SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report

Proposed Amended Rule 1136 – Wood Products Coatings

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EXECUTIVE SUMMARY

Rule 1136 – Wood Products Coatings (Rule 1136) was originally adopted in 1983 to reduce emissions of Volatile Organic Compounds (VOC) from coatings, strippers, and solvents used in the manufacture, refinishing, and maintenance of wood products, including furniture, cabinets, shutters, and other coated wood materials. Since its adoption, the rule has been amended multiple times to lower VOC content limits, expand coating categories, update definitions and test methods, and support the South Coast Air Quality Management District's (South Coast AQMD) ongoing efforts to reduce VOC emissions from industrial coating operations.

As manufacturers reformulated coatings to comply with increasingly stringent VOC requirements, many transitioned to the use of VOC-exempt solvents such as para-Chlorobenzotrifluoride (pCBtF; Chemical Abstracts Service Registration Number (CAS RN): 98-56-6) and *tert*-Butyl Acetate (t-BAc; CAS RN: 540-88-5). Subsequent toxicological evaluations conducted by the Office of Environmental Health Hazard Assessment (OEHHA) identified toxic endpoints for these compounds, including cancer potency values comparable to or exceeding chemicals already restricted under South Coast AQMD rules. In response to these findings, the Governing Board directed staff to assess pCBtF and t-BAc usage in the wood coatings sector and develop an approach to reduce exposure to these compounds. Proposed Amended Rule 1136 (PAR 1136) partially implements 2022 Air Quality Management Plan (AQMP) control measure CTS-01 – Further Emission Reductions from Coatings, Solvents, Adhesives, and Lubricants.

To better characterize exempt-solvent use in the marketplace, staff conducted a manufacturer survey. Survey responses identified six coating categories that currently rely on pCBtF in their formulation, while no coating categories were identified as using t-BAc. Staff also performed technical analyses to determine equivalent reactivity-based Product-Weighted Maximum Incremental Reactivity (PW-MIR) VOC limits for these categories. The PW-MIR VOC limits are based on equivalent ozone forming potential. Manufacturers indicated that stripper reformulation may present more challenges than coatings, due to limited performance-equivalent alternatives and the United States Environmental Protection Agencies (U.S. EPA) future phase out of Methylene Chloride.

PAR 1136 proposes a regulatory framework that balances public health protection with feasible industry transition. The amendment includes three core components:

(1) Maintaining the existing VOC limits for wood products coatings and strippers;

(2) Establishing a prohibition schedule for pCBtF and t-BAc in wood coatings, including sell-through and use-through periods designed to address stranded inventory concerns; and

(3) Providing an optional PW-MIR compliance pathway.

Under this structure, the six coating categories identified as containing pCBtF and strippers will have applicable alternative PW-MIR limits in addition to the existing mass-based VOC limits, providing additional reformulation flexibility, maintaining product performance, and minimizing the impact to air quality.

PAR 1136 also retains an alternative compliance pathway for facilities using an approved Air Pollution Control System that achieves equivalent VOC emission reductions to the rule's VOC limits.

CHAPTER 1 : BACKGROUND

INTRODUCTION

REGULATORY HISTORY

AFFECTED INDUSTRIES

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Introduction

Rule 1136 – Wood Products Coatings is a source-specific rule originally adopted on September 16, 1983, to reduce emissions of VOCs from coatings, strippers, and solvents used in the manufacturing, refinishing, and maintenance of wood products such as furniture, cabinets, shutters, frames, and similar coated wood materials. Rule 1136 establishes VOC content limits and work practice standards for coating operations and surface preparation practices. The rule applies to any person or facility that manufactures, supplies, sells, solicits, or applies wood coatings or strippers within the South Coast Air Basin.

Over time, amendments to Rule 1136 have lowered VOC content limits, aligned definitions with South Coast AQMD's broader VOC reduction initiatives, and facilitated the transition from traditional nitrocellulose lacquer systems to lower-emitting alternatives. As VOC limits became more stringent, coating manufacturers increasingly relied on exempt solvents, most notably pCBtF and t-BAc, because their use does not contribute to the calculated VOC content of a coating.

In April 2017, the South Coast AQMD Stationary Source Committee recommended a precautionary approach when considering exempt compounds with potential toxic endpoints, prioritizing reductions in toxic exposure over further reductions in VOC emissions. OEHHA has identified toxic endpoints for both pCBtF and t-BAc. In response, South Coast AQMD has been working to phase out or minimize the use of these exempt compounds across all VOC rules. For Rule 1136, the current rule development has two primary goals: (1) to phase out the use of pCBtF and t-BAc in wood coatings and strippers wherever feasible, and (2) to maintain existing VOC limits while providing an alternative reactivity-based compliance pathway that supports reformulation without reliance on toxic exempt solvents.

To support this effort, staff conducted a manufacturer survey that identified six coating categories currently formulated with pCBtF and no coating categories using t-BAc. Staff also performed an analysis to establish equivalent Product-Weighted Maximum Incremental Reactivity (PW-MIR) limits for the six affected categories, recognizing that stripper reformulation may require additional flexibility due to limited available alternatives. PAR 1136 proposes a prohibition schedule for pCBtF and t-BAc, an optional PW-MIR compliance pathway, and maintains all existing VOC limits.

2022 Air Quality Management Plan (AQMP)

The 2022 AQMP adopted on December 2, 2022, set forth a path for improving air quality and meeting federal air pollution standards by striving for zero-NOx emission technologies across all sectors and lower VOC emissions where feasible. The 2022 AQMP included Control Measure CTS-01 Further Emission Reductions from Coatings, Solvents, Adhesives, and Lubricants (CTS01), which seeks to address the toxicity concerns of pCBtF and t-BAc and assess opportunities for VOC emission reductions[1]. PAR 1136 partially implements CTS-01 from the 2022 AQMP.

[1] https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iv-a.pdf

Regulatory History

Rule 1136 was adopted on September 16, 1983, and has been amended multiple times to address feasibility, availability of low-VOC technologies, and alignment with federal and state air quality objectives. Early amendments in 1988, 1994, and 1996 focused on reducing the VOC content of wood coatings, updating compliance schedules, and introducing waterborne and hybrid coating systems to achieve more aggressive VOC reductions. These amendments also incorporated transfer efficiency requirements, emissions averaging provisions, and clarifications to coating categories.

Past amendments were designed to phase in lower-emitting technologies over time, while allowing industry flexibility to transition from traditional high-solvent lacquers. During the 1990s, the rule was revised to reflect evolving coating technologies, mitigate challenges associated with waterborne conversion, and incorporate interim VOC limits for specific categories.

Although Rule 1136 has undergone several amendments, the rule has not received a major technical update since 1996. Since that time, newer South Coast AQMD VOC rules—such as Rules 1168, 1151, 1171, and 1107—have addressed the phase-out of pCBtF and t-BAc following OEHHA's identification of their toxic endpoints. PAR 1136 continues this agency-wide effort and establishes a contemporary compliance structure that maintains current VOC limits while addressing exempt-solvent toxicity.

Background on t-BAc and pCBtF

In 1994, U.S. EPA exempted pCBtF from the federal definition of a VOC due to its negligible photochemical reactivity. South Coast AQMD incorporated this exemption in 2014 by adding pCBtF to Rule 102, such that pCBtF is not considered a VOC unless otherwise specified in a South Coast AQMD rule.

In 2004, U.S. EPA similarly exempted t-BAc; however, South Coast AQMD did not grant a full exemption under Rule 102 due to toxicity concerns, instead allowing limited exemptions through source-specific rules such as Rule 1113.

In 2013, amendments to Rule 1113 directed staff to re-evaluate the t-BAc exemption based on emerging health concerns. In 2017, staff presented preliminary findings on t-BAc and pCBtF to the Stationary Source Committee (SSC), and the SSC subsequently directed staff to remove t-BAc exemptions following completion of OEHHA's health risk assessment and to evaluate pCBtF for potential carcinogenicity.

OEHHA finalized the t-BAc health risk assessment in 2018, concluding that its cancer risk was higher than previously estimated, and finalized the pCBtF assessment in 2020, identifying pCBtF as a potential carcinogen. In response, South Coast AQMD has taken action to prohibit these compounds through amendments to Rule 1168 in 2022, Rule 1151 in 2024, and Rule 1171 and 1107 in 2025.

Comparative Toxicity Context for pCBtF and t-BAc

Staff evaluated several regulatory approaches to address toxicity concerns associated with pCBtF and t-BAc, informed by how other compounds with identified toxic endpoints have historically been addressed under South Coast AQMD rules. Under Rule 102, VOC-exempt compounds may

be designated as Group II and restricted in source-specific rules when health or safety concerns are identified.

To support this evaluation, staff reviewed available toxicological benchmarks, including cancer potency and acute exposure indicators, to place pCBtF and t-BAc in context with other solvents that have been restricted or prohibited. This review indicates that pCBtF exhibits relatively elevated cancer risk potential, while t-BAc presents concerns related to short-term exposure, consistent with prior staff and OEHHA findings.

Based on this comparative assessment, staff determined that continued reliance on pCBtF and t-BAc is inconsistent with the South Coast AQMD's precautionary approach for toxic exempt compounds. Accordingly, PAR 1136 advances a phased prohibition framework that aligns with prior rulemakings and balances public health protection with feasible industry transition.

For Rule 1136, staff conducted a manufacturer survey in 2024 to evaluate solvent usage across coating categories. The survey showed:

- Six coating categories are formulated with pCBtF
- Zero categories utilize t-BAc
- PW-MIR analysis demonstrates a feasible reactivity-based compliance option for the six pCBtF categories

These findings support the need for a prohibition schedule and an alternative compliance option that enables reformulation while maintaining existing VOC limits.

Background on Paint Strippers

Some stripper formulations also rely on exempt-solvent systems, primarily methylene chloride, a Group II exempt compound under Rule 102. In May 2024, U.S. EPA finalized a regulation under the federal Toxic Substances Control Act (TSCA) that will prohibit the manufacture, processing, distribution, and use of methylene chloride for industrial and commercial wood refinishing wood applications taking effect by May 8, 2029. Under TSCA, U.S. EPA evaluates chemical substances to determine whether they present an unreasonable risk to human health or the environment under their conditions of use. When U.S. EPA determines that a chemical poses such a risk, TSCA authorizes U.S. EPA to impose restrictions or prohibitions to eliminate or reduce the risk. Methylene chloride has well-documented acute and chronic toxicity and has been associated with worker fatalities, particularly during paint stripping activities conducted in enclosed or poorly ventilated spaces.

Some stripper formulations used in the South Coast AQMD rely on methylene chloride, which is categorized as a Group II exempt compound under Rule 102. Exempt compounds are included as Group II exempts if there are known concerns such as toxicity, global warming potential, or causing other harmful environmental impacts. Many South Coast AQMD VOC rules include a prohibition from using Group II exempt compounds; however, Rule 1136 currently does not. Staff is proposing to align with the South Coast AQMD's precautionary approach for toxic exempt compounds by including a Group II prohibition for wood coatings and strippers. However, to address the current use of methylene chloride in strippers and to provide a feasible transition to alternative solvents, staff is proposing to temporarily exempt methylene chloride from the Group II prohibition for strippers. Facilities that are currently permitted to use methylene chloride-based strippers would be able to continue using them until the future federal

prohibition goes into effect on May 8, 2029. Paint stripper reformulation presents unique feasibility challenges because no non-toxic solvent or combination of solvents have been identified that can strip coatings as efficiently as methylene chloride.

Affected Industries

Rule 1136 applies to any person who manufactures, blends, packages, repackages, sells, offers for sale, supplies, distributes, uses, or applies any wood coating, stripper, or surface preparation material within the South Coast Air Basin. The affected industries include:

- Furniture and cabinet manufacturers
- Architectural millwork and wood fixture producers
- Shutter and frame manufacturers
- Wood refinishing and restoration operations
- Specialty and custom wood product fabricators
- Facilities applying coatings to composite or simulated wood materials

These facilities range from small family-owned shops to large manufacturing operations with multiple coating lines. The sector includes manufacturers that perform staining, sealing, filling, toning, priming, clear coating, and specialized finishing for a wide variety of residential, commercial, and institutional wood products.

Staff identified 516 facilities with active permits subject to Rule 1136. Among these, 21 facilities have a high potential to emit and are subject to Title V permitting requirements. Of the Title V facilities, approximately 10 have relatively high VOC emissions associated with the application of wood coatings. Facilities regulated under Rule 1136 are distributed throughout the South Coast AQMD region, and some are located in close proximity to sensitive receptors such as residential areas, and other populated locations.

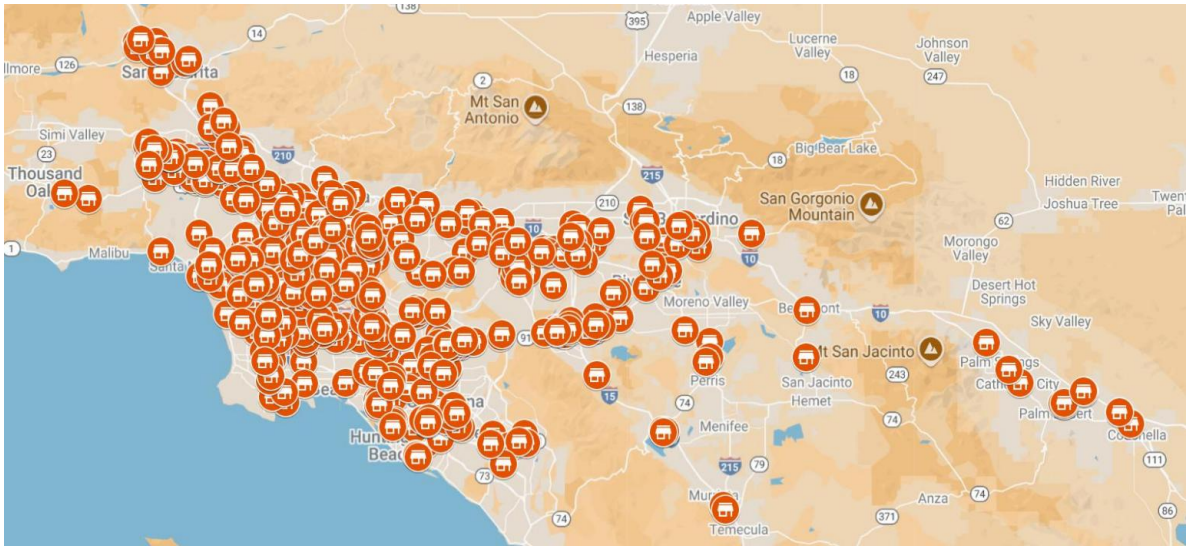

Figure 1-1: PAR 1136 facilities in South Coast AQMD

To characterize the use of exempt solvents and determine applicability, staff conducted a manufacturer survey that informed the development of the prohibition schedule and PW-MIR

limits. This survey-based approach ensures that proposed amendments reflect current market conditions and allow for feasible reformulation pathways. The amendments proposed in PAR 1136 are expected to affect all manufacturers producing coatings for distribution in the South Coast Air Basin, as well as end users that apply these coatings.

Process Description

Rule 1136 applies to operations that manufacture, refinish, or maintain wood products using wood coatings, strippers, or associated surface preparation materials. These materials perform essential functions such as sealing, staining, priming, filling, and finishing to achieve required aesthetic and durability characteristics. Wood coatings are formulated to meet performance needs including adhesion, hardness, clarity, and resistance to moisture or abrasion.

As VOC limits tightened over time, manufacturers reformulated coatings to maintain product performance while complying with regulatory requirements. In several categories, exempt solvents primarily pCBtF were incorporated because they do not contribute to calculated VOC content.

Under PAR 1136, existing VOC limits are maintained. However, consistent with South Coast AQMD's precautionary approach for exempt compounds with identified toxic endpoints, the amendment introduces a phase-out schedule for pCBtF and provides an optional PW-MIR compliance pathway for the six coating categories identified through the manufacturer survey as containing pCBtF. No categories were identified as containing t-BAc. This framework allows continued compliance flexibility while reducing reliance on toxic exempt solvents.

Public Process

The rule amendment process for PAR 1136 began in July 2024. Staff conducted five Working Group Meetings and held multiple individual meetings with coating manufacturers, distributors, and wood finishing facilities. In addition, a public workshop was conducted on February 4, 2026. To support the technical assessment, staff distributed a manufacturer survey requesting formulation data for wood coatings and strippers, including VOC content, exempt solvent usage, and reactivity information. The table below summarizes the key topics discussed at each of the Working Group Meetings; presentations from those meetings are posted on the South Coast AQMD's website.[2] Rule development was paused between Working Group Meeting #3 and #4 due to shifting resources.

[2] https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1136

Table 1-1: Working Group Meetings

Meeting title	Date	Highlights
Working Group Meeting #1	July 9, 2024	• Rule background • Key amendment objectives • Exempt solvent background
Working Group Meeting #2	August 21, 2024	• Amendment progress update • Coating manufacturer survey
Working Group Meeting #3	December 10, 2024	• Amendment progress update • Coating manufacturer survey data analysis
Working Group Meeting #4	September 16, 2025	• Amendment progress update • Initial Rule Concepts • Initial Alternative PW- MIR
Working Group Meeting #5	December 10, 2025	• Amendment progress update • Rule concepts • Initial Preliminary Draft Rule Language

Additionally, staff conducted several site visits where various topics were discussed, including the types of wood coating materials used in the South Coast AQMD to gain a deeper understanding of wood coating industry operations and logistics. A summary of the site visits is provided in the table below.

Table 1-2: Site Visits

Stakeholder	Date
Disneyland	08/14/2024
Fender	09/03/2024
Sony Picture Studios	09/05/2024
Vista Paint Company	7/22/2025

As part of the PAR 1136 rule development process, staff met with coating manufacturers to further evaluate the survey data and gain a clearer understanding of industry practices. These meetings focused on clarifying manufacturer survey responses, assessing the extent of pCBtF and t-BAc usage within specific wood coating sectors, and discussing technical and operational challenges associated with prohibiting these compounds. Staff also discussed potential alternative compliance approaches and reformulation options, including the use of water-based coating technologies and reactivity-based VOC limits. Manufacturer meetings were held with

Axalta on June 25, 2025; Gemini on June 26, 2025; RPM ICG on July 16, 2025; and AkzoNobel on July 25, 2025.

CHAPTER 2 : TECHNOLOGY ASSESSMENT

WOOD COATING MATERIALS AND VOC CONTROL

WOOD COATING MATERIALS AND USE of pCBtF and t-BAc

Wood Coating Materials and VOC Control

Wood products coatings regulated under Rule 1136 are used in the manufacturing, refinishing, and maintenance of a wide range of products, including furniture, cabinets, shutters, architectural millwork, frames, and other coated wood materials. These coatings perform essential functions such as sealing, staining, priming, filling, toning, and finishing to achieve required aesthetic qualities, durability, and protection against moisture, abrasion, and environmental exposure.

Historically, wood coatings have relied heavily on solvent-borne formulations, particularly nitrocellulose lacquer systems, which contain a high proportion of organic solvents. During application and curing, these solvents evaporate and contribute to emissions of VOCs. As a result, wood product coating operations have been a significant source of VOC emissions within the South Coast Air Basin and have been subject to progressively more stringent regulatory requirements over time.

Rule 1136 establishes VOC content limits for wood coatings and strippers as the primary mechanism for controlling emissions. Unlike some source categories that rely on add-on air pollution control equipment, compliance with Rule 1136 has historically been achieved predominantly through material reformulation, improved application practices, and the use of compliant coating technologies. This structure reflects the diverse and decentralized nature of the wood products industry, which includes many small and medium-sized facilities where installation of add-on control systems is often impractical.

As VOC limits under Rule 1136 became more stringent through successive amendments, coating manufacturers reformulated products to maintain performance while reducing regulated VOC content. Early compliance strategies included the transition from traditional high-solvent formulations to waterborne, ultraviolet (UV)-curable, Electron Beam (EB), Light-Emitting Diode (LED), and high-solids coatings. These alternatives significantly reduced VOC emissions but required changes in application techniques, drying conditions, and finish management practices.

In parallel, manufacturers increasingly relied on compounds exempted from the regulatory definition of VOC to further reduce calculated VOC content while preserving solvent-based performance characteristics. Two exempt solvents, pCBtF and t-BAc, were widely used in multiple coating categories because they provided favorable evaporation rates, solvency, and film-forming properties without counting toward regulatory VOC limits.

While the use of exempt solvents facilitated compliance with mass-based VOC limits, subsequent toxicological evaluations identified health concerns associated with certain exempt compounds. These findings prompted a shift in regulatory focus from solely controlling ozone precursor emissions to also addressing potential toxic exposure risks associated with exempt-solvent use.

The current amendment to Rule 1136 reflects this shift in regulatory priorities. Rather than further tightening mass-based VOC limits, PAR 1136 is designed to reduce reliance on exempt solvents with identified toxic endpoints while maintaining the existing VOC control framework. This approach recognizes that the South Coast Air Basin is currently a nitrogen oxides (NO_x)-limited environment, where additional VOC reductions from this source category are less effective toward achieving ozone attainment goals.

To support this effort, staff conducted a manufacturer survey to characterize current formulation practices across wood coating and stripper categories. Survey responses indicated that six

coating categories; Clear Sealers, Clear Topcoats, Pigmented Primers, Sealers & Undercoats, Pigmented Topcoats, High-Solid Stains, and Low Solid Stains, Toners, and Washcoats, currently rely on pCBtF in their formulations, while no coating categories were identified as using t-BAc. The survey also indicated that reformulation of strippers presents greater feasibility challenges due to limited performance-equivalent alternatives and the critical role of solvent strength in coating removal.

These findings informed the development of a regulatory approach that focuses on eliminating the use of pCBtF and t-BAc while preserving compliance flexibility and minimizing disruption to the wood coatings marketplace

Reformulating wood coatings presents technical challenges that vary by coating type, substrate, and application method. Performance attributes such as adhesion, clarity, color development, grain raising, hardness, and repairability are highly sensitive to solvent composition. Changes in formulation can affect drying time, finish appearance, production throughput, and compatibility with existing equipment.

Waterborne and other low-VOC technologies have been successfully adopted in many applications, particularly for topcoats and primers. However, certain coating categories—such as high-solids stains and specialized finishing materials—continue to face reformulation constraints. These constraints are driven by substrate variability, environmental conditions, and customer performance expectations rather than a lack of regulatory incentive.

Stripper formulations present additional challenges because their effectiveness depends on solvent penetration, dwell time, and removal efficiency. Alternatives to traditional solvent systems may require longer processing times or additional mechanical action, which can limit feasibility for some users.

Recognizing these constraints, PAR 1136 is structured to allow multiple compliance pathways while phasing out the use of pCBtF and t-BAc in coatings and providing regulatory flexibility as U.S. EPA prohibits the use of methylene chloride for paint strippers.

Product-Weighted Maximum Incremental Reactivity (PW-MIR) Compliance Pathway

A key component of the amended rule is the introduction of an optional PW-MIR compliance pathway for selected coating categories. PW-MIR is a reactivity-based metric that reflects the ozone-forming potential of a product based on the weighted reactivity of all VOC ingredients in the formulation.

Under PAR 1136, PW-MIR limits are established only for coating categories identified through the manufacturer survey as containing pCBtF. These limits were derived through equivalency analyses to ensure that compliance using PW-MIR achieves an ozone impact comparable to compliance with existing mass-based VOC limits. The PW-MIR pathway is optional and does not replace or modify the existing VOC content limits.

MIR values used to calculate PW-MIR are published by California Air Resources Board (CARB) and represent the relative ozone-forming potential of individual VOCs. PW-MIR is calculated by weighting each VOC's MIR value by its proportion in the product formulation, resulting in a single metric that represents the overall ozone-forming potential of the product.

This approach allows the rule to distinguish between VOCs with substantially different reactivities rather than treating all VOCs equally on a mass basis.

This approach provides manufacturers with additional reformulation flexibility by allowing substitution of lower-toxicity VOCs with known reactivity characteristics, rather than relying on exempt solvents. By maintaining existing VOC limits and offering PW-MIR as an alternative pathway, the rule avoids backsliding while supporting feasible transitions away from toxic exempt compounds.

The PW-MIR framework has been used in prior South Coast AQMD rulemakings, including Rules 1151 and 1171, to support equivalent or greater ozone protection while providing flexibility during reformulation. Consistent with those rules, PW-MIR under PAR 1136 is offered as an alternative compliance option and is designed to achieve equal or lower ozone formation compared to traditional mass-based VOC limits.

For strippers used on wood products, the amended rule provides additional flexibility by allowing compliance through either existing VOC content limits, existing Composite Vapor Pressure limit, or newly proposed PW-MIR VOC limits.

In summary, Rule 1136 relies on a reformulation-based compliance strategy that reflects the structure of the wood products industry and the technical characteristics of wood coatings and strippers. The amended rule:

- Maintains existing mass-based VOC limits;
- Establishes a prohibition schedule for pCBtF and t-BAc with sell-through and use-through provisions; and
- Introduces optional PW-MIR VOC limits for select coating categories and strippers.

This layered compliance framework balances public health protection with technical feasibility, allowing the wood coatings sector to transition away from toxic exempt solvents while maintaining product performance and regulatory compliance

Wood Coating Materials Manufacturer pCBtF and t-BAc Survey

To understand the extent of the use of pCBtF and t-BAc to comply with the VOC limits in Rule 1136, staff conducted a survey, in August 2024, of manufacturers who sell wood coating materials subject to Rule 1136. The main compounds of interest in the survey were pCBtF and t-BAc. The results of the survey were used to help evaluate VOC content limits, VOC emissions, a potential prohibition timeline, and future effective VOC content limits. The table below shows the survey questions.

Table 2-1: Wood Coating Materials Survey Questions

Requested Information	
1.	Company name, contact person, and an email address
2.	Product name
3.	Product category
4.	VOC content of product (regulatory and actual)
5.	Is the product water or solvent based
6.	Percent content of pCBtF and/or t-BAc
7.	Annual sold volume and if that volume represents South Coat AQMD or California

In total, four wood coating materials manufacturers responded to the survey distributed as part of the PAR 1136 rule development process. Rule 1136 currently includes 14 categories covering sealants, topcoats, primers, fillers, inks, cleaning solvents, and other coatings. The following summarizes the major findings of the survey:

- A total of 517 wood coating materials from seven categories were reported to be sold within the South Coast AQMD jurisdiction. The table below summarizes the main product categories identified in the survey and the number of products reported within each category.

Table 2-2: Summary of the Number of Products Reported in Survey

Category	# of Products Reported
Clear Sealers	22
Clear Topcoat	159
Pigmented Primers, Sealers & Undercoats	31
Pigmented Topcoats	126
Fillers	8
High-Solid Stains	72
Low Solid Stains, Toners, and Washcoats	99

- Survey responses indicated that six of the seven reported coating categories contained products formulated with pCBtF. No coating categories were reported to contain t-BAc.

- Approximately 79 percent of reported products were solvent-based, and products containing pCBtF accounted for approximately 85 percent of reported sales volume.
- Reported pCBtF content ranged from approximately eight to 90 percent by weight, depending on coating category and formulation.
- Several coating categories including barrier coats for plastic components, composite wood edge fillers, extreme performance coatings, inks, mold-seal coatings, multi-colored coatings, and low-solids barrier coats were not reported as sold in the survey.
- Absent additional data, staff assumes that pCBtF and t-BAc are not required to comply with VOC limits in those categories.
- The following figures illustrate the distribution of sales volume for products containing pCBtF compared to products formulated without pCBtF for major coating categories.

Table 2-3: Sales Volume of All Reported Products by Category

Category	# of Reported Products	Gallons Products Sold
Clear Sealers	22	46,600
Clear Topcoats	159	106,900
Pigmented Primers, Sealers & Undercoats	31	46,600
Pigmented Topcoats	126	58,400
Fillers	8	Protected Data[3]
High-Solid Stains	72	Protected Data
Low Solid Stains, Toners, and Washcoats	99	4,300
Total	517	263,660

Based on survey data submitted, pCBtF use was identified in the following six coating categories:

- Clear Sealers
- Clear Topcoats
- Pigmented Primers, Sealers, and Undercoats
- Pigmented Topcoats
- High-Solid Stains
- Low-Solid Stains, Toners, and Washcoats

These categories represent the majority of reported product sales and form the basis for staff's evaluation of reformulation feasibility and alternative compliance approaches under PAR 1136.

[3] Protected Data indicates the data is confidential with less than three manufacturers reported sales

In contrast, fillers were reported to contain neither pCBtF nor t-BAc and represent a small fraction of total sales, indicating that early prohibition is feasible for that category.

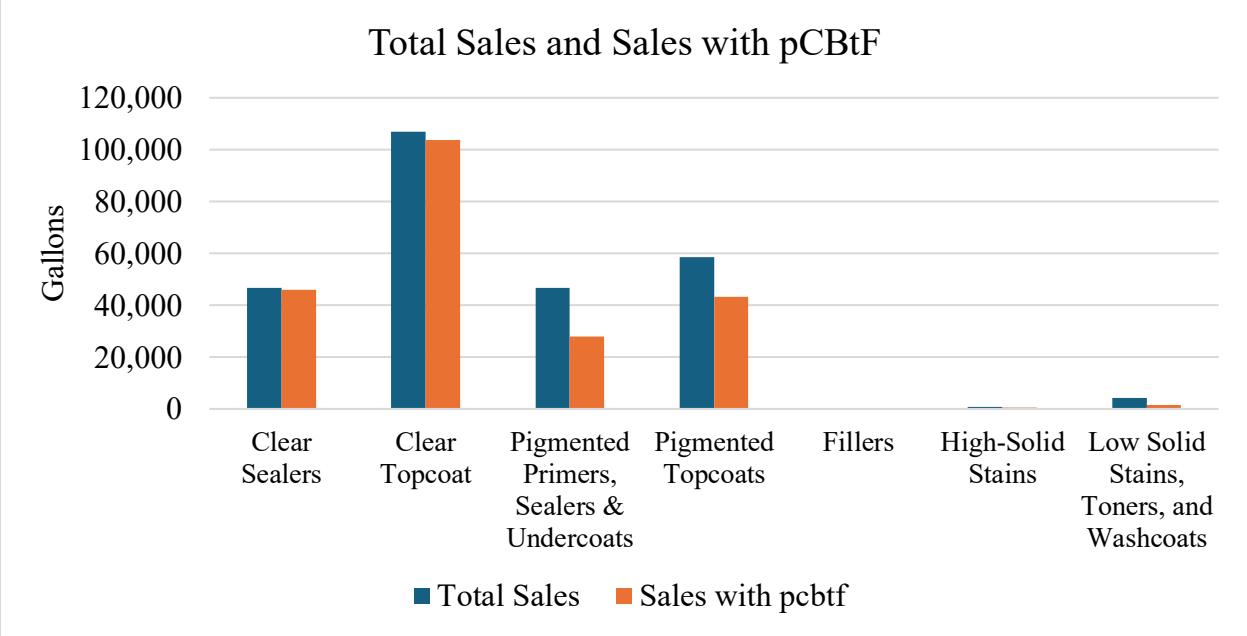

Figure 2-1: Total Sales Volume and Sales Volume Containing pCBtF by Category

Not all VOCs have equal ozone-forming potential. Traditional mass-based VOC limits treat exempt compounds as zero and non-exempt compounds as fully contributing, without regard to relative reactivity. To evaluate ozone-formation potential more directly, staff assessed coatings using MIR, which quantifies the grams of ozone formed per gram of VOC emitted.

Using survey data and safety data sheets, staff calculated PW-MIR values for coatings in each reported category. MIR values were provided directly by manufacturers for some products and estimated for others where formulation data were available.

The analysis showed that:

- Clear topcoats generally exhibited higher PW-MIR values than pigmented topcoats, likely due to higher solids content.
- High-solid and low-solid stains exhibited elevated PW-MIR values driven by aromatic hydrocarbons with high MIR values.
- Categories with similar mass-based VOC limits exhibited substantially different PW-MIR values.

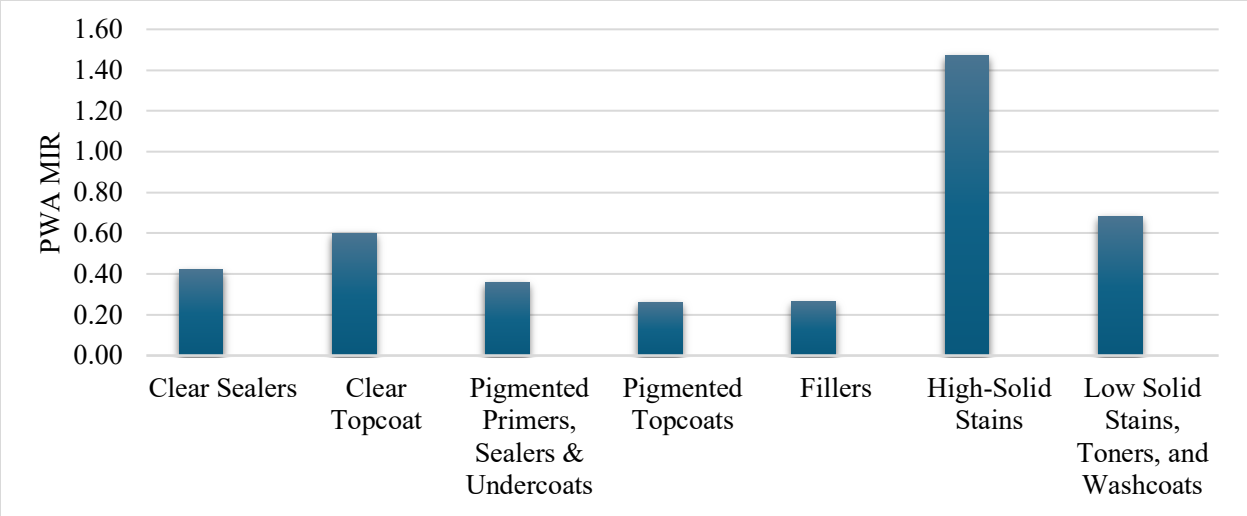

Figure 2-2: Average Product-Weighted MIR (PW-MIR) by Coating Category

Based on the PW-MIR analysis, staff developed optional alternative PW-MIR VOC limits for coating categories identified as containing pCBtF. Reactivity-based VOC limits can achieve ozone-equivalent outcomes while allowing additional formulation flexibility. These limits are designed to be equivalent to existing mass-based VOC limits in terms of ozone-forming potential, not more stringent.

Under PAR 1136:

- Existing mass-based VOC limits remain unchanged.
- PW-MIR VOC limits are optional and apply only to specific coating categories.
- Manufacturers may comply with either the mass-based VOC limit or the PW-MIR VOC limit.
- PW-MIR VOC limits allow substitution of lower-toxicity VOCs without increasing ozone impacts.

PW-MIR VOC limits are a new compliance approach for South Coast AQMD VOC rules, and staff will monitor implementation and market response over time.

Table 2-4: Summary of Average PW-MIR VOC Content Values and Existing VOC Limits by Category

Product Category	Average PW-MIR VOC Content ($g O_3$/ g Product)	Category VOC Limit (g/L)
Clear Sealers	0.53	275
Pigmented Primers, Sealers & Undercoats	0.60	275
Clear Topcoats	0.53	275
Pigmented Topcoats	0.46	275
Fillers	0.16	275
High-Solid Stains	1.87	350
Low-Solid Stains, Toners & Washcoats	1.03	120

PAR 1136 proposes a future effective prohibition on the manufacture, sale, and use of wood coatings containing pCBtF and t-BAc. Based on stakeholder input and market considerations, staff proposes a structured transition that includes:

- A future manufacturing prohibition date,
- A sell-through period for products already in the supply chain, and
- A use-through period to allow end users to exhaust existing inventory.

These provisions are intended to minimize stranded assets while allowing sufficient time for reformulation and transition.

In addition to pCBtF and t-BAc, PAR 1136 includes a future effective prohibition on Group II exempt compounds, with a prohibition schedule aligned with the pCBtF and t-BAc phase out. Most South Coast AQMD coating and solvent VOC rules that have been amended relatively recently, include a prohibition on Group II exempt compounds due to their potential toxicity. Rule 1136 did not include a prohibition, so a future effective prohibition has been included. Based on staff research and manufacturer feedback, these compounds are not currently being used in Wood Coatings, other than methylene chloride use as a paint stripper. Methylene chloride is being phased out at the federal level, so methylene chloride use will not be prohibited for use in strippers until the federal phase out.

Staff is including colorants in PAR 1136 and providing a longer compliance timeline in response to stakeholder comments requesting additional time to address reformulation challenges associated with removing pCBtF and t-BAc from colorants used across multiple coating systems. Stakeholders indicated that reformulating colorants requires additional research, development, testing, and field validation to ensure compatibility and performance within compliant coating formulations. Consistent with approaches adopted in other South Coast AQMD coating rules,

staff determined that providing a separate, extended compliance schedule for colorants appropriately balances technical feasibility with regulatory certainty and public health protection.

Table 2-5: Proposed Prohibition Schedule for Wood Coatings and Strippers

Category	Final Manufacturer Date	Sell-Through Date	Use-Through Date
Wood Coating Materials	[Three Years after Date of Rule Adoption]	[Four Years after Date of Rule Adoption]	[Five Years after Date of Rule Adoption]
Colorants	[Five Years after Date of Rule Adoption]	[Six Years after Date of Rule Adoption]	[Seven Years after Date of Rule Adoption]
Strippers	[Two Months after Date of Rule Adoption]	[One Year after Date of Rule Adoption]	[Two Years after Date of Rule Adoption]

CHAPTER 3 : SUMMARY OF PROPOSALS

Introduction

The main objective of the proposed amendments to Rule 1136 is to phase out the use of pCBtF and t-BAc in wood coating materials and strippers, as directed by the South Coast AQMD's Stationary Source Committee, due to toxicity concerns.

Staff is proposing the following amendments to Rule 1136. The proposed amendments primarily pertain to the prohibition of pCBtF and t-BAc use in the regulated products and the introduction of alternative compliance pathways, including the use of reactivity-based VOC limits. Some other amendments are for the purpose of rule clarification or streamlining. The proposed revised rule structure and key provisions are discussed in the following sections.

Proposed Amended Rule Structure

(a) Purpose
(b) Applicability
(c) Definitions
(d) Requirements
(e) Alternative Emission Control Plan
(f) Prohibition of Possession, Specification, Sale or Use
(g) Administrative Requirements
(h) Test Methods
(i) Continuous Monitors
(j) Rule 442 Applicability
(k) Exemptions

Proposed Amended Rule 1136

Purpose [Subdivision (a)]

The purpose of this rule is to reduce VOC emissions from the application of wood coating materials and strippers to wood products.

No significant revisions were made to this subdivision. The subdivision previously combined with the Applicability subdivision; however, staff separated the two into separate subdivisions to be consistent with the structure of similar South Coast AQMD VOC rules. Staff capitalized defined terms to indicate that definitions for the associated terms can be found in the Definitions subdivision.

Applicability [Subdivision (b)]

Subdivision (b) updates the applicability section to align with the structure and terminology used in other South Coast AQMD VOC rules. The revisions clarify that PAR 1136 applies to any Person who supplies, sells, offers for sale, markets, manufactures, blends, packages, repackages, possesses, or distributes any Wood Coating Material or Stripper for use within the South Coast AQMD, as well as any owner or operator of a Facility who uses, applies, or solicits the use or application of such materials.

Staff updated applicability for consistency across other VOC rules. Staff also capitalized defined terms to indicate that definitions for the associated terms can be found in the Definitions subdivision.

Definitions [Subdivision (c)]

To provide clarity, definitions are used in the proposed amended rule as a proper noun to better distinguish defined terms from common terms. Refer to PAR 1136 for a complete list of definitions.

The following are new or revised definitions for PAR 1136. For all definitions, refer to the preliminary draft of PAR 1136 released with the staff report. Accordingly, the following definitions will be added or revised:

EXEMPT COMPOUNDS in paragraph (c)(18) is retained but revised to clarify applicability to Group II Exempt Compounds subject to prohibition under PAR 1136.

MAXIMUM INCREMENTAL REACTIVITY (MIR) in paragraph (c)(31), which means: "the measure of the photochemical reactivity of a VOC, which estimates the weight of ozone produced from a weight of VOC expressed as grams of ozone per gram of VOC (g O_3/g VOC). MIR for individual VOCs are specified in Sections 94700 and 94701, Title17, California Code of Regulations."

This definition is added to support the introduction of reactivity-based compliance options in PAR 1136.

PRODUCT-WEIGHTED MIR (PW-MIR) in paragraph (c)(38), which means: "the sum of all weighted-MIR for all ingredients in a Wood Coating Material. The PW-MIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging) and calculated according to the following equations:

Weighted MIR (Wtd-MIR) ingredient = MIR × Weight Fraction ingredient

$$\text{PW-MIR} = (\text{Wtd-MIR})_1 + (\text{Wtd-MIR})_2 + \ldots + (\text{Wtd-MIR})_n$$

Where:
MIR = ingredient MIR; and
1, 2, 3…n = each ingredient in the product up to the total n ingredients in the product."

This definition supports the optional alternative PW-MIR VOC limits established in subdivision (d).

REACTIVE DILUENT in paragraph (c)(39), which means: "a liquid which is a VOC during application and one in which, through chemical or physical reactions, such as polymerization, becomes an integral part of a finished" is retained. Reactive diluents are similar to the monomers and oligomers used in reactive coatings such as urethanes and energy curable coatings as the monomers and oligomers are also VOCs during application but react to become the final film. However, reactive diluent are not the principle monomers or oligomers that give the coating it's properties, they are an additives used to adjust the application properties of the coatings, such as viscosity or rheology.

STRIPPER in paragraph (c)(44) is retained and revised to clarify applicability to prohibition provisions and alternative compliance options evaluated under PAR 1136.

VOC COMPOSITE VAPOR PRESSURE in paragraph (c)(47) is retained; however, staff is evaluating sunsetting the vapor-pressure-based compliance pathway for Strippers in favor of PW-MIR-based limits. The definition is retained for enforceability during the transition period.

WEIGHT FRACTION in paragraph (c)(50), which means: "the weight of an ingredient divided by the total net weight of the product, expressed to thousands of a gram of ingredient per gram of product (excluding container and packaging)"is added to support the PW-MIR definition.

WOOD COATING MATERIAL in paragraph (c)(51) is retained and clarified to ensure applicability to all coating categories subject to PW-MIR limits and prohibition provisions.

Requirements [Subdivision (d)]

This subdivision contains the provisions for any person or facility that applies any wood coating material or stripper to any operation associated with the manufacture, finishing, refinishing, or maintenance of wood products.

Paragraph (d)(1) – VOC Limits for Wood Coatings Materials

Paragraph (d)(1) establishes VOC content limits for Wood Coating Materials by coating category, as specified in Table 1 – Table of Standards for Coatings VOC Limits (Table 1). Staff is not proposing to modify the existing mass-based VOC content limits for Wood Coating Materials.

Wood Coating Materials must comply with either the applicable Regulatory VOC limit or pounds (lbs.) VOC/lbs. solids limit specified in Table 1, or, may comply with the alternative PW-MIR VOC limits specified in Table 1. MIR values for individual VOCs are specified in Sections 94700 and 94701, Title 17, California Code of Regulations.

The alternative PW-MIR compliance pathway provides an additional compliance option while maintaining equivalent ozone-forming potential compared to the existing mass-based VOC limits. Products complying with either mass-based or PW-MIR VOC limits are subject to the prohibition provisions for pCBtF and t-BAc in subdivision (f).

Table 3-1: Summary of the VOC Limits

Coating Categories	Regulatory VOC limit		lbs VOC/ lb of solids	Alternative PW-MIR VOC Limit
	g/L-Coating	lb/gal-Coating		g O_3/g product
Primer, Sealer, and Undercoats (PSU)				
Clear PSU	275	2.3	0.36	0.53
Pigmented PSU	275	2.3	0.21	0.60
Topcoats (including extreme performance)				
Clear Topcoats	275	2.3	0.35	0.53
Pigmented Topcoats	275	2.3	0.25	0.46
Other Categories				
High-Solids Stains	350	2.9	0.42	1.87
Inks	500	4.2	0.96	N/A
Mold-Seal Coatings	750	6.3	4.2	N/A
Fillers	275	2.3	0.18	N/A
Japans	350	2.9	0.42	N/A
Other Coatings	275	2.3	0.3	N/A

Paragraph (d)(2) – VOC Limits for Low-Solids Coatings and Strippers

Paragraph (d)(2) establishes VOC content limits for Low-Solids Coatings and Strippers as specified in Table 2 – Table of Standards for Low-Solids Coatings and Strippers (Table 2).

Low-Solids Coatings must comply with either the applicable Actual VOC limits specified in Table 2, or, may comply with the alternative PW-MIR VOC limits specified in Table 2. Strippers must comply with either the applicable Actual VOC limit, composite vapor pressure limits, or may comply with the alternative PW-MIR VOC limit specified in Table 2. Strippers will also be subject to the prohibition provisions for Group II Exempt Compounds, pCBtF and t-BAc in subdivision (f), including applicable phase-out, sell-through, and use-through requirements though there will be a temporary allowance for the use of methylene chloride in strippers.

Table 3-2: Table of Standards for Low Solids Coatings and Strippers VOC Limits

	Actual VOC Limits		Composite Vapor Pressure	Alternative PW-MIR Limit
	g/L-Material	**lb/gal-Material**	mmHg (0.04 psia) or less at $20^{o}C$ ($68^{o}F$)	**g O_3/g product**
Low-Solids Barrier Coat – Plastic Component	120	1.0	N/A	N/A
Low-Solids Stains, Toners, and Washcoats	120	1.0	N/A	1.03
Strippers	350	2.9	2	1.5

Prohibition of Possession, Specification, Sale or Use [Subdivision (f)]

Subdivision (f) includes new provisions that establish prohibitions on the manufacture, sale, distribution, possession, and use of Wood Coating Materials and Strippers containing specified toxic exempt compounds, including pCBtF and t-BAc, as well as other Group II Exempt Compounds. These prohibitions apply after the applicable Manufacturer Prohibition Dates specified in Table 3 – Prohibition Schedule (Table 3).

Paragraph (f)(1) prohibits any person from manufacturing, supplying, selling, offering for sale, marketing, blending, distributing, packaging, or repackaging Wood Coating Materials or Strippers for use within the South Coast AQMD that contain Group II Exempt Compounds, volatile methylated siloxanes above specified thresholds, or pCBtF and/or t-BAc above the specified concentration limits. This paragraph also prohibits facility owners or operators from possessing, applying, or soliciting the use of non-compliant materials after the applicable prohibition dates.

Paragraph (f)(2) establishes sell-through and use-through provisions for Wood Coating Materials and Strippers manufactured prior to the applicable Final Manufacture Dates. These provisions allow materials containing pCBtF and/or t-BAc that were manufactured before the prohibition date to be sold through the supply chain and used at facilities until the applicable Sell-Through and Use-Through Dates specified in Table 3. This phased approach is intended to prevent stranded inventory while ensuring an orderly transition to compliant products.

Table 3 summarizes the prohibition schedule for Wood Coating Materials and Strippers, including the final manufacture, sell-through, and use-through dates.

Table 3-3: Prohibition Schedule

Category	Final Manufacture Date	Sell-Through Date	Use-Through Date
Wood Coating Materials	[*Three Years after Date of Rule Adoption*]	[*Four Years after Date of Rule Adoption*]	[*Five Years after Date of Rule Adoption*]
Colorants	[*Five Years after Date of Rule Adoption*]	[*Six Years after Date of Rule Adoption*]	[*Seven Years after Date of Rule Adoption*]
Strippers	[*Two Months after Date of Rule Adoption*]	[*One Year after Date of Rule Adoption*]	[*Two Years after Date of Rule Adoption*]

Administrative and Recordkeeping Requirements [Subdivision (g)]

Subdivision (g) contains existing provision that establish recordkeeping and labeling requirements necessary to ensure compliance with the VOC limits and alternative compliance options under Rule 1136.

Paragraph (g)(1) requires owners or operators of facilities to maintain records in accordance with Rule 109 – Recordkeeping for Volatile Organic Compound Emissions. These records support compliance verification and enforcement.

Paragraph (g)(2) applies to facilities complying with VOC limits expressed in pounds of VOC per pound of solids and requires additional documentation of VOC content in that format, in addition to the general recordkeeping requirements of Rule 109.

Paragraph (g)(3) requires that all Wood Coating Materials and Strippers sold or distributed for use within the South Coast AQMD be labeled in accordance with Rule 443.1 – Labeling of Materials Containing Organic Solvents. This ensures that product information necessary for compliance determination is readily available.

Paragraph (g)(4) is a new provision to establish additional labeling requirements for Wood Coating Materials that elect to comply with the alternative Product-Weighted Maximum Incremental Reactivity (PW-MIR) VOC limits. For these materials, manufacturers and suppliers are required to include the PW-MIR VOC content, expressed as grams of ozone per gram of product (g O_3/g product), on all containers to facilitate compliance and enforcement.

Test Methods [Subdivision (h)]

Subdivision (h) is an existing subdivision that specifies the approved test methods for determining the VOC content of Wood Coating Materials and Strippers, quantifying Exempt Compounds, evaluating film build thickness and gloss, calculating VOC composite vapor

pressure, determining the efficiency of Air Pollution Control Systems, and verifying transfer efficiency for alternative coating application methods. The subdivision also establishes provisions for the use of multiple test methods and equivalent test methods.

As part of PAR 1136, the Test Methods subdivision has been reorganized and updated to improve clarity and consistency with other South Coast AQMD coating rules. The revised structure consolidates testing requirements into a single subdivision, updates references to current U.S. EPA, CARB, ASTM, and South Coast AQMD test methods, and removes outdated or redundant provisions from the existing rule. In addition, staff added South Coast AQMD Test Method 313 as an approved compliance option, which provides improved accuracy for determining VOC content in low-VOC coatings compared to U.S. EPA Method 24.

The proposed amendments also clarify the procedures for determining compliance when facilities elect to use Air Pollution Control Systems or alternative PW-MIR VOC limits, including requirements for measuring capture efficiency, control device efficiency, and transfer efficiency. In addition, the subdivision explicitly allows the use of equivalent test methods approved by the U.S. EPA, CARB, and the Executive Officer, and specifies that the most current approved version of each test method shall apply.

These updates ensure that compliance determinations under Rule 1136 are based on standardized, current, and enforceable testing procedures while maintaining flexibility to accommodate advances in analytical methods.

Continuous Monitors [Subdivision (i)]

Subdivision (i) includes existing requirements to establish monitoring, recordkeeping, and calibration requirements for coating operations that use add-on control devices to comply with the VOC limits in paragraph (d)(1) and (d)(2). Facilities subject to this provision are required to install and operate a continuous monitor, approved by the Executive Officer, for each add-on control device used to meet the applicable control requirements.

This subdivision requires that records from the monitoring devices, along with any additional data necessary to demonstrate compliance, be maintained on the premises for a minimum of two years and be made available to the Executive Officer upon request in a form and manner specified by the Executive Officer.

Compliance with paragraphs (d)(1) and (d)(2) may be demonstrated through source testing and/or the evaluation of continuous monitor data. To ensure data integrity, all monitoring devices must be calibrated in a manner approved by the Executive Officer and maintained in optimal working order.

Rule 442 Applicability [Subdivision (j)]

This provision is an existing subdivision that clarifies that any wood coating materials that is exempt from all or a portion of the VOC limits of subdivision (d), shall comply with Rule 442 – Usage of Solvents. This subdivision was not changed other than to capitalize defined terms and moved from subdivision (g) for consistency with other South Coast AQMD rules.

Exemptions [Subdivision (k)]

Subdivision (k) provides conditional exemptions from specific requirements of Rule 1136 where emissions are minimal, where operations are regulated under another applicable South Coast

AQMD rule, or where compliance with the rule would not provide meaningful emission reductions.

Staff removed several exemptions that were time-limited and are no longer applicable to current industry practices.

These include exemptions for classic guitar manufacturing, refinishing and custom replica furniture operations, and touch-up and repair coatings, all of which sunset between 1998 and 2005. Because these provisions have long expired, retaining them would add unnecessary complexity and could create confusion regarding enforceability.

Staff also removed obsolete recordkeeping and spray equipment exemptions tied to pre-2005 VOC limits and early transition provisions that are no longer relevant under the current regulatory framework. These exemptions were originally intended to facilitate early adoption of waterborne coatings and lower-VOC technologies and are no longer needed.

Staff removed the exemption for Japan coatings and instead added them as a separate coating category in Table 1, with a VOC content limit of 350 grams of VOC per liter of coating, less water and Exempt Compounds, as applied. This change is to provide clarification on the VOC limit for Japan coatings and lowering the VOC limit to align with the Rule 1113 VOC for Japan Coatings of 350 g/L, which has been in effect since January 1, 1999.

Paragraph (k)(6) is a new provision that provides a temporary exemption for strippers containing methylene chloride from the Group II Exempt Compound prohibition in subparagraph (f)(1)(A). Strippers containing methylene chloride may be manufactured, supplied, sold, offered for sale, marketed, distributed, packaged, repackaged, possessed, or used, until May 8, 2029, when methylene chloride is scheduled to be phased out under the U.S. Environmental Protection Agency's TSCA regulation. The prohibition for all other Group II exempts in subparagraph (f)(1)(A) will still apply to strippers, only methylene chloride will be temporarily allowed.

CHAPTER 4 : IMPACT ASSESSMENT

EMISSIONS IMPACT

COSTS

SOCIOECONOMIC IMPACT ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

COMPARATIVE ANALYSIS

Emission Impacts

PAR 1136 establishes a prohibition and compliance schedule for the phase out of pCBtF and t-BAc in wood coating materials and strippers while maintaining the existing mass-based VOC limits for most coating categories. PAR 1136 also introduces alternative PW-MIR VOC limits to provide manufacturers with an additional compliance pathway and formulation flexibility during the transition away from exempt solvents. As a result, limited short-term changes in mass-based VOC emissions may occur for certain products, while the overall ozone-forming potential is expected to remain comparable once reformulation is complete. Because the existing mass-based VOC limits are not being changed and the PW-MIR limits are designed to be equivalent alternatives to the current VOC limits, no long-term increase or decrease in VOC emissions are expected as a result of the proposed amendments to the rule.

Manufacturer survey data indicate that pCBtF is widely used to meet current VOC limits in several major wood coating categories, including clear and pigmented topcoats, primers, sealers, undercoats, and stains. Approximately 85 percent of total reported sales volume within the South Coast AQMD contain pCBtF, with reported pCBtF content ranging from eight to 90 percent by weight. No use of t-BAc was reported in the survey responses.

Four manufacturers reported a total of 517 products sold within the South Coast AQMD, representing approximately 262,800[4] gallons per year across seven coating categories. Sales-weighted average VOC values by category were used to estimate baseline VOC emissions associated with Rule 1136-regulated coatings.

PAR 1136 affects approximately 516 permitted facilities, including 21 Title V facilities. Of these, approximately 10 facilities have relatively high VOC emissions from wood coating application operations. Staff used manufacturer survey data and available facility usage information to estimate VOC emissions by category, as summarized in the following table.

[4] This figure excludes specific product volumes designated as confidential business information

Table 4-1: Estimated VOC Emissions by Category Reported in Manufacturer Survey

Category	Annual Sales in South Coast (gallons)	Emissions (tons per day)
Clear Sealers	46,600	0.130
Clear Topcoats	106,900	0.293
Pigmented Primers, Sealers & Undercoats	46,600	0.125
Pigmented Topcoats	58,400	0.151
Fillers	Protected Data	Protected Data
High-Solid Stains	Protected Data	Protected Data
Low Solid Stains, Toners, and Washcoats	4,300	0.005
Total	262,800	0.704

Costs

Reformulating wood coating materials to phase out toxic exempt solvents, such as pCBtF and t-BAc, requires manufacturer resources primarily associated with research and development, formulation adjustments, and product testing. These costs may include both initial reformulation efforts and follow-up adjustments as products are refined and optimized for performance and compliance.

Manufacturers that opt to reformulate to meet the PW-MIR VOC limits will be able to meet those limits by changing the solvent system, not seeking new and innovative resin systems, which will reduce reformulation costs. Although solvents represent only one component of total raw material costs, pCBtF is generally more expensive than many conventional solvents due to its specialized production processes, limited supplier base, and VOC-exempt status. Costs for solvents vary and depend on the quantity purchased, with lower prices reflected for bulk purchases, e.g., 55-gallon drums, 264 – 400-gallon bulk shipping containers, or 5,000 – 7,000-gallon bulk trailer trucks. Because pCBtF is imported, it can only be purchased in drums or bulk containers, contributing to the higher costs. The table below shows typical ranges of solvent costs used to formulate coatings as provided by a coating manufacturer.

Table 4-2: Ranges of Solvent Costs

Solvent	Cost Range per Gallon
Methyl or Ethyl Acetate	$8 – 9
Toluene	$6 – 7
pCBtF	$15 – 17*

* Large range reflects cost fluctuations due to supply chain issues and tariffs on imports.

As a result of the high cost, coatings formulated with pCBtF tend to be higher in cost relative to comparable formulations using non-exempt solvents. Over time, reformulated coatings that replace pCBtF with lower-cost solvents may partially offset reformulation costs through reduced material expenses.

To estimate reformulation costs for PAR 1136, staff relied on manufacturer feedback on how much of the reformulation cost will be passed on to the consumer. While reformulations have not taken place, they estimate up to a 20 percent cost increase could result for products requiring reformulation.

Based on manufacturer survey data, approximately 224,000 gallons per year of wood coating materials sold into the South Coast AQMD, with over 85 percent, or 190,400 gallons containing pCBtF and would require reformulation under PAR 1136. Using an average of $40 per gallon of wood coating, staff estimates an increase of up to $8 per gallon of wood coating resulting in approximately $1.5 million of costs over several years. However, the non-pCBtF solvent costs between $6 to $11 less per gallon of coating and is included in wood coatings between 8 - 90% of the formulation, with the challenging reformulations needing to replace up to 50% of the pCBtF resulting in an estimated $571,200 to $1,047,200 in reoccurring solvent cost savings. Overall, the costs would be between $952,000 to $476,000.

Table 4-3: Estimated Reformulation Costs and Savings

Total Coatings Sales Requiring Reformulation:	**190,400**	
Estimated Reformulations Cost	$1.5 million	
Range of Estimated Solvent Cost Savings	$571,200	1,047,200
Overall costs	$952,000	$476,000

These estimated costs and savings are order of magnitude estimates as reformulations will vary in difficulty and reformulation time. The challenges will largely be based on how much pCBtF is in the current formulations, coatings with low percentages of pCBtF should cost less to reformulate than those with high percentages. Transitioning to lower-cost solvents can yield long-term cost savings, particularly in high-solvent formulations. In addition, manufacturers may further reduce capital reformulation costs through economies of scale and knowledge transfer. Reformulation strategies developed for one coating category may be applied to others, reducing overall reformulation burdens.

Lastly, based on manufacturer feedback, the reformulation time and cost could be lower when working towards complying with the PW-MIR VOC limits. The flexibility of PW-MIR VOC limits plus the lower cost of traditional solvents compared to pCBtF should considerably lower or even negate the potential increased costs passed on to the consumer.

These costs are expected to be incurred primarily by coating manufacturers, most of which are located outside the South Coast AQMD jurisdiction and recovered over time through product sales. Consistent with prior VOC rule amendments, staff anticipates that the overall compliance

costs and associated socioeconomic impacts of PAR 1136 will be minimal within the South Coast AQMD region.

Socioeconomic Impact Assessment

Introduction
On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution which requires an analysis of the socioeconomic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Sections 40440.8 and 40728.5 require a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. Thus, this Socioeconomic Impact Assessment has been prepared in accordance with Health and Safety Code and South Coast AQMD Governing Board requirements. Lastly, Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or "all feasible measures" requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), VOC, and their precursors.

PAR 1136 is designed to partially implement the 2022 AQMP control measure CTS-01 by:

- maintaining the existing VOC limits for wood products coatings and strippers;
- eliminating the use of pCBtF and t-BAc in wood coatings and strippers, due to toxicity concerns; and
- introducing alternative compliance options, such as reactivity-based VOC limits.

While PAR 1136 will eliminate the use of some toxic compounds, it is not expected to reduce emissions of VOC or other criteria pollutants or their precursors. Thus, a cost-effectiveness analysis is not required and has not been prepared.

Legislative Mandates
The legal mandates directly related to the Socioeconomic Impact Assessment of PAR 1136 include South Coast AQMD Governing Board resolutions and various sections of the Health and Safety Code.

South Coast AQMD Governing Board Resolution
On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that requires an analysis of the economic impacts associated with adopting and amending rules and regulations which consider all of the following elements:

- Affected industries;
- Range of probable costs;
- Cost-effectiveness of control alternatives; and
- Public health benefits.

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations."

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the analysis typically includes the following information:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

However, since the estimated annual cost of implementing PAR 1136 is anticipated to be minimal; a job impact analysis was not conducted.

Health and Safety Code Section 40728.5 requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

In addition, to satisfy the requirements in Health and Safety Code Section 40920.6, the scope of the analysis should include an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes BARCT or “all feasible measures” requirements relating to emissions of ozone, CO, SOx, NOx, VOC, and their precursors. However, since PAR 1136 is not focused on reducing emissions of criteria pollutants or their precursors and instead will reduce toxics from wood coatings, a cost-effectiveness analysis pursuant to Health and Safety Code Section 40440.8 and an incremental cost-effectiveness analysis pursuant to Health and Safety Code Section 40920.6 are not required and have not been prepared.

Affected Facilities and Industries

The implementation of PAR 1136 would potentially affect approximately 516 facilities in the South Coast AQMD jurisdiction with 325 facilities in Los Angeles County, 98 facilities in

Orange County, 52 facilities in Riverside County, and 41 in San Bernardino County. Table 4-2 presents the distribution of the affected facilities across various industrial sectors under the North American Industrial Classification System (NAICS). As summarized in the table, the largest share (16.28 percent) of affected facilities belongs to the Furniture and Related Product Manufacturing industry (NAICS 337), followed by 12.02 percent of the affected facilities in the Construction industry (NAICS 23) and 10.27 percent in the Wholesale Trade industry (NAICS 42).

Table 4-2
Distribution of Affected Facilities Across Industries

NAICS	Industry Name	Number of Facilities	Percentage of Facilities
337	Furniture and related product manufacturing	84	16.28%
23	Construction	62	12.02%
42	Wholesale trade	53	10.27%
44-45	Retail trade	51	9.88%
321	Wood product manufacturing	37	7.17%
811	Repair and maintenance	30	5.81%
61	Educational services	27	5.23%
54	Professional, scientific, and technical services	26	5.04%
339	Miscellaneous manufacturing	22	4.26%
561	Administrative and support services	14	2.71%
332	Fabricated metal product manufacturing	13	2.52%
92	State and Local Government	13	2.52%
512	Motion picture and sound recording industries	10	1.94%
99	No Classifiable	8	1.55%
712	Museums, historical sites, zoos, and parks	6	1.16%
334	Computer and electronic product manufacturing	5	0.97%
711	Performing arts and spectator sports	5	0.97%
3364-3369	Other transportation equipment manufacturing	5	0.97%
325	Chemical manufacturing	4	0.78%
333	Machinery manufacturing	4	0.78%
622	Hospitals	4	0.78%
813	Membership associations and organizations	4	0.78%
22	Utilities	3	0.58%
327	Nonmetallic mineral product manufacturing	3	0.58%
531	Real estate	3	0.58%
315-316	Apparel manufacturing; Leather and allied product manufacturing	2	0.39%
323	Printing and related support activities	2	0.39%

NAICS	Industry Name	Number of Facilities	Percentage of Facilities
487-488	Scenic and sightseeing transportation; Support activities for transportation	2	0.39%
532-533	Rental and leasing services; Lessors of nonfinancial intangible assets	2	0.39%
621	Ambulatory health care services	2	0.39%
812	Personal and laundry services	2	0.39%
485	Transit and ground passenger transportation	1	0.19%
517	Telecommunications	1	0.19%
562	Waste management and remediation services	1	0.19%
623	Nursing and residential care facilities	1	0.19%
713	Amusement, gambling, and recreation	1	0.19%
722	Food services and drinking places	1	0.19%
313-314	Textile mills; Textile product mills	1	0.19%
3361-3363	Motor vehicles, bodies and trailers, and parts manufacturing	1	0.19%
Total		**516**	**100%**

Small Business Analysis

The South Coast AQMD defines a "small business" in Rule 102 for the purpose of fees as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. The South Coast AQMD also defines "small business" for the purpose of qualifying for access to services from the South Coast AQMD's Small Business Assistance Office as a business with an annual receipt of $5 million or less, or with 100 or fewer employees. In addition to the South Coast AQMD's definition of a small business, the United States (U.S.) Small Business Administration and the federal 1990 Clean Air Act Amendments (1990 CAAA) each have their own definition of a small business.

