

# Department of

# Environmental Protection

MAR 25 1999

MAR 25 1999

Jeb Bush  
Governor

**BUREAU OF  
AIR REGULATION**

Central District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

David B. Struhs  
Secretary  
**BUREAU OF  
AIR REGULATION**

## AIR RESOURCES COMPLETENESS REVIEW

**SOURCE NAME:** Fiberglass Boat Production  
**APPLICANT:** Bob Ackerbloom, President

**DATE RECEIVED:** 02/22/99  
**DATE REVIEWED:** 03/22/99

**ADDRESS:** Maritec Industries, Inc.  
5980 Lakehurst Drive  
Orlando, Florida 32819

**FILE:** 0694826-001-AC  
0694826-002-AV

Your application for this project has been received and reviewed for completeness. The following items are needed from a professional engineer to complete your application.

1. The project would appear to be subject to section 112(g) of the Clean Air Act. Because of the projected emissions of styrene above 10 tons per year, the facility is defined as a major and subject to MACT. Provide the Department with a proposal to reduce emissions to meet the MACT requirements.

An additional comment from DARM. In item 1 of your response, the Department is aware that the proposed MACT Determination, which was sent to you on December 18, 1998, was not a boat proposed MACT Determination. It was sent as an example to give you an idea of the necessary information the Department needed to make the MACT Determination, pursuant to 40 CFR 63.43. Please submit a proposed MACT Determination, including any similar facilities with facilities contacts, styrene content of gel coat/resin and whether or not flow coaters are being used.

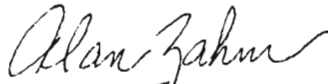
2. Provide an emission estimate of styrene using the tables in the attached DEP Guidance memo (DARM-PER/GEN-37).

Pursuant to Rule 62-4.055, the applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department. If an applicant requires more than ninety days in which to respond to a request for additional information, the applicant may notify the Department in writing of the circumstances, at which time the application shall be held in active status for one additional period of up to ninety days. Additional extensions shall be granted for good cause shown by the applicant. A showing that the applicant is making a diligent effort to obtain the requested additional information shall constitute good cause. Failure of an applicant to provide the timely requested information by the applicable deadline shall result in denial of the application.

Maritec, Inc.  
FILE: 0694826-001-AC  
page two

If you have any questions, please fax me at 407.897.5963 or write to me at the above address.

Sincerely,



Alan D. Zahm, P.E.  
Permitting Supervisor

24 Mar '99  
date

AZ/az

cc:Tom John, PE

Cindy Phillips, DARM

**TomJohn Engineering, Inc.**

**RECEIVED**

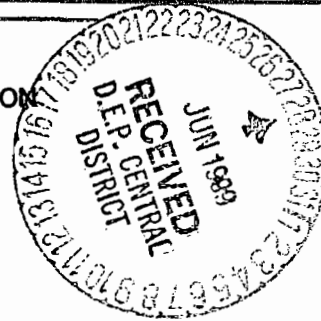
8424 4th St. N. Suite G  
St. Petersburg, FL 33702  
(727) 579-0403  
Fax (727) 579-0205

June 22, 1999

~~JUL 18 1999~~

Mr Alan Zahm  
FL Dept of Environmental Protection  
3319 Maguire Blvd., Suite 232  
Orlando, FL 32803-3767

BUREAU OF AIR REGULATION



re: Maritec Industries 0694826002AV

Dear Mr. Zahm:

As requested in your letter of March 25, 1999, we have recalculated the estimated emissions for the anticipated raw material usages using Table 1 of the June 1, 1998 guidance memo from FDEP. We have also recalculated the emissions using the ORD-1 model requested by USEPA in a September 16, 1998 letter. You will note that both of these recalculations yield estimated styrene emissions less than the conservative estimates provided in the original application.

We have also attached copies of the two document referred to in our earlier response and in discussions with Tallahassee.

Thank you for your attention in this project. Should you have any additional questions, please call me at my office.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom T. John".

Tom T. John, P.E.

enclosures: as stated

TTJ:dj

**RESPONSE TO DEP EMISSIONS CALCULATIONS REQUEST - MARITEC INDUSTRIES INCORPORATED**

note that material usages and compositions identified in the application were not proposed as limiting values for permitting purposes. The spreadsheet presented was meant to illustrate the capability of facility detailed record keeping to demonstrate compliance with permit conditions.

**A. Calculation of SAMPLE weighted average styrene contents, resin and gelcoat from previously submitted spreadsheet (as required by requested calculational methods)**

	Material	sample usage	styrene wt %	fraction usage	fraction wt %
resin	GLS 80-068	34000	37%	0.05	0.02
	GLS 80-068-36	65875	37%	0.10	0.04
	GLS nsr-20	78625	23%	0.11	0.03
	ashland 33350-22	1913	44%	0.00	0.00
	ashland 33233-05	208250	42%	0.30	0.13
	ashland 33283-30	48875	40%	0.07	0.03
	ashland 33283-45	97750	40%	0.14	0.06
	ashland 33199-06	4038	47%	0.01	0.00
	ashland 33199-16	96263	47%	0.14	0.07
	CMI 33233-25	19125	41%	0.03	0.01
	CMI 040-3618	23375	39%	0.03	0.01
	CMI 040-9972	10200	41%	0.01	0.01
	<b>TOTAL RESIN</b>	<b>688288</b>		<b>wt. avg. %</b>	<b>0.39</b>
	gelcoat	HK G1525	18300	47%	0.27
HK G3032		27865	50%	0.41	0.21
HK MGH2602		4941	23%	0.07	0.02
HK MGH2607		2964	22%	0.04	0.01
CMI 945-b-201		3557	23%	0.05	0.01
CMI 954-wa-181		2016	31%	0.03	0.01
CMI 953-wf-141		7688	29%	0.11	0.03
<b>TOTAL GELCOAT</b>		<b>67331</b>		<b>wt. avg. %</b>	<b>0.42</b>

**B. Calculation of styrene emissions using SAMPLE material usages**

Basis:

	resin	gelcoat
sample usage, tons	344.14	33.67
wt. avg.% styrene	0.39	0.42

Calculated using pergen37 Table 1 emission factors:	nonspray resin	gelcoat
		0.12
styrene emitted, tons	16.21	7.55
<b>TOTAL STYRENE EMISSIONS BASED ON:</b>	<b>nonspray resin + gelcoat 23.77</b>	

Calculated using FRP-ORD-1 emission factors:	nonspray resin	gelcoat
		0.115
styrene emitted, tons	15.54	8.04
<b>TOTAL STYRENE EMISSIONS BASED ON:</b>	<b>nonspray resin + gelcoat 23.58</b>	

DATA AS SUBMITTED WITH APPLICATION		
emission factors used in application	nonspray resin	gelcoat
		0.18
<b>TOTAL STYRENE EMISSIONS BASED ON:</b>	<b>nonspray resin + gelcoat 31.49</b>	





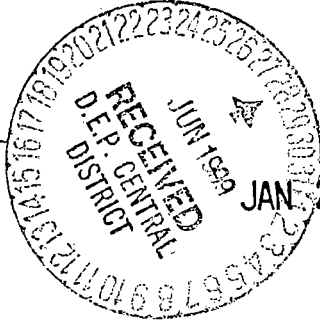
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

184 Chemicals on List

[FRP  
Boat Mfg]

ONLY  
FIRST  
PAGE

law → EPA - rule making  
↓  
enforcement



Identify technology, and all  
players must meet it

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

Mr. John McKnight  
National Marine Manufacturers Association  
1819 L Street NW, Suite 700  
Washington, DC 20036

Exist Source - 12% top median  
New Source - >50% increase (cost)

Finalized ~ 2001 (Due Dec 2000)  
Proposed Rule - Dec 1999 - then 90 days to  
comment

2003-2004 - phase in of technology

Dear John:

Enclosed is the summary of the November 10, 1998 meeting held in Durham, North Carolina. This summary will be placed in the public files for the development of the National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing. I am sending it to you so you can transmit it to the other industry stakeholders who also participated in the meeting.

I also wanted to bring to your attention some of the action items. We would like to consider these during the development of the proposed rule, so it would be most useful if you can send us these items as soon as possible. These include: test data on laminate strength reductions (page 3 of the meeting summary) and the proposal for the allowance of a small amount of HAP for resin and gel coat equipment cleaning (page 4).

Finally, I would like to thank you for the prompt and thorough response with regard to the verification of the data in the database, and for the economic information you provided to Lisa Conner. At the meeting we indicated that the additional data needed to be provided by the end of 1998 to be included in the database. The information we received by this date was sufficiently documented, and it allowed us to make changes in the database where necessary.

If you have any questions or concerns on the meeting summary or action items, please call me at (919) 541-2383. After February 16, please call Jan Meyer at (919) 541-5254.

Inf Collect Request → database for EPA  
to define best perf. sources

Sincerely,

Madeleine L. Strum  
Environmental Engineer  
Coatings and Consumer Products Group

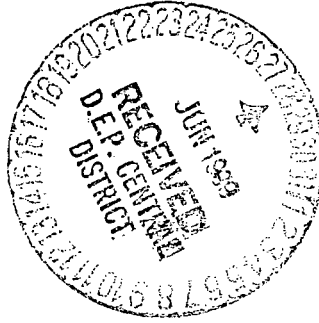
e. f. - Ron Ryan  
memo - "Unified  
Model" -  
CFR ← uncontrol.  
if trained, can  
use NMMMA  
values

- Operator Training - Action Craft
- Record Keeping/Reporting
- Skid Coat
- Exterior Hull/Deck paint

Enclosure

EPA.GOV/enn/uatw/coat/boat/boat\_man.html  
coat/coat.html

ONLY  
1st Page



**DRAFT**

**POSITION PAPER OF THE  
NATIONAL MARINE MANUFACTURERS ASSOCIATION  
REGARDING PROPOSED TECHNOLOGY STANDARDS AND EXEMPTIONS  
UNDER THE BOAT MANUFACTURING MACT RULE**

**I. INTRODUCTION**

The U.S. Environmental Protection Agency ("EPA" or "Agency") intends to set maximum achievable control technology ("MACT") standards under Section 112 of the Clean Air Act ("CAA" or "Act") for several boat manufacturing processes. The National Marine Manufacturers Association ