

Candidate Control Measures for Industrial Surface Coating



Regional Air Quality Workshop

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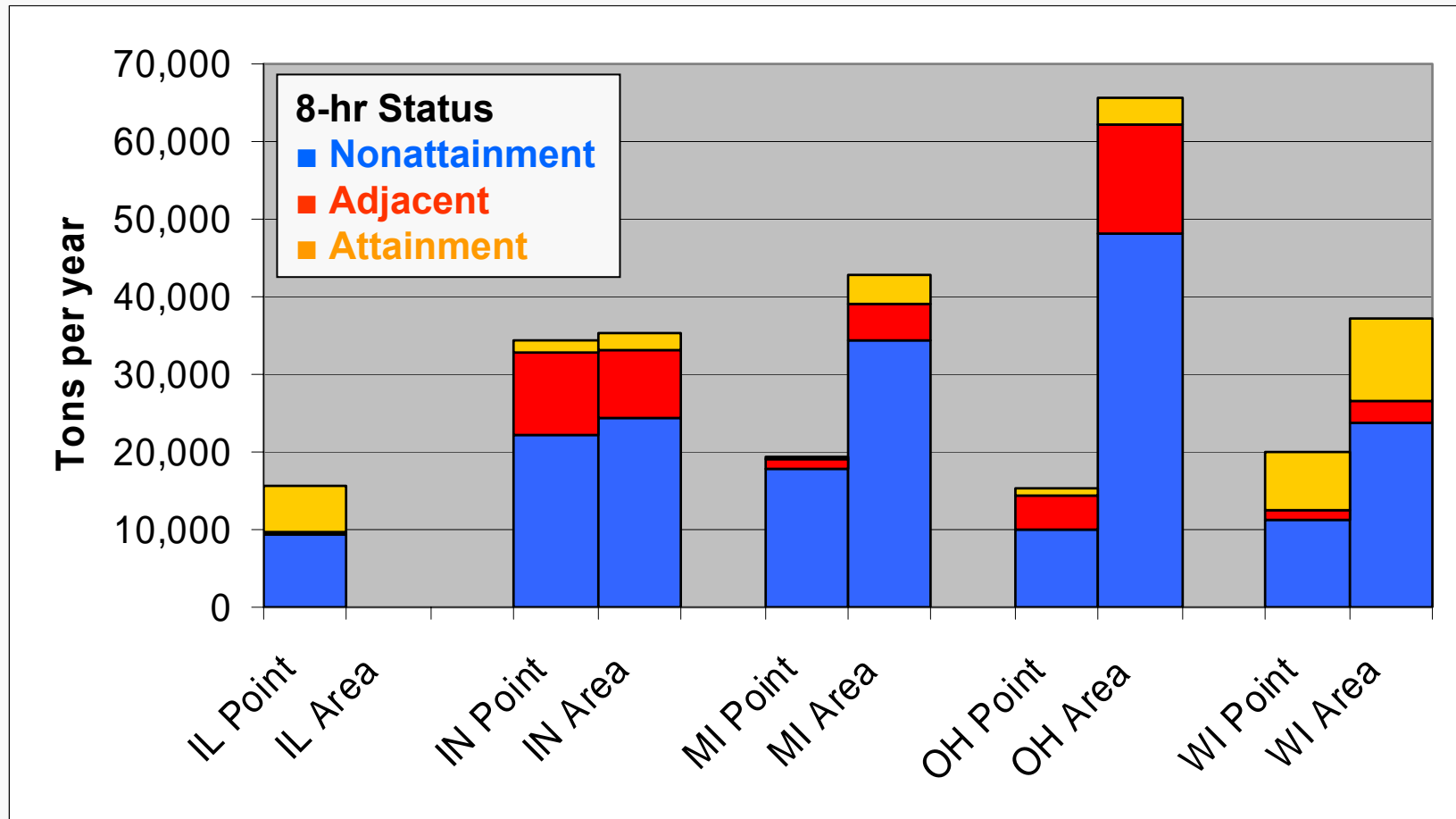
Category Description: Industrial Surface Coating

- Diverse Source Category
 - Coating type (paints, varnishes, adhesives)
 - Substrate (paper, metal, plastic, wood)
 - Application method (brushing, rolling, spraying, dipping, electrocoating)
 - Drying Method (thermal ovens, ultraviolet (UV) curing, electron beam (EB) curing)

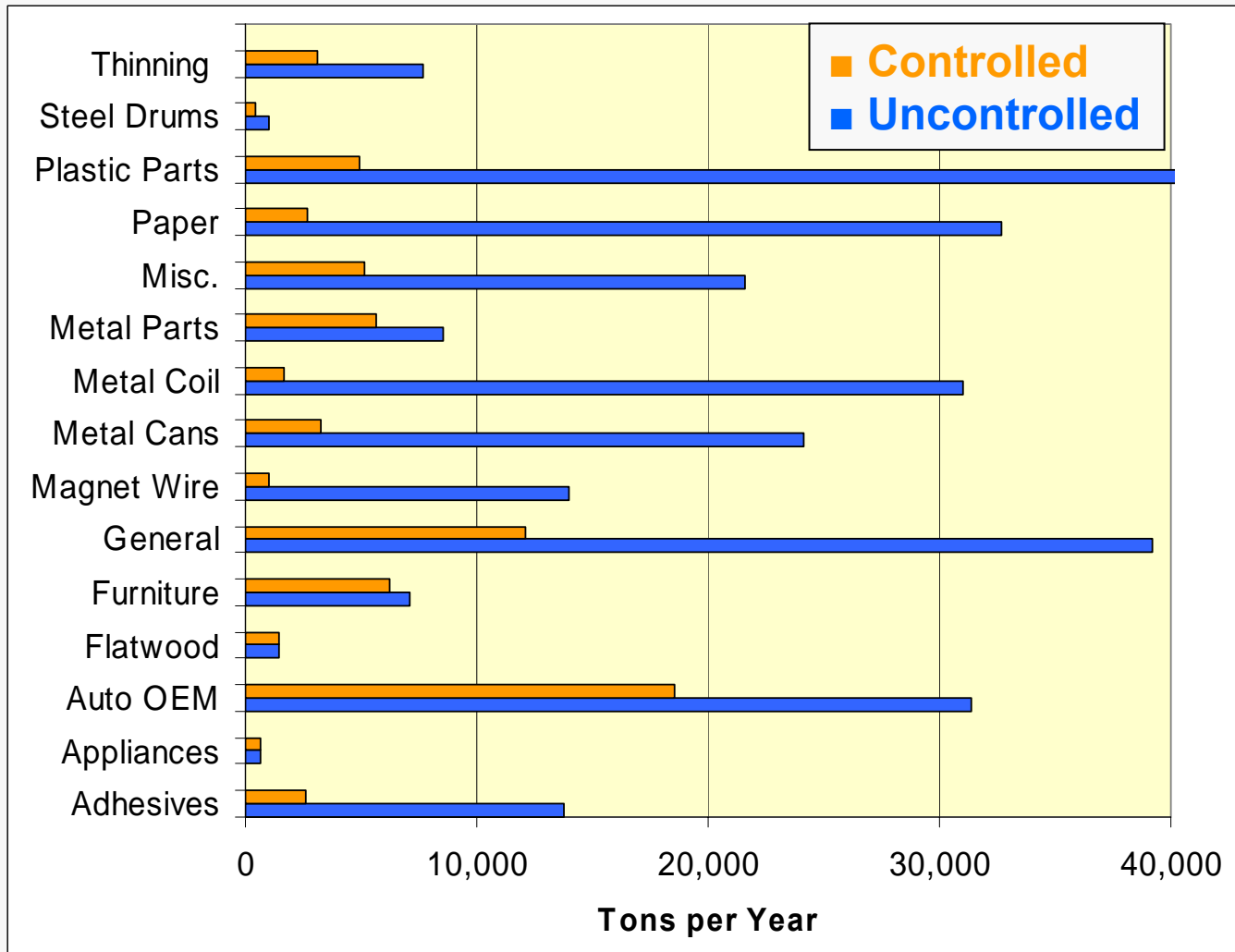
Category Description: Industrial Surface Coating

- Emissions depend on:
 - VOC content of the product used
 - Transfer efficiency of the spray equipment
 - Control device used (if any)
 - Type of cleaning operation
- Account for about 7.5% of the total anthropogenic VOC emissions in the MRPO region in 2002
 - Area sources are substantial, but estimates are uncertain
 - Methodology relies on per employee emission factors and employment data or per capita emission factors.
 - Per capita or per employee emission factors 1980s era data
 - May not be representative of the types of coatings, application methods, and control technologies currently used
 - Many point sources already controlled in 2002

VOC Emissions from Surface Coating by Point/Area Sector and 8-hr Ozone Status



Point Source VOC Emissions By Surface Coating Category



Regulatory History: Surface Coating Federal Rules

- New Source Performance Standards
 - Applies to sources constructed or modified after about 1980, depending on the specific NSPS
 - Set VOC emission rate limits
 - compliant coatings
 - add-on capture and control devices
 - transfer efficiency requirements for certain categories.
- New Source Review (BACT or LAER)
 - Requires a case-by-case control technology review for new plants and for plant modifications
- Reasonably Available Control Technology (RACT)
 - Control Technology Guidelines (CTGs)
 - Alternative Control Technologies (ACT)
 - Case-specific RACT determinations

Regulatory History: Surface Coating Federal Rules

- MACT Standards
 - Several surface coating MACT standards finalized over past 5 years
 - Similar to, but somewhat more stringent than, the current VOC standards
 - generally require removal efficiencies on the order of 95 to 98 percent if add-on controls are used
 - older VOC standards required control efficiencies on the order of 90 to 95 percent

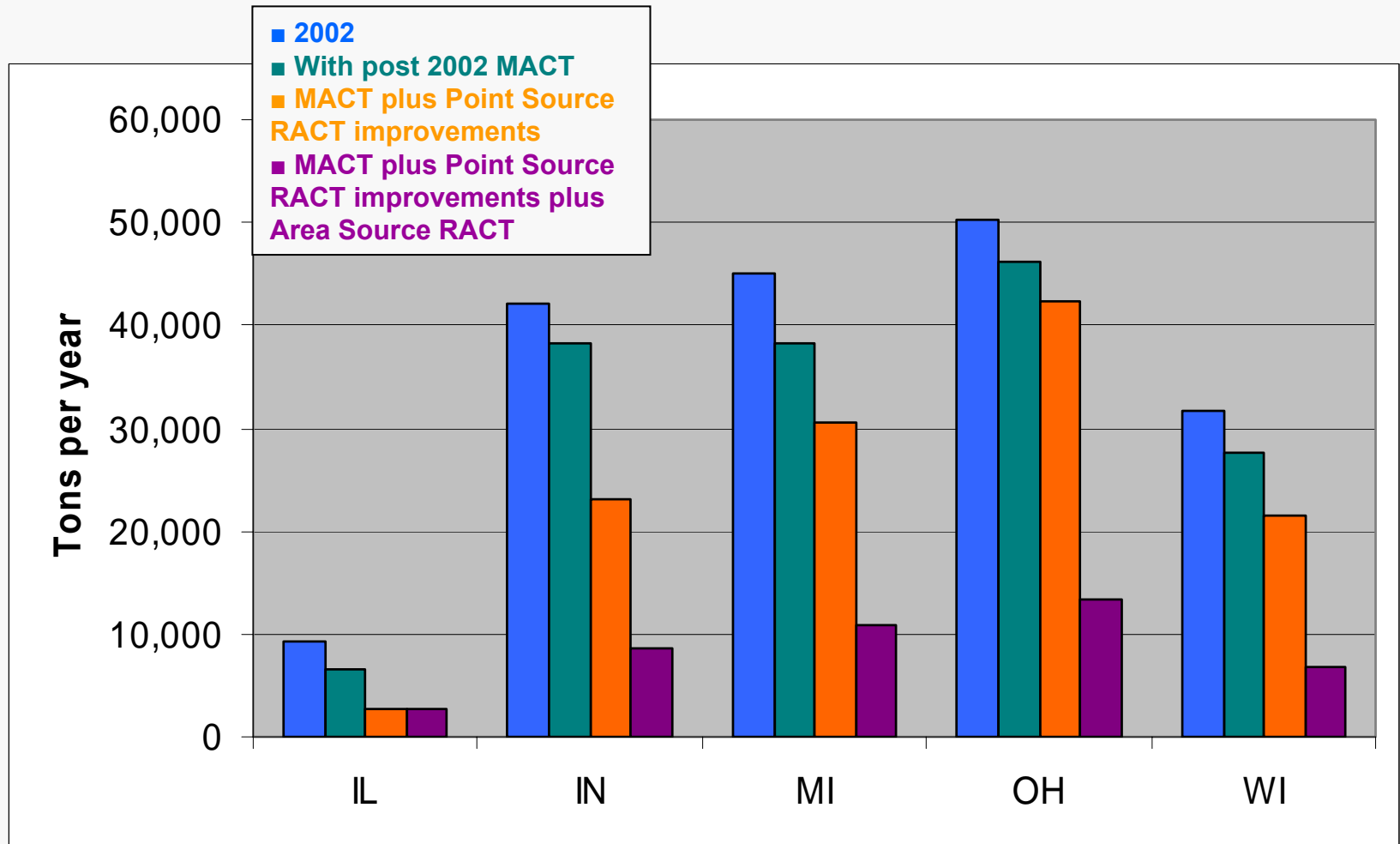
Regulatory History: Surface Coating State Rules

- Several California districts and some States in the Northeast have adopted RACT regulations that are more stringent than the CTG/ACT requirements
- MRPO adopted various regulations based on CTGs; in some case more stringent that CTG
- More stringent requirements include:
 - Higher transfer efficiencies
 - Lower VOC coatings
 - Total permanent enclosures
 - Thermal/catalytic incinerators
 - Eliminating or reducing exemptions
 - Lowering the applicability thresholds

Candidate Control Measures: Degreasing

- *Measure SOLV5A – Adopt More Stringent RACT regulations, lower applicability thresholds, and extend geographic coverage*
 - More stringent requirements include:
 - Higher transfer efficiencies
 - Lower VOC coatings
 - Total permanent enclosures
 - Thermal/catalytic incinerators
 - Eliminating or reducing exemptions
 - Lowering the applicability thresholds
 - Assume 90% reduction from uncontrolled levels is achievable
 - Geographic applicability
 - All 8-hr nonattainment counties
 - All counties in or adjacent to an 8-hr nonattainment area
 - All counties in the MRPO region

VOC Emissions For Surface Coating Candidate Control Measure



Cost Effectiveness: Surface Coating

- Varies depending on the particular source and process type
 - Use of add-on control devices such as catalytic or thermal incinerators \$100-5,000 per ton of VOC removed
 - Cost of reformulation of low-VOC coatings is difficult to predict. BAAQMD assumes a cost-effectiveness of \$2,000 per ton removed based on cost estimates used in the past for coating reformulations

Questions? Surface Coating