The 1990 CAAA classifies a business as a "small business stationary source" if it: 1) employs 100 or fewer employees; 2) does not emit more than 10 tons per year of either VOC or NOx; and 3) is a small business as defined by the U.S. Small Business Administration. Based on firm revenue and employee count, the U.S. Small Business Administration definition of a small business varies by six-digit NAICS codes.[5] Many of the facilities affected by PAR 1136 are within the sectors of manufacturing of wood kitchen cabinets and countertops (NAICS 337110). According to the small-business definition of the U.S. Small Business Administration, the

[5] U.S. Small Business Administration, 2023 Small Business Size Standards, https://www.sba.gov/document/support-table-sizestandards, accessed March 7, 2025.

facilities in this sector which have fewer than 750 employees will be classified as small businesses.

South Coast AQMD mostly relies on Dun and Bradstreet data to conduct small business analyses for private companies. In cases where the Dun and Bradstreet data are unavailable or unreliable, other external data sources such as Manta, Hoover, LinkedIn, and company website data will be used. The determination of data reliability is based on data quality confidence codes in the Dun and Bradstreet data as well as staff's discretion. Revenue and employee data for publicly owned companies are gathered from Securities and Exchange Commission (SEC) filings. Since subsidiaries under the same parent company are interest-dependent, the revenue and employee data of a facility's parent company will be used for the determination of its small business status.

Employment and revenue data from 2025 Dun and Bradstreet data as well as other external sources are available for 484 of the 516 affected facilities. Note that although the employment and revenue data for some facilities are unknown or missing, the current data used for this small business analysis represents the most thorough and accurate information obtainable as of the date of publication. Table 4-3 presents the number of affected facilities that may qualify as small businesses, based on each of the four small business definitions. Among the 484 facilities with available employment and revenue data, up to 418 facilities may qualify as small businesses under various small-business definitions. Note that only 33 facilities have reported their annual VOC and/or NOx emissions to the South Coast AQMD in 2024, 11 of which may qualify as small businesses based on the 1990 CAAA definition.

Table 4-3: Number of Small Businesses Under Various Definitions

Small Business Definition	Number of Small Businesses
South Coast AQMD Rule 102	196
South Coast AQMD Small Business Assistance Office	418
U.S. Small Business Administration	417
1990 CAAA	11

Compliance Costs

PAR 1136 will phase out the use of coatings formulated with pCBtF and/or t-BAc in wood coating operations. Since most of the coating manufacturers are located outside the South Coast AQMD jurisdiction, implementation of PAR 1136 would affect wood coating operators mainly through price changes of coatings before and after reformulation. Reformulating wood coating materials to eliminate the use of solvents containing pCBtF and t-BAc will require manufacturers to devote resources for research and development, modifying formulas and conducting product testing, which involve both the initial efforts to reformulate the affected coatings and subsequent refinements to optimize product performance, leading to upfront reformulation costs for the manufacturers.

It is important to note that while solvents only represent a portion of overall raw material costs, pCBtF and t-BAc: 1) are generally more expensive due to specialized manufacturing processes

when compared to many conventional solvents; and 2) have limited supplier availability, which suggests that products formulated with these solvents may represent a smaller share of overall market volume compared to products made with conventional solvents. Consequently, coatings containing pCBtF and/or t-BAc tend to have higher production costs than coatings reformulated without pCBtF and t-Bac, leading to a reformulation-related recurring cost savings for coating manufacturers. Over time, the recurring cost savings may offset or even outweigh the upfront reformulation costs. As such, reformulated coatings which do not contain pCBtF and/or t-Bac would have similar or lower prices than coatings containing pCBtF and/or t-BAc. Thus, since the price of coatings is not expected to substantially increase after reformulation, implementation of PAR 1136 would be expected to have minimal compliance costs and socioeconomic impacts within the South Coast AQMD jurisdiction.

Macroeconomic Impacts on the Regional Economy

Regional Economic Models, Inc. (REMI) developed the Policy Insight Plus Model (PI+ v3) is a tool that South Coast AQMD typically uses to assess the impacts of rule development projects on the job market, prices, and other macroeconomic variables in the region when the average annual compliance cost is greater than one million current U.S. dollars ($1 MM).[6] However, when the average annual compliance cost of a project is less than $1 MM, the model cannot reliably forecast the macroeconomic impacts, because resultant impacts from the project would be too noisy to be considered reliable.

Since implementation of PAR 1136 is anticipated to have minimal compliance costs, a socioeconomic impact analysis using the REMI model has not been conducted.

California Environmental Quality Act (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1136) is exempt from CEQA pursuant to CEQA Guidelines Sections 15061(b)(3). A Notice of Exemption will be prepared pursuant to CEQA Guidelines Section 15062, and if the proposed project is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Land Use and Climate Innovation.

Draft Findings Under the Health and Safety Code

Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, nonduplication, and reference, as defined in that section, based on relevant information presented at the hearing, this written analysis, and the rulemaking record. The draft findings are as follows:

Necessity – A need exists to phase out two exempt compounds, pCBtF and t-BAc, to reduce toxicity in wood products coatings, and to partially implement the 2022 AQMP Control Measure CTS-01.

[6] Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

Authority – The South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 39650 et seq., 40000, 40001, 40440, 40702 and 41508.

Clarity – PAR 1136 – Wood Products Coatings, is written and displayed so that the meaning can be easily understood by persons directly affected by it.

Consistency – PAR 1136 – Wood Products Coatings, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or federal and state regulations.

Nonduplication – PAR 1136 – Wood Products Coatings, does not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference – In amending this rule, the South Coast AQMD Governing Board references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 40001, 40440, and 40702.

Comparative Analysis

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to VOC regulations for wood products coatings. Staff evaluated two of the largest air districts within California, Bay Area AQMD, and San Joaquin Valley APCD because they have similar wood coating material rules to PAR 1136 and air quality challenges. The comparative analysis for PAR 1136 is presented in the following table.

Rule Element	PAR 1136	U.S. EPA. Control Techniques Guidelines, Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations	Bay Area AQMD	SJV APCD
Applicability	• Any Person who supplies, sells, offers for sale, markets, manufactures, blends, packages, repackages, possesses, or distributes any Wood Products Coating, Wood Products Coating component, or associated solvent for use within the South Coast AQMD, as well as any owner or operator of a Facility who uses, applies, or solicits the use or application of any Wood Coating Materials, Strippers, or associated solvents within the South Coast AQMD.	• Wood furniture finishing and cleaning operations	• Any person who manufactures, blends, supplies, sells, offers for sale, distributes, or applies wood products coatings within the Bay Area AQMD • Applies to facilities engaged in coating wood products, including furniture, cabinets, flooring, millwork, and other wood substrates	• Applies to wood products coating operations, furniture, cabinets, flat wood paneling, custom replica furniture • Covers associated organic solvent cleaning, and solvent and waste solvent storage and disposal • Flat wood paneling requirements are triggered at 15 lb per day VOC before controls
Requirements	• Mass based VOC limits for Wood Coating Material and Strippers • Optional Alternative PW-MIR limits for some Wood Coating Materials and for Strippers • VOC Composite Vapor Pressure for Strippers • Minimum transfer efficiency requirements • Emission control system compliance options in lieu of meeting coating VOC limits	• Mass based VOC limits by individual coating category • Other emission control techniques; add-on control devices, lower VOC coatings, emerging technologies, pollution prevention	• Mass-based VOC limits for wood products coatings by coating category • Control equipment option, compliance through abatement system achieving required overall capture and control efficiency • Work practice standards for surface preparation and solvent cleaning • Spray equipment requirements and approved application methods	• Category specific mass based VOC limits • Compliance option through APCO approved VOC emission control system in lieu of coating VOC limits • Application method requirements, including HVLP, electrostatic, or approved alternatives meeting minimum transfer efficiency • Work practice standards and storage requirements for coatings and solvents
Prohibition	• Prohibition on the manufacturing of Wood Coating Materials and Strippers containing pCBtF and tBAc, with compliance dates based on category • Prohibition on the sale and use of Wood Coating Materials and Strippers containing pCBtF and tBAc, with compliance dates based	• None	• None	• None

Rule Element	PAR 1136	U.S. EPA. Control Techniques Guidelines, Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations	Bay Area AQMD	SJV APCD
	on category			
Recordkeeping	• Daily and shall maintain records pursuant to the requirements of Rule 109 – Recordkeeping for Volatile Organic Compound Emissions (Rule 109)	• Daily record keeping	• Maintain records of coating usage, VOC content, and solvent usage • Daily records sufficient to demonstrate compliance • Records retained for at least 24 months	• Daily records of coatings, inks, adhesives, and solvents • VOC control system operating parameter records to demonstrate continuous compliance • Records retained onsite for five years and provided upon request • Limited monthly recordkeeping allowed for sources using less than 20 gallons per year
Administrative	• Labeling Requirements for Materials Containing Organic Solvents • Labeling Requirements for Wood Coating Materials Complying with the alternative PW-MIR VOC Limits • EO authority for alternative test method approval	• None	• VOC content documentation required from manufacturer or supplier • Authority for APCO approval of alternative test methods or compliance approaches	• Labeling and compliance statements for coatings and solvents, including VOC content and thinning information • APCO approval process for alternative test methods and application methods
Exemptions	• Low-use exemption • Aerosol Coating Products • Limited exemption for Methylene Chloride in Strippers	• None	• Small quantity exemption below specified gallon threshold • Aerosol Coating Products • Touch-up and repair operations below threshold	• Aerosol spray coatings for touch up and repair • Operations using less than 20 gallons of coating per year • Coatings for wooden musical instruments

APPENDIX A: RESPONSE TO COMMENTS

Public Workshop Comments

Staff held a Public Workshop on February 4, 2026, to provide a summary of PAR 1136. The following is a summary of the verbal comments provided on PAR 1136 and staff responses.

Commentator #1 Rita Loof – RadTech International

Rita Loof sought clarification on test methods, rule applicability to out of state manufacturers, and stated the rule should encourage the use of lower VOC UV/EB/LED materials to prioritize emissions reductions.

Staff Response to Commentator #1:

Staff clarified the applicable test methods and confirmed that, as of February 2026, there are no EPA requirements or limitations restricting local air districts from limiting out-of-state manufacturers from selling noncompliant products within the District.

Commentator #2 Bill Quinn – California Council for Environmental and Economic Balance (CCEEB)

Bill Quinn voiced appreciation for the inclusion of a technology assessment.

Staff Response to Commentator #2:

Staff appreciates the comment and will include a staff directive to conduct a technology assessment in the resolution, which will be presented to the Governing Board when they consider rule adoption.

Comment Letter #1

California Council for Environmental and Economic Balance
369 Pine Street, Suite 720, San Francisco, CA 94104
1201 J Street, Suite 222-223, Sacramento, CA 95814
(415) 512-7890 | cceeb.org

January 2, 2026

Mojtaba Moghani
Planning, Rule Development, and Implementation
South Coast Air Quality Management District 21865 Copley Drive, Diamond Bar, CA 91765

Subject: Comments on Proposed Amended Rule 1136 – Wood Products Coatings

The California Council for Environmental and Economic Balance (CCEEB) is a coalition of business, labor and public policy leaders that work together in pursuit of balanced and effective policy solutions. Many CCEEB member organizations operate facilities in the South Coast Air Quality Management District (SCAQMD or "District") with wood coatings operations and, as such, we are closely following the development of PAR 1136.

CCEEB understands the need to move away from the use of pCBtF/t-Bac. In developing this phaseout, we ask that you consider the following points:

(1) **Reformulation is needed.** CCEEB agrees with District's assessment that reformulating a new system involves many factors and requires significant time and resources. To many CCEEB members, reformulating a new solvent-based coating system without pCBtF or t-BAc is needed because waterborne or acetone-based coatings do not provide the desired protection, show quality and durability. A complete coating system includes multiple components such as primer, basecoat, topcoat, sealer, catalyst, initiator, hardener, accelerator, thinner, reducer, brush additive, colorant, etc. and each needs individual reformulation work. **1-1**

(2) **Colorant Challenge.** It is important to note that a homogeneous colorant is essential to any colored coating system. While promising progresses are made to primer, basecoat, topcoat, catalyst, thinner, brush additive, reformulating a new colorant without pCBtF or t-BAc presents a unique challenge, and requires additional R&D work and field verification tests.

(3) **Rule 1107 Approach for Colorant**. CCEEB had worked with District closely during recent Rule 1107 amendment rulemaking. The Amended Rule 1107, in section (e)(3) and (e)(4), provides additional time (until December 5, 2030) to ban manufacturing of pCBtF-containing colorant, allowing the time needed for reformulating the new pCBtF free colorant. CCEEB suggests District implement a similar policy in Rule 1136 for wood coating products. **1-2**

(4) **Technology Assessment**. CCEEB appreciates District willingness to consider conducting a technology assessment prior to manufacturing prohibition dates. This will be very important check to ensure the reformulations are complete and successfully tested in the field. CCEEB **1-3**

strongly recommends District to adopt the technology assessment in all coating rules amendments.

CCEEB recognizes the importance of this proposed rule and, along with our members, commits to work with you to in its development. Please let me know if you would like to meet to discuss our comments in greater detail.

Sincerely,

William J. Quinn
CCEEB Consultant

cc: Sarady Ka
Heather Farr
Michael Morris
Michael Krause
Tim Carmichael
Peter Okurowski
Kirstin Kolpitcke
Members, CCEEB SCAP Project

Response to Comment 1-1

Staff acknowledged the challenges associated with reformulating wood coating products and provided a prohibition schedule that allows time for reformulation, as well as optional reactivity-based VOC limits.

Response to Comment 1-2

Staff acknowledged the comment on reformulation challenges for colorants and included additional time in Table 3 – Prohibition Schedule.

Response to Comment 1-3

Staff acknowledged the importance of technology check-in to ensure future effective requirements are feasible and effective. Staff will include a provision in the resolution presented for Governing Board's approval that directs staff to conduct a technology check-in after rule adoption. This check-in will focus on the progress of reformulation efforts to transition away from pCBtF.

Comment Letter #2

February 20, 2026

Mojtaba Moghani
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Dr, Diamond Bar, CA 91765
mmoghani@aqmd.gov

Re: Public comments on Proposed Amended Rule 1136 (Wood Product Coatings)

Dear Mr. Moghani:

RadTech International is pleased to comment on the proposed amendments to Rule 1136. UV/EB/LED technology plays a role in the wood coatings market and can help the district's efforts to improve air quality in the Basin without sacrificing a healthy business climate.

The stated goal of the rule amendments is to transition away from Products Containing pCBtf or t-BAc—UV/EB/LED formulations do not contain these materials and thus compliment the goal. One of the potential compliance options presented by staff is reformulation to products that are toxic free without requiring an air pollution control system. According to staff, thermal oxidizers generate corrosive byproducts such as hydrochloric acid for chlorinated solvents and hydrofluoric acid for fluorinated solvents. Because of their low levels of volatile organic compounds (VOC), thermal oxidizers are not required for UV/EB/ LED processes. The District has long recognized the benefits of our technology. The District's *Technology Assessment for Rule 1136—Wood Products Coatings* states:

> " UV coating on wood substrates is a viable option to regulatory compliance and coating performance for a wide variety of products. Normally, the advantages associated with the application of UV materials are: higher chemical resistance, increased impact and abrasion resistance, lower energy consumption and small equipment footprint compared to standard based cycle ovens, increased production rates through rapid curing, elimination of flammability concerns, and the potential for zero-VOC emissions."

Recognition of EB & LED technologies

RadTech appreciates the inclusion of UV technology in the PAR 1136 staff report and the staff's acknowledgement that coating manufacturers have reformulated products to maintain performance while reducing regulated VOC content. According to staff, ultraviolet (UV)-curable, and high-solids coatings were early compliance strategies to transition from traditional high-solvent formulations. As mentioned during the public workshop, there are also Electron Beam (EB) and Light Emitting Diode (LED) processes so we would ask that the technology analysis reflect the existence of those technologies. 2-1

Section (c) 40-- Definitions

The current definition for reactive diluents lacks clarity. UV/EB/LED materials are reactive diluents and the district should clarify the definition as follows:

> REACTIVE DILUENT is a liquid that may act as a VOC during application but becomes an integral part of the finished coating through chemical or physical reactions such as polymerization, with energy-curable materials being one type of reactive diluent. 2-2

In the alternative, we would ask that the staff report make it clear that energy curable materials are covered under the definition of reactive diluents. Generally, UV/EB/LED materials are not formulated with any VOCs. Thus, it is not accurate to state that all reactive diluents are VOCs during application.

Section (f)- Prohibition of Possession

We have expressed concern that the rule could be interpreted to apply to manufacturers selling products outside of Southern California. During the manufacturing process, a manufacturer may be in possession of a product without knowing whether it will ultimately be sold in the South Coast basin. The prohibition on possession should therefore clarify that it applies only once the manufacturer has made a final determination to sell or distribute the product in Southern California. We believe this is consistent with the rule's intent as stated by staff during the workshop. 2-3

Section (k)—Exemptions

PAR 1136 exempts facilities that use less than one gallon per day of coating. We would urge the district to mirror this exemption for low VOC materials. The VOC limits for some categories in the rule can be as high as 750 grams/liter or 6.3 lbs/gallon. The VOC emissions of one gallon of that material would be 6.3 pounds per day. In contrast, the emissions from one gallon of 50 gram/liter material would be only .42 lbs per day. The rule should include an exemption for materials containing less than 50 grams/liter in VOC. We urge the district to include a "low VOC" exemption comparable to the exemption provided for low-use products. 2-4

Section (h) -- Test Methods

In order to avoid confusion, we urge the district to include ASTM D7767-11 in the rule. Currently Section (h)(8) "Multiple Test Methods" does not specify a method for energy curable materials applied as thin films. Some wood coating operations require that coatings be applied as thin films because thicker film samples (tested above the accepted wet film thickness), can result in poor through-cure leading to the coating peeling off the substrate.

The Environmental Protection Agency has recognized that due to the very low VOC content of our materials, the traditional EPA Method 24 is not suitable. Neither the EPA or the district have been able to develop a method that would accurately measure the very low levels of volatiles in our products. This leaves our companies in test method limbo. The current language that allows "multiple" test methods is vague and could result in enforcement problems for our members and their customers. Section (h)(9)- Equivalent Test Methods—is vague leaving our businesses to negotiate with the district each and every time an operation uses ASTM D7767-11 which, is the industry's accepted method for energy curable thin films. We urge district staff to provide clarification regarding the procedures for reporting VOC content for energy curable thin films, specifically by including guidance similar to what was established in the rulemaking process for Rule 1107. 2-5

We appreciate your attention to this matter and look forward to a productive rulemaking process.

Sincerely,

Rita M. Loof
Director, Environmental Affairs

Cc: Heather Farr, Michael Krause, Sarady Ka, Wayne Nastri

Response to Comment 2-1

Staff appreciates the comment regarding the inclusion of UV curable technology in the staff report. Staff agrees and has made the revision to mention EB and LED technologies in the broader discussion of UV and advanced curing technologies in the staff report.

Response to Comment 2-2

Staff notes that the term "reactive diluent" has been historically and consistently used across multiple South Coast AQMD VOC rules, and staff strives to maintain consistency.

Staff acknowledges the comment regarding energy-curable materials, which are composed of individual monomers, oligomers, and blends that react to become part of the finished coating. However, those components are not diluents; diluents are additives used to improve the application properties of the liquid coating, such as reducing the viscosity, they are not the primary components of the coating. While staff does not believe a revision to the rule definition is necessary, the staff report was revised to include a discussion on energy curable materials.

Response to Comment 2-3

Staff appreciates the suggestions and added "for use within South Coast AQMD" to paragraph (f)(1) to provide clarification and align with the intent of the prohibition.

Response to Comment 2-4

Staff acknowledges the comment regarding the potential emissions from the low-use exemption for high-VOC coatings. The low-use exemption provides a limited exemption from the applicable VOC content limits, but does not exempt the facilities or the coatings from all rule requirements. Staff may consider the need for the low-use provision in a future rule amendment; this amendment was focused on the transition away from pCBtF and t-BAc. With respect to coatings formulated below the applicable VOC limits, such materials are already compliant with the rule, and no additional exemption is necessary for their use.

Response to Comment 2-5

ASTM International D7767-11 "Standard test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers and Blends and Thin Coatings Made from Them" is not a U.S. EPA approved test method and cannot be used to enforce a SIP approved rule, therefore will not be added to PAR 1136. In order to avoid confusion and provide clarification regarding the procedure for reporting VOC content for energy curable thin films, the following description is now included on the South Coast AQMD website to provide further clarification:

> Coatings products sold or used within South Coast AQMD's jurisdiction may be required to include VOC content on product labels pursuant to Rule 443.1 ─ Labeling of Materials Containing Organic Solvents. VOC content for labeling purposes may be determined by calculation from formulation data and/or by test results. The approved VOC test methods appropriate for determining product VOC content, whether for labeling or compliance purposes, vary by coating application. Please refer to the specific VOC rule applicable to the coating product to identify the required test methods and VOC calculation procedures. Further information on VOC test methods is available at:

https://www.aqmd.gov/home/rulescompliance/compliance/vocs/architectural-coatings/current-and-pastactivities/working-group.

For energy-curable coatings, VOC content may be determined using ASTM D5403 ─ Standard Test Methods for Volatile Content of Radiation Curable Materials, which is an approved method for establishing VOC content for both labeling and compliance purposes. However, thin-film energy-curable coatings (including UV/EB/LED-cured materials applied with very low film thickness) currently do not have an approved compliance test method for determining VOC content under South Coast AQMD rules. When VOC content must be included on product labels pursuant to Rule 443.1, manufacturers may use formulation data or estimate the VOC emissions of the reactive components of the thin film energy curable coatings using ASTM D7767 ─ Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them. ASTM D7767 is not a U.S. EPA approved test method and as such is not an appropriate compliance test method that a third-party laboratory, or the South Coast AQMD Laboratory, could rely on to verify the VOC content of a thin-film energy curable coating. For determining compliance with VOC limits for thin-film energy curable coatings, manufacturers may rely on formulation data and ASTM D7767 to determine product VOC content for labeling purposes.