



North American VOC Regulatory Update

April 2009

Bringing out the best in hardwood floors

Bona[®]

Health Effects of Ozone



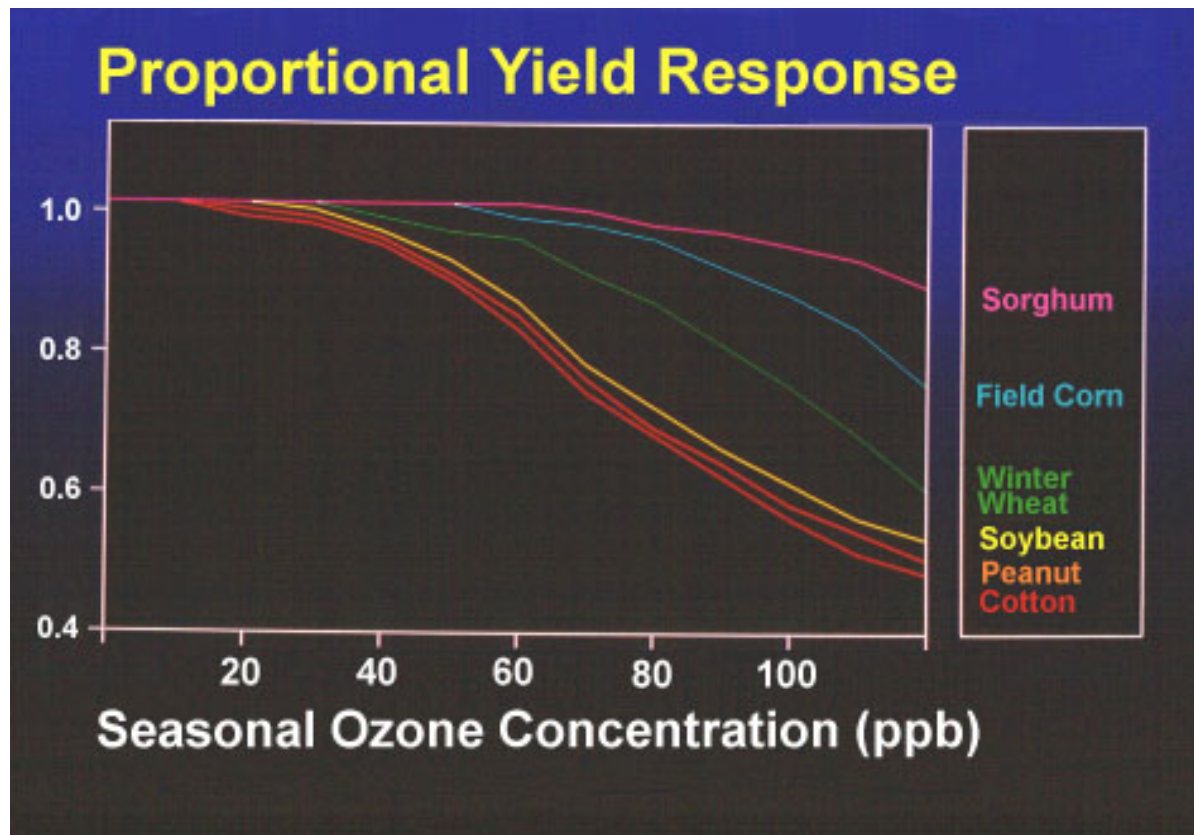
- Asthma
- Reduced Lung Function
- Allergies
- Scratchy Throats
- Bronchitis
- Shortness of Breath

Ozone's Effect on Plants



- Necrotic lesions on tobacco BEL W 3 leaves after growth at ambient ozone concentrations (picture taken from the [web-site](#) of the North Carolina State University at Raleigh)

Decreased Yield in Crops



•The strongest evidence for significant effects of ozone on crop yield comes from NCLAN studies (Heagle 1989). The results show that dicot species (soybean, cotton, and peanut) are more sensitive to yield loss caused by ozone than monocot species (sorghum, field corn, and winter wheat).

