

REINFORCED PLASTICS MACT STANDARDS DEVELOPMENT FOR EXISTING OPEN MOLDING SOURCES



*Briefing Package
for Outreach Meeting
with Small Businesses*

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Outline

- Legal requirements and background
- Status of reinforced plastics MACT development
- EPA's approach for developing MACT for existing open molding sources
- MACT standards being considered for existing open molding sources

Legal Requirements and Background

Legal Requirements

- MACT = “maximum achievable control technology.” This term is commonly used to describe the standards mandated by section 112 of the Clean Air Act
- Law contains a list of hazardous air pollutants (HAP) that the EPA is mandated to regulate (e.g., styrene, methyl methacrylate, others)
- Law requires EPA to list industry categories of major sources of HAP (major: potential to emit 10 tons per year of a single HAP or 25 of a combination of HAP) and develop MACT standards for them
- EPA listed more than 200 major source categories -- Reinforced Plastics Composites Production is one of them

Standards Development

- Law prescribes the minimum level of stringency of the standard, denoted as the “MACT floor”
- Stringency can be different for new versus existing sources
- For existing sources:
 - the MACT floor is the average of the best performing 12 percent of the existing sources if there are 30 or more sources in the category or subcategory
 - the MACT floor is the average of the best performing 5 sources if there are less than 30 sources in the category or subcategory
 - the average of the best performing sources can be the mean or the median
- Subcategories can be based on classes, types, and sizes of sources

- Different subcategories can have different floors -- cannot allow sources to average across subcategories
- MACT floor for new sources is the level of emission control that is achieved in practice by the best controlled similar source

Timing

- This MACT standard is due in the year 2000 (proposal is usually a year before rule is final)
- Compliance date established by rule, but generally can be no more than 3 years after rule is final

Status of MACT Standard Development

- Still in pre-proposal rule development phase.
- Subcategories currently being considered are:
 - open molding
 - closed molding
 - polymer casting
 - pultrusion
 - continuous lamination/casting
 - SMC manufacturing
 - equipment cleaning
 - mixing of HAP-containing materials
 - storage of HAP-containing materials
- MACT floors have been calculated
- Cost data to determine economic impacts have been collected and costs are being computed

EPA's Approach for Developing MACT for Existing Open Molding Sources

- Currently, the open molding subcategory has been broken out into process/product groupings, for which individual MACT floors have been established
- Latest approach to determine MACT floors is the use of a “point value” system involving averaging
- This type of an approach was suggested by industry representatives in September 1997

The Open Molding Product/Process Grouping Currently Being Considered Are:

- Mechanical resin operations (e.g., spray guns that atomize, flow coaters, pressure-fed rollers)
 - corrosion
 - non corrosion filled
 - non corrosion unfilled
- Manual resin operations (e.g., bucket-and-brush, bucket-and-tool)
 - corrosion
 - non corrosion
- Filament winding/centrifugal casting
 - corrosion
 - non corrosion
- Gel coat operations
 - tooling
 - clear
 - pigmented

What is a Point Value System?

- It is a method to combine specific emission reduction techniques into a numerical standard
- The point value determines the extent to which emission reduction techniques are employed & their combined effectiveness
- A point value limit is not an emission limit
- A MACT point value limit is determined for each product/process grouping within the open molding subcategory
- Facilities that have more than one product/process grouping can average

Question:

How do I know if I am meeting the point value limit(s) in the MACT standard?

Answer:

Plug in your HAP content, application method and other emission reduction techniques into the MACT Model

Model consists of equations for:

- atomized resin (mechanical)
- non-atomized resin (mechanical or manual)
- filament winding/centrifugal casting
- gel coat

Model will contain methods to incorporate:

- vapor suppressed resins (VSR)
- vacuum bagging
- add-on control

The emission reduction techniques being considered in the model are:

- lower HAP resins and gel coats
 - non atomized resin application technology
 - vapor suppressed resins (VSR)
 - vacuum bagging (immediately after resin application)
 - add-on control device
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- You may need to do more than one of the above to meet the limits

 - We are planning to incorporate a procedure into the rule which will allow you to use other enforceable emission reduction techniques which are not addressed by the point value system

Point Value System Summary

- Each product/process grouping will have a MACT point value “limit”
- Use MACT model to determine if your emission reduction techniques meet the point value limits
- Facility has the option to meet a weighted average limit for all of its product/process groupings on a time-averaged basis (12 months rolling average)

MACT Standards Being Considered for Existing Open Molding Sources

What are the MACT point value limits and some corresponding potential compliance options for the open molding process/product groupings?

The following notes apply to the compliance options listed:

- All % HAP limits are in terms of % by weight and are based on the HAP content of the neat resin and any added HAP (filler not included)
- VSR effectiveness is assumed to be 35% except for filled resins where it is assumed to be 0. For MACT compliance purposes a VSR effectiveness test needs to be conducted. Therefore, HAP contents presented in compliance options with VSR are approximate. The actual HAP content allowed will be based on the results of the effectiveness test.
- Vacuum bagging effectiveness is assumed to be 45%. This will be further investigated. Therefore, HAP contents presented in compliance options with vacuum bagging could change.

Mechanical Resin Operations

– non corrosion unfilled

point value = 90 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

28.1% HAP and atomized or

36.0% HAP and non-atomized or

33.1% HAP and atomized with VSR or

43.6% HAP and non-atomized with VSR or

35.3% HAP and atomized with vacuum bagging or

46.9% HAP and non-atomized with vacuum bagging

Mechanical Resin Operations (continued)

– non corrosion filled

point value = 160 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

35.0% HAP and atomized or

44.0% HAP and atomized with vacuum bagging or depending on VSR effectiveness for filled resins, there may also be a higher HAP resin option with the use of VSR

Mechanical Resin Operations (concluded)

– Corrosion

point value = 160 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

35.0% HAP and atomized or

46.4% HAP and non-atomized or

41.3% HAP and atomized with VSR or

56.3% HAP and non-atomized with VSR or

44.0% HAP and atomized with vacuum bagging or

60.5% HAP and non-atomized with vacuum bagging

Manual Resin Operations

- non corrosion

point value = 71 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

- 32.3% HAP or

- 39.1% HAP with VSR or

- 42.1% HAP with vacuum bagging

- corrosion

point value = 85 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

- 35.0% HAP or

- 42.4% HAP with VSR or

- 45.6% HAP with vacuum bagging

Filament Winding/Centrifugal Casting

- non corrosion

point value = 130 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

35.0% HAP or

48.8% HAP with VSR

- corrosion

point value = 148 pounds of HAP/ton of resin used

Some compliance options that will meet the above point value:

38.7% HAP or

54.0% HAP with VSR

Gel Coating

- clear production

point value = 518 pounds of HAP/ton of gel coat used

A compliance option that will meet the above point value:

44.0% HAP

- pigmented production

point value = 274 pounds of HAP/ton of gel coat used

A compliance option that will meet the above point value:

31.2% HAP

Gel Coating (concluded)

- Tooling

point value = 431 pounds of HAP/ton of gel coat used

A compliance option that will meet the above point value:

39.8% HAP

Reinforced plastics MACT standard will also address ancillary emission points

- **Cleaning:** potential requirement will be that cleaning materials contain no HAP
- **Mixing** of HAP-containing materials: potential requirement will be that mixers are to be closed or covered during mixing (except when materials are added or removed from the vessel) such that there are no visible gaps and there is no active venting
- **Storage** of HAP-containing materials: potential requirement will be that containers are to be covered (except when materials are added or removed from the vessel)