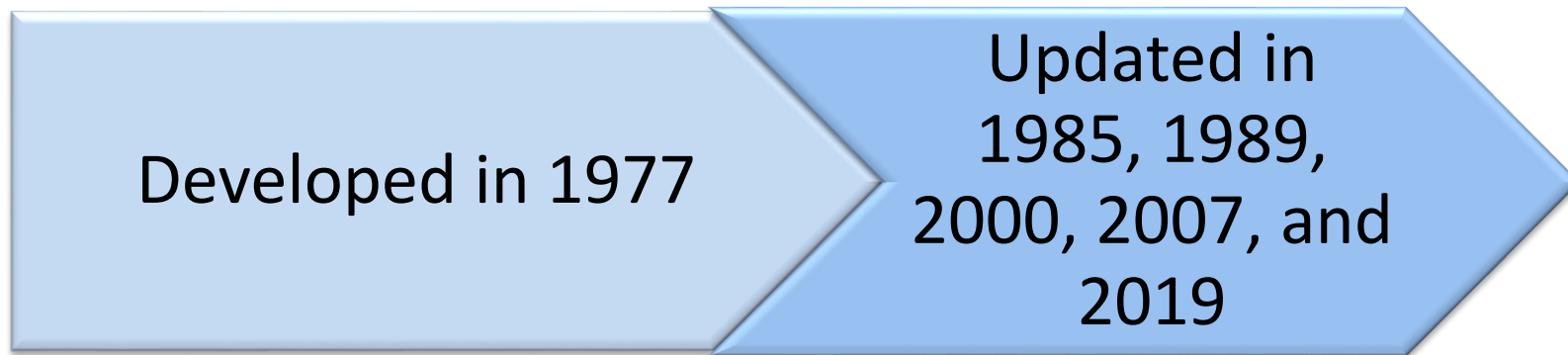


- Does not include aerosol coatings or coatings used in manufacturing

Regulatory Framework for Architectural Coatings

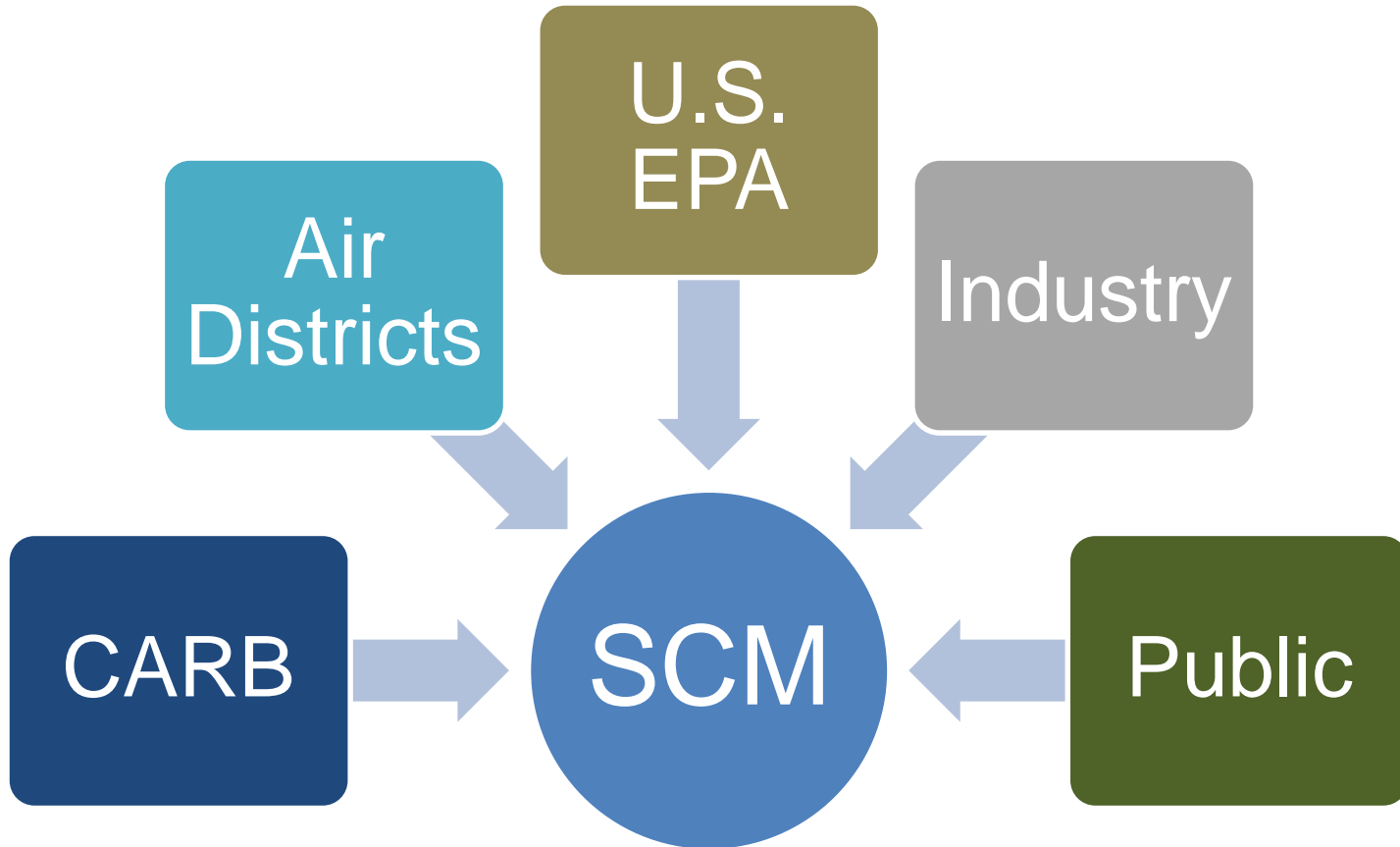


History of Architectural Coatings Suggested Control Measure



- 22 districts adopted local rules
- 13 districts operate under the National Rule

SCM Development Process



Photovoltaic (PV) Coatings

- Are applied to existing, in the field, uncoated solar modules
- Provide reflectivity, anti-soiling benefits
- Increase solar module efficiency by about 3%
- Result in avoided criteria pollutants and GHG emissions from power plants

Current Applicable Limits

- Currently manufactured PV coatings are formulated with VOC contents of 600 g/l and 800 g/l
- These do not meet applicable limits

SCM/Rule	Coating Category	VOC Limit
2019 SCM	Low Solids Coating	120 g/l
National Rule	Exterior Flat Coating	250 g/l

Existing Solar Modules

- Over 10,000 MWs capacity from solar modules statewide
- Solar modules manufactured post-2016 are coated at the factory
- Potential Market for Photovoltaic Coatings
 - About 4,000 MW capacity from uncoated solar modules

Potential Market for PV Coatings



Air District	Number of Sites	Capacity (MW)
Antelope Valley AQMD	4	432
Eastern Kern APCD	2	182
Imperial County APCD	7	1,021
Mojave Desert AQMD	3	744
Monterey Bay ARD	1	169
Sacramento Metropolitan AQMD	9	98
San Joaquin Valley APCD	7	373
San Luis Obispo County APCD	1	715
Santa Barbara County APCD	1	40
Total	35	3,774

SCM Proposal: Key Components



- Establishes:
 - A new category for photovoltaic coatings
 - VOC limit of 600 g/l based on technical feasibility
 - District specific volume limits
- Includes notification and reporting requirements
- Sunsets photovoltaic coatings category on January 1, 2028

Photovoltaic Coatings Definition



Labeled and formulated for application to solar photovoltaic modules