Atlanta's Smog



•Photo: Mikel Manitus from <http://www.thedailygreen.com/weird-weather/weather-categories/pollution-pictures/717>

Smoggy LA



*Hazy golden light illuminates the Los Angeles skyline, which appears to float on a bed of smog. The city is notorious for its pervasive air pollution, caused mainly by car exhaust trapped in the San Fernando Valley basin.
*Photograph by Mike Abrahams/Alamy

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Denver's Brown Cloud



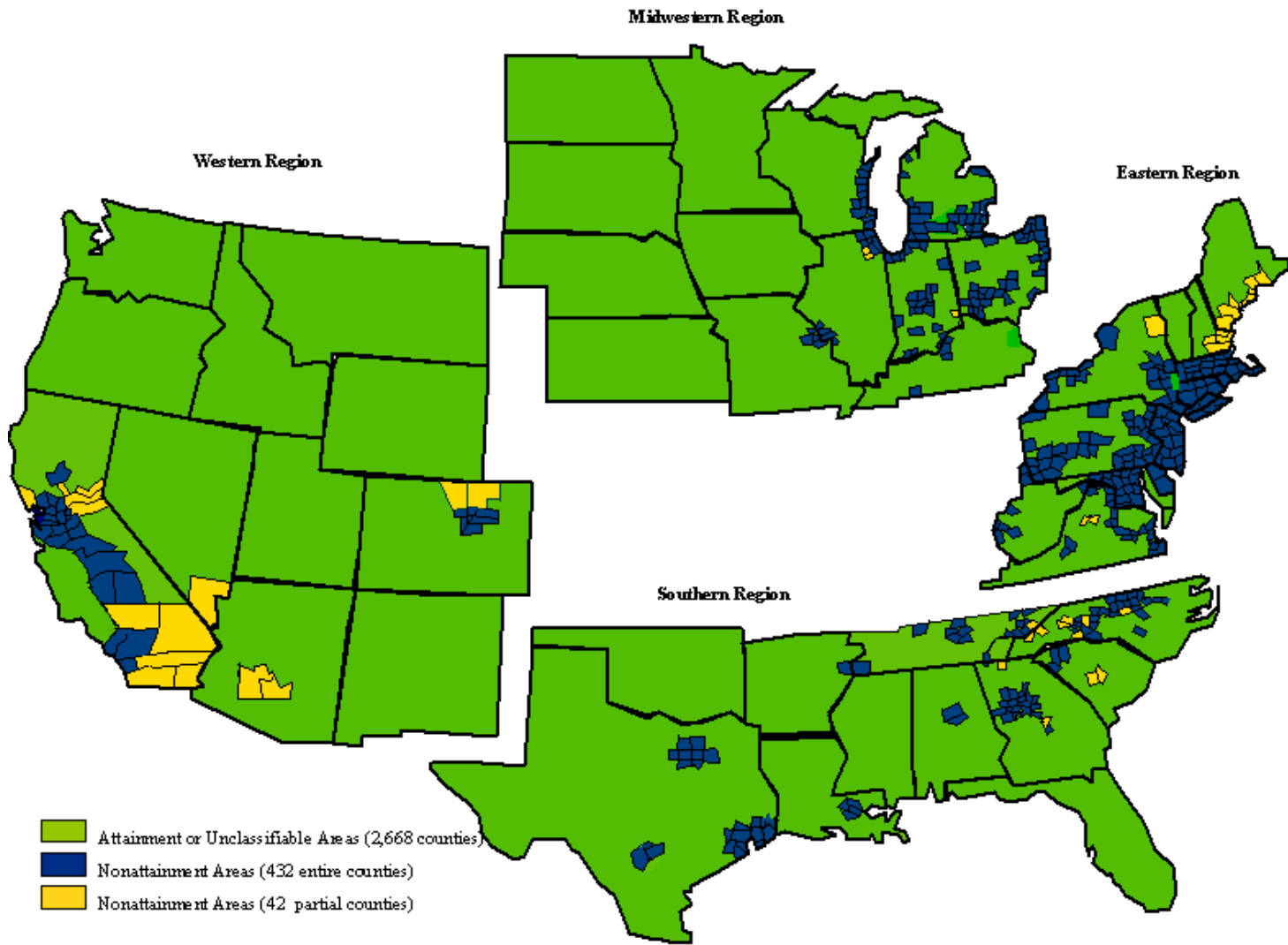
George Kochanec Jr. © News Photo

- The brown cloud -- a pall of dust and other airborne particulates smudges Denver's skyline in 1996. The city has made important strides in reducing smog that once threatened public health.

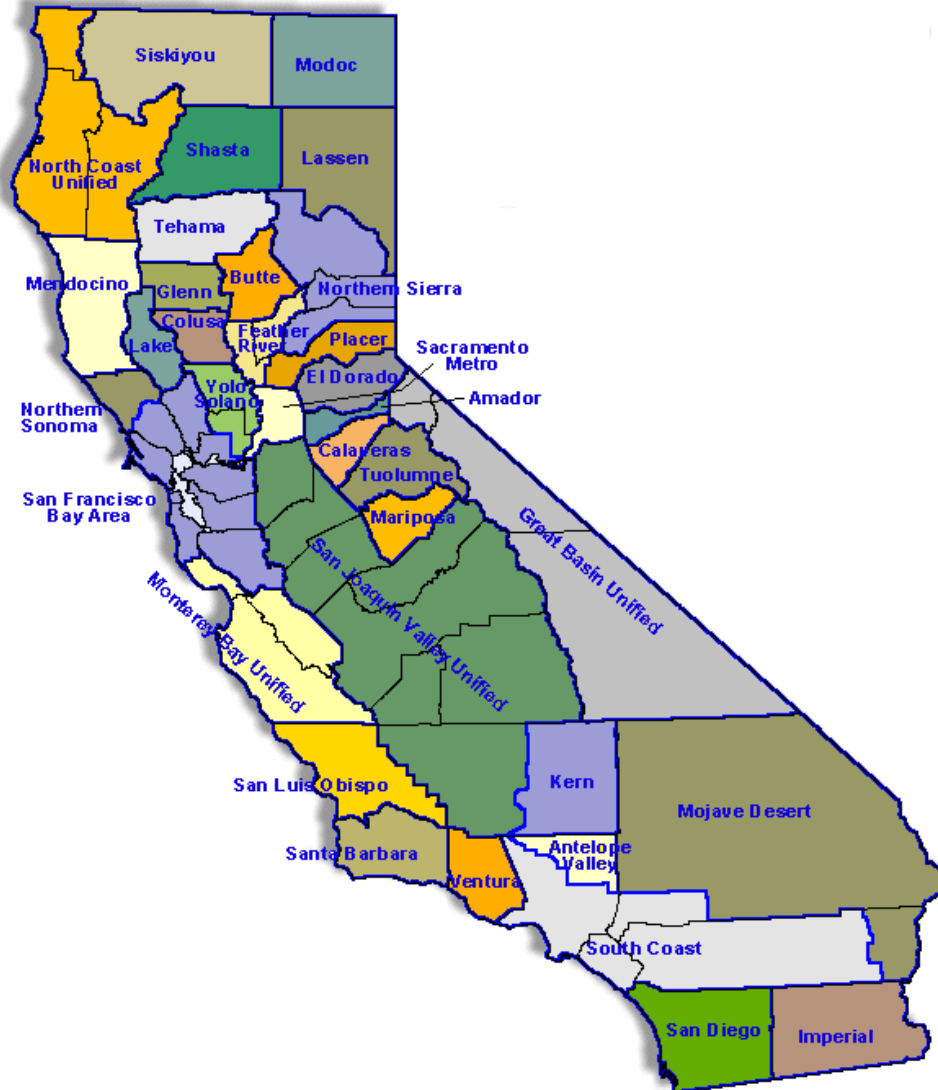
Rule Background Information

- 1997 – EPA finalized a change to the 1 hour and 8 hour standard for Ozone (smog) (1 hr std – 0.12 ppm & 8 hr std – 0.08ppm)
- 1999 – National AIM Rule took effect
- 2003 – CARB Suggested Control Measure took effect.
- 2004 – EPA issued final designations of attainment & non-attainment (See following Map)
- 2005 – Several Ozone Transport Commission states and regional rules takes effect
- 2007-2021 – States must comply with the new EPA Standard, *or risk loosing federal funding* (roads, etc.)
- 2010 – *CARB newest SCM takes effect*
- 2011 – *New EPA Rule takes effect*

8 Hour Ozone Standard Attainment and Nonattainment Areas in the U.S. as of April 2004

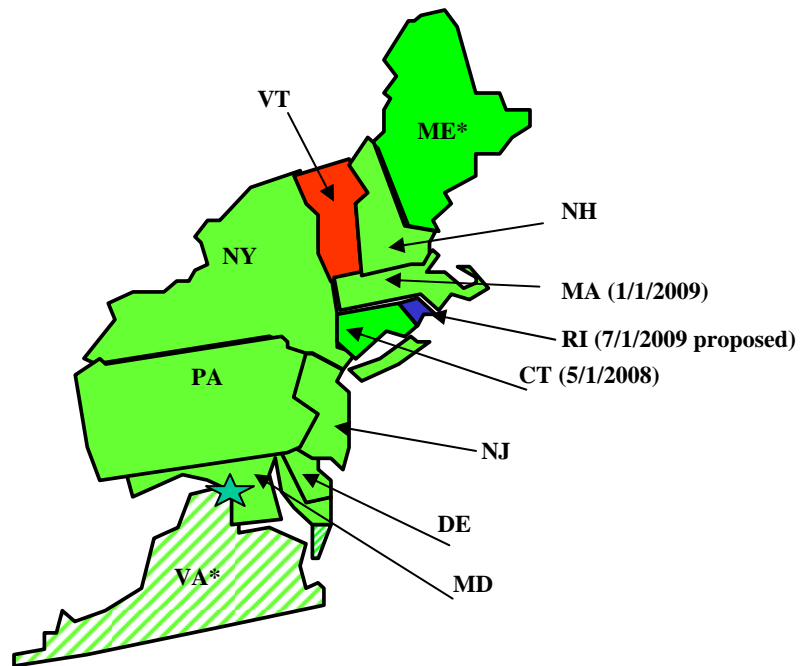


California Air Districts



OTC Map

(as of April 2009)



Green – Final

Note: Virginia's Rule pertains only to the Northern Virginia Emissions Control Area around DC

Red – Will consider if necessary (default to National AIM Rule until adopted)

Blue – In Process

District of Columbia has passed rule. Indicated by the star.

* - These States have exceptions (See Page 4)

Exception to the Rules:

Virginia:

Virginia's Rule only applies to the following counties and cities in the Northern Virginia and Fredericksburg Emissions Control Area

Arlington County

Fairfax County

Loudoun County

Prince William County

Stafford County

Spotsylvania County

Alexandria City

Fairfax City

Falls Church City

Manassas City

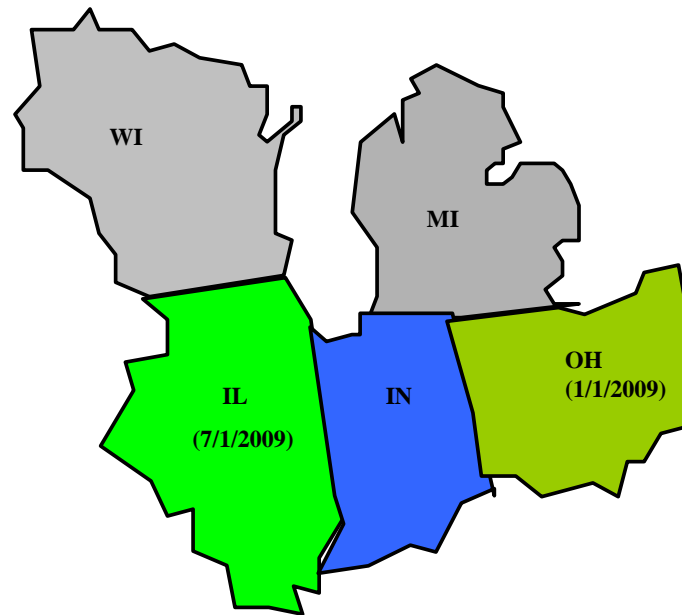
Manassas Park City

Fredericksburg City

Maine:

Varnishes and interior stains will use the National AIM Rules limits until 2011. There is no exceedance fee so the varnishes and interior stains must comply with the limit or have to use the quart exemption.

Great Lakes Region (April 2009)



Green – Final

Light Green – Will be final before Compliance Date (7/1/2009)

Blue – In Process

Grey – Determining if necessary

2009 VOC Tables (Updated April 2009)

Category	National	California			OTC ^{3,4}
	AIM Rule ¹	CARB		South Coast	* See Below
	Current	Current	NEW SCM (2010)	Current	Current
SEALERS					
Sanding Sealers	550	350	275	275**	350
Primer, Sealer , Undercoaters	400	200	100	100	200
Quick Dry Sealers	450	200	275	100	200
Lacquer Sanding Sealer	680	550	275	275**	550
STAINS					
Stain, Semi-transparent	550	250	275	250 ²	250
TOPCOATS/FINISHES					
Varnishes (H ₂ O Urethanes/Solvent OMUs)	450	350	275	275**	350*
Conversion Varnish	725	350	275	275**	725
Lacquers	680	550	275	275**	550
Clear Brushing Lacquer	---	680	275	275**	680
Shellacs – Clear	730	730	730	730***	730

Note: Varnish category includes the following clear wood finish technologies: OMUs, waterborne, moisture cure, epoxy and other 2-pack types.

*OTC States with final rules adopted: Delaware, District of Columbia, Maine (except varnish & stain), Maryland, New Jersey, New Hampshire, New York, Pennsylvania, New Hampshire, Connecticut, Massachusetts, Virginia, (Only the Northern Virginia Emissions Control Area which includes: Arlington, Fairfax, Loudoun, Prince William and Stafford Counties; Cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park.) – Fredericksburg Area

* + Maine will allow varnishes and interior stains to use the National Rule for VOC until January 1, 2011. (450 g/L, 550 g/L respectively)

** Quart Exemption has been eliminated for Varnishes, Sanding Sealer, and Lacquers in the South Coast Air District

*** Shellacs manufactured after 12/31/06 are not allowed to be used on wood flooring in South Coast.

1 – EPA is revising the National AIM Rule – limits should be similar to OTC Phase I limits

2 – Interior

3 – RI is adopting OTC Phase I – VT will probably remain with National AIM Rule for now.

4 – LADCO States – OH adopted as 1/1/2009, IL is adopting with compliance 7/1/2009, and IL is actively revising AIM rules – OTC Phase I limits

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Bona® Product VOC Tables

Updated April 2009

Residential and Commercial Products

Product	Product VOC (g/L)	National		OTC	
		AIM Rule		DE/DC/MA/ME/VA/CT/NT/NY/NJ/PA/MD	
		Current	Possible (2010)	Current	Possible (2012)
Stains					
Drifast® Stain	< 550	550	250	250 (qts OK)	275 (qts OK)
Sealers					
Bona Bonaseal®	< 100	400	200	200	100
Bona DTST™	< 250	550	350	350	275
Bona AmberSeal™	< 250	550	350	350	275
Drifast® Sealer	< 550	550	200	200 (qts OK)	200 (qts OK)
Finishes					
Bona Mega®	< 150	450	350	350	275
Bona Strong™	<235	450	350	350	275
Bona Naturale™	<210	450	350	350	275
Bona Traffic®	< 210	450	350	350	275
Woodline® 350 Poly	< 350	450	350	350	275
Woodline® Poly	< 510	450	350	350 (qts OK)	275 (qts OK)

Product	Product VOC (g/L)	California		
		CARB		South Coast
		Current	NEW SCM (2010)	Current
Stains				
Drifast® Stain	< 550	250	275	250 (qts OK)
Sealers				
Bona Bonaseal®	< 100	200	275	275
Bona DTST™	< 250	350	275	275
Bona AmberSeal™	< 250	350	275	275
Drifast® Sealer	< 550	350	275	100 (qts OK)
Finishes				
Bona Mega®	< 150	350	275	275
Bona Strong™	< 235	350	275	275
Bona Naturale™	<210	350	275	275
Bona Traffic®	< 210	350	275	275
Woodline® 350 Poly	< 350	350	275	275 (NA)
Woodline® Poly	< 510	350	275	275 (NA)

NOTE:

- Shaded products are available in **quarts only** in the OTC/CARB regulated areas.
- Woodline® Poly is not available in the South Coast AQMD
- Woodline® 350 Poly cannot be used in the South Coast AQMD.



Bona® Sport Product VOC Tables

Updated April 2009

Product	Product VOC (g/L)	National		OTC	
		AIM Rule		* See Below	
		Current	Possible (2010)	Current	Possible (2012)
Sealers					
Bona Sport® Sport Seal	<500	550	350	350 (NA)	275
Bona Sport® Drifast™ Sealer	< 550	550	350	350 (NA)	275
Bona Sport® Supersport™ Seal	<100	400	200	200	100
Bona Sport® Sport Seal 350	<350	550	350	350	275
Finishes					
Bona Sport® All Court	<500	450	350	350 (NA)	275
Bona Sport® Sport Poly	<450	450	350	350 (NA)	275
Bona Sport® Sport Poly 350	<350	450	350	350	275
Bona Sport® Supersport™	<350	450	350	350	275
Bona Sport® Supersport™ One	<145	450	350	350	275
Game Lines Paint					
Bona Sport® Courtlines™	<490	500	500	500	500

