TECHNICAL BULLETIN

U.S. vs. China VOC Measurement

KEY MESSAGE

The same paint formulation can produce different reported VOC results in the United States and China because the jurisdictions use different analytical frameworks, GC cutoff markers, compound classifications, and regulatory calculations. A U.S. label value should not be used by itself to determine Chinese compliance.

Executive Takeaways

- Different methods answer different questions. U.S. compliance commonly uses EPA Method 24 and, for qualifying low-VOC coatings under SCAQMD, ASTM D6886 / Method 313. China uses GB gaschromatographic and calculation methods specified by the applicable national coating standard.
- The classification boundary is not interchangeable. SCAQMD Method 313 uses methyl palmitate as a GC endpoint for low-VOC analysis. Current Chinese work references GB/T 23986.2-2023 and designated marker compounds for VOC and SVOC classification.
- Water treatment is similar in concept but must follow the jurisdiction-specific equation. U.S. regulatory VOC is reported less water and exempt compounds. Chinese coating VOC calculations may also remove water, but the required GB equation and product category govern.
- High-boiling coalescents can be classified differently. Texanol may be included substantially in U.S. VOC analysis while current China-focused internal guidance treats most Texanol as SVOC rather than VOC. Product-specific laboratory data remain necessary.

Important Technical Clarifications

- The commonly referenced international cutoff is 250°C. China's standard for VOC is 250°C and 305°C for the U.S. comparison. However, current compliance should be based on the specified analytical marker and method, not a boiling-point shortcut alone.
- Texanol, a common coalescent used in latex based paints is not a VOC in China. The current internal response cited for GB 30981.1-2025 apportions Texanol as 5% VOC and 95% SVOC. The exact product result depends on the applicable method and analytical evidence.
- The executive comparison therefore references the current GB 30981.1-2025 framework.

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U.S. VS. CHINA VOC MEASUREMENT

KEY DIFFERENCES AT A GLANCE

Recommended Decision Rule

Treat U.S. and China VOC values as jurisdiction-specific compliance results. Use the test method and calculation required by the destination market and supported by a productspecific report.

Area	United States: SCAQMD / EPA	China: current GB framework
Regulatory basis	SCAQMD Rule 1113 category limits; EPA regulatory test framework.	Applicable Chinese national architecturalcoating standard, currently GB 30981.1-2025 for current evaluations.
Primary analytical approach	EPA Method 24 measures volatile matter, water, density, volume solids and weight solids. ASTM D6886 / SCAQMD Method 313 directly speciates lowlevel organic compounds by GC.	GB/T 23986.22023 is a current gaschromatographic method for determining VOC and/or SVOC content; the product standard specifies application and limits.
VOC cutoff concept	For low-VOC coatings, Method 313 uses the retention time of methyl palmitate as the endpoint marker.	Uses GBdefined VOC/SVOC marker and calculation rules. Internal 2026 guidance cites diethyl adipate for VOC and C22 for SVOC classification.
Water and denominator	Regulatory VOC, or VOC of coating, excludes the volume of water and exempt compounds from the denominator. VOC of material includes them.	Internal China guidance states that the standbyproduct VOC/SVOC value is calculated after water removal. Exact equations and category rules must be taken from the current standard.
High-boiling coalescents	A compound is not excluded merely because another jurisdiction calls it an SVOC; SCAQMD-recognized testing controls.	Compounds can be apportioned between VOC and SVOC under the GB method. Internal guidance reported Texanol as 5% VOC and 95% SVOC for the referenced calculation.
Practical result	May report a higher regulatory VOC for a formulation containing coalescents counted before the U.S. endpoint.	May report a lower VOC where more of a coalescent is assigned to SVOC, although SVOC may be separately regulated.

Sources:

1 - South Coast AQMD, Determining the VOC Content - distinction between regulatory VOC and VOC of material. https://www.aqmd.gov/home/rules-compliance/compliance/vocs/calculations

2 - South Coast AQMD, Method 313 technical material - methyl palmitate endpoint and low-VOC GC approach. https://www.aqmd.gov/docs/default-source/planning/architectural-coatings/current-activities-supportdocuments/industrymeetingvocDDC52C158642.pdf?sfvrsn=0

3 - China National Standard Information, GB/T 23986.2-2023 - VOC/SVOC gas-chromatographic method. https://openstd.samr.gov.cn/bzgk/std/newGbInfo?hcno=629C9CFE614E3854029D50019A049955

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