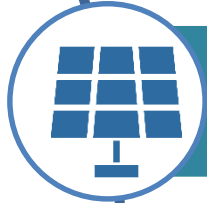




Applied as a single layer to solar photovoltaic modules already installed

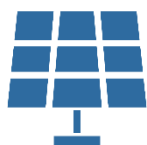


Does not include coatings applied to photovoltaic modules in shop or factory applications

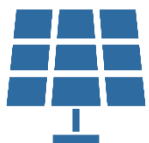
Notification Provisions

-  Specific information on the solar facility
-  Agreement with facility owner
-  Description of coating activities
-  Estimate gallons and emissions of photovoltaic coatings

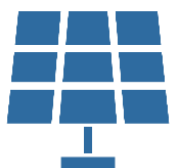
Annual Reports



Source specific information



Coating Activities



Report actual gallons and emissions of photovoltaic coatings used

Proposed Volume Limits and Emissions Impacts



Air District	Daily Volume Limit (Gallons)	VOC Emissions Increase (Tons/Day)
Antelope Valley AQMD	27	0.068
Eastern Kern APCD	27	0.068
Imperial County APCD	27	0.068
Mojave Desert AQMD	27	0.068
Monterey Bay ARD	27	0.068
Sacramento Metropolitan AQMD	12.5	0.031
San Joaquin Valley APCD	100*	0.250
San Luis Obispo County APCD	27	0.068
Santa Barbara County APCD	27	0.068

*The San Joaquin Valley APCD has an additional annual limit of 3,900 gallons. 16

Potential Emissions Benefits

- Coating 3,774 MW of existing solar modules would lead to an increase of 113 MW
- Estimated power plant emissions avoided
 - CO₂ – 554,627 metric tons
 - NO_x – 227 tons
 - SO_x – 13 tons
 - PM₁₀ – 63 tons
 - PM_{2.5} – 50 tons
 - VOC – 38 tons
 - CO – 416 tons



Clean Air Act Section 110(I)



- Small increase in VOC emissions
- Analyzed air quality impacts for each district potentially adopting the proposed SCM
- Does not interfere with SIP attainment, reasonable further progress or maintenance

Staff Recommendation



- Approve the proposed updates to the SCM
- Direct staff to forward the SCM to the air districts
- Direct staff to assist districts with adoption of SCM into district rules as appropriate