Product	Product VOC (g/L)	California		
		CARB		South Coast
		Current	NEW SCM (2010)	Current
Sealers				
Bona Sport® Sport Seal	<500	350 (NA)	275	275 (NA)
Bona Sport® Drifast™ Sealer	< 550	350 (NA)	275	275 (NA)
Bona Sport® Supersport™ Seal	<100	200	275	275
Bona Sport® Sport Seal 350	<350	350	275	275
Finishes				
Bona Sport® All Court	<500	350 (NA)	275	275 (NA)
Bona Sport® Sport Poly	<450	350 (NA)	275	275 (NA)
Bona Sport® Sport Poly 350	<350	350	275	275 (NA)
Bona Sport® Supersport™	<350	350	275	275 (NA)
Bona Sport® Supersport™ One	<145	350	275	275
Game Lines Paint				
Bona Sport® Courtlines™	<490	500	500	500

NOTE:

- Lightly Shaded products are **not** available in the OTC/CARB regulated areas. Sport Poly is **OK** in Massachusetts until 2009 and in Maine until 2011.
- Sport Poly 350 and Supersport are not available in the South Coast AQMD.
- Cleaners, Prep, Luster Coat, Refresher, and Filler are not subject to AIM Coating regulations.
- NA – Not Available



An Example: Typical Contractor's Van in New Jersey

- 6 Quarts of Stain (VOC 550 g/L)
- 2 gallon of Stain (VOC 550 g/L)
- 10 gallons of Sealer (VOC 550 g/L)
- 10 gallons of OMU Poly (VOC 525 g/L)
- 5-10 gallons of Waterborne (VOC <350 g/L)

An Example: Typical Contractor's Van

What could happen if caught in NJ:

- 6 Quarts of Stain – Quarts are OK because of Quart Exemption
- 2 gallons of Stain - **\$1,200** for being over the 250 VOC limit
- 10 gallons of Sealer - **\$10,000** for being over the 200 VOC limit
- 10 gallons of OMU Poly - **\$6,000 fine** for being over 350 VOC limit
- 5-10 gallons of Waterborne – In this van, all waterborne are under the 350 VOC limit

Therefore, a typical contractor could be fined \$17,200 for having product in his van that is not VOC compliant.

(Based on potential fine of \$600 per gallon of noncompliant product that is 25% over the limit and \$1,000 per gallon that is over 50% above the limit)

Distributors and Manufacturers

Distributors

- \$4,000 for Incorrect Documentation
- \$17,200 for Contractor's van if liable because of Incorrect Documentation

Manufacturers

- \$4,000 for Incorrect Documentation
- \$17,200 for Contractor's van if liable because of Incorrect Documentation

What's Next

- **California (CARB)**
 - Adopted new Suggested Control Measure – October 26, 2007
 - All Wood Coatings to have a 275 g/L limit
 - Effective January 1, 2010
 - Air Districts will start to adopt – San Joaquin and Bay Area are actively adopting

- **Ozone Transport Commission (OTC)**
 - Will look at CARB SCM for next Model Rule
 - Model Rule – 2009-2010
 - Predicted Compliance Date 2012 (?)

- **MRPO/LADCO: Great Lakes Region – Ohio, Michigan, Wisconsin, Illinois, Indiana**
 - OH adopted OTC Model Rule – Effective 1/1/2009
 - IL in final stages – Effective 7/1/2009
 - IN has started process
 - WI, MI are looking at to determine if needed (may wait for EPA)

- **Texas/Colorado**
 - Same as WI and MI

What's Next, cont.

- **Canada**
 - Published in Gazette – April 2008
 - Effective 1 year after Regulation is final (approx. 2009-10)
 - Using OTC limits for almost all categories
 - Varnishes – 350
 - Sanding Sealers – 350
 - Primer, Sealers, and Undercoaters – 200
 - Stains – 250
 - Small container exemption is proposed for Stains and Varnishes
- **EPA – looking at New AIM Rule (due to State issues):**
 - Probably based on OTC limits
 - Publish in Federal Register – 2009?
 - Finalize 2010?
 - Effective 1 year after regulation is final – **2011?**