


The Paper and Other Web Coating (POWC) MACT – Executive Summary

The executive summary is a power point presentation designed to be used for basic education and outreach of persons not knowledgeable with the requirements of the rule (such as upper management).

Credits: This document was made possible through the efforts of the POWC Implementation Tool Development Partnership effort, an effort to bring together the regulated and regulatory community. It was through a group effort that this document was developed. The logo of the partner who was the lead for this tool is listed first below. To see a description of our partners or to get more information about the partnership effort, see <http://www.epa.gov/ttn/atw/powc/powcpg.html>





The Paper and Other Web Coating (POWC) MACT

Executive Summary

Overview of Rule

Applies to major sources of HAP only

- HAP
 - Hazardous Air Pollutant
 - EPA listed 188
- Major Source: Facilities with **potential to emit** of:
 - 10 tpy or more of 1 HAP
 - 25 tpy or more of all HAP
 - This includes all sources of HAPs, not just from coating lines (e.g., HAP emissions from boilers)

Typical HAP in the Coating Industry

- Toluene
 - Adhesives, releases, topcoats, primers, cleaning
- Xylene
 - Adhesives, releases
- Hexane
 - Adhesives
- Methyl Ethyl Ketone*
 - Adhesives, releases, topcoats, cleaning
- Methyl Isobutyl ketone
 - Adhesives
- Methanol
 - Water and solvent based adhesives
- Vinyl acetate
 - Solvent and water-based adhesives
- Acetaldehyde
 - Water-based adhesives
- Methyl methacrylate
 - Water-based adhesives
- Benzene
 - Contaminate in toluene
- Certain Glycol Ethers**
 - Inks, cleaners

* proposed for delisting

**treated as one HAP

Overview of Rule Continued

- Requires use of add-on control and/or low-HAP coatings
- Must include all HAP that are greater than:
 - 0.1 % for carcinogens
 - 1.0 % for non-carcinogens
- Applies to all coating lines not covered by other MACTs (including aqueous)
- Monitoring, reporting, and recordkeeping requirements
- Codified in 40 CFR Part 63, Subpart JJJJ

Key Dates

- September 13, 2000
 - Rule proposed (65 FR 55331)
 - “Affected sources” built after this date are considered “new affected sources”
- December 4, 2002
 - Rule promulgated
 - Compliance date for new affected sources

More Key Dates

- December 5, 2004
 - Initial Notifications due
- December 5, 2005
 - Compliance date for existing affected sources

Affected Source

- All coating lines at a facility are defined as one affected source
 - Additional line at existing facility is part of existing affected source- generally
 - New affected sources are new lines installed at new facilities or facilities with no prior POWC operation.

Exclusions from Affected Source

Operations covered by other MACTs

- Printing and Publishing (Subpart KK)
- Magnetic Tape (Subpart EE)
- Metal Coil Coating (Subpart SSSS)
- Fabric Coating (Subpart OOOO)

More Exclusions

- Specific process exclusions:
 - Lithography
 - Screenprinting
 - Letterpress
 - Narrow web flexographic printing
- Research and development lines

Affiliated Operations

- Coating formulation, mixing, and storage operations are specifically defined (in POWC preamble) as “affiliated equipment”
- Affiliated equipment have no POWC requirements
- POWC affiliated equipment specifically is exempted from other MACTs (i.e., MCM and MOCM)

§63.7985(d)(2)

§63.2435(c)(3)

Rule Requirements- Existing Sources

- Regulates “organic HAP”
- Must limit emissions to:
 - Reduce emissions by **95** percent, **OR**
 - Meet overall organic HAP emission rate of **0.04** kg HAP / kg coating applied, **OR**
 - Meet overall organic HAP emission rate of **0.20** kg HAP / kg solids applied, **OR**
- No greater than **20** ppmv at outlet of an oxidizer and demonstrate **100** percent capture efficiency

Rule Requirements- New Sources

- Regulates “organic HAP”
- Must limit emissions to:
 - Reduce emissions by **98** percent, **OR**
 - Meet overall organic HAP emission rate of **0.016** kg HAP / kg coating (lb/lb) applied, **OR**
 - Meet overall organic HAP emission rate of **0.08** kg HAP / kg solids (lb/lb) applied, **OR**
- No greater than **20** ppmv at outlet of an oxidizer and demonstrate **100** percent capture efficiency

Options to Meet MACT

- Use Low-HAP Coatings
 - Compliance on an individual coating basis
 - Meet limits on monthly-average basis
 - Average across all lines (including aqueous, hot melt, UV, etc.)
- Install Capture and Control System
 - Solvent Recovery System (SRS)
 - Thermal or catalytic destruction
- Combination of above

Low-HAP coatings

- Track total weight of each coating used each month if averaging
- Determine HAP content using EPA approved methods
- Demonstrate one of MACT requirements is met
 - Each coating applied during a month meets the 0.04 lb HAP/lb coating or 0.20 lb HAP/lb solids
 - The weighted-average of all coatings applied over a month meets the 0.04 or 0.20 limits

Solvent Recovery

("Liquid-liquid balance")

- Track total VOC delivered to coating line(s) [monthly]
 - Coating usage
 - VOC content
- Track total solvent recovered
- Determine percentage of VOC into coating line(s) that is recovered
- Demonstrate one of MACT requirements is met by applying VOC efficiency recovery

Solvent Recovery

("Performance Test / CEMs")

- Demonstrate capture efficiency
 - Permanent total enclosure, **OR**
 - Capture efficiency test
- Monitor control efficiency of solvent recovery using continuous emissions monitors (CEM) at inlet and outlet of system
- Demonstrate compliance with overall control efficiency (OCE) requirement

Percent
Reduction

$$\text{OCE} = \text{Capture Effic.} \times \text{Control Effic.}$$

Solvent Recovery

("Performance Test / CEMs")

- Demonstrate capture efficiency
- Monitor control efficiency using CEMs
- Identify "uncontrolled" HAP from all coatings used
 - Monthly tracking of coating usage
 - HAP content
- Demonstrate compliance with either HAP content requirement by applying overall control efficiency to "uncontrolled" HAP usage

HAP
Content

Capture and Control

- Demonstrate capture efficiency
 - May require continuous or parametric monitoring
- Demonstrate control efficiency
 - Initial performance test
- Demonstrate that required overall percent reduction is met
 - = Capture Effic. x Control Effic.

Percent
Reduction

Based on VOC %, assume to be equal to HAP

Capture and Control

- Demonstrate capture efficiency
- Demonstrate control efficiency
- Identify “uncontrolled” HAP content
 - Monthly tracking of coating usage
 - HAP content
- Demonstrate compliance with either HAP content requirement by applying overall control efficiency to “uncontrolled” HAP usage

HAP
Content

Multiple Controls- Key Provisions

- Allows for multiple capture and control systems
 - More than one capture system on a line
 - More than one control on a single line
 - More than one type of control system in one interconnected group of sources

Compliance Requirements

- Start-up, Shutdown, Malfunction plan
 - Detailed plan of start-up and shutdown procedures and possible upsets and plans to minimize emissions during these periods
 - Failure to follow the SSM plan requires immediate notification and may require a revision of the SSM plan
 - SSM Plan not submitted; kept on-file at site
 - EPA can request a copy of the SSM plan

Compliance Requirements

● Monitoring

- Continuous emission or parametric monitoring to ensure sustained device performance (as applicable)
 - Capture system
 - Control system

● Recordkeeping

- Parametric and CEMS monitoring results
- Coating usage
- Compliance calculations

Reporting Requirements

- Initial Notification
- Performance Test /Results
- Initial Compliance reports
- Ongoing- semiannual reports
- Non-compliance with SSM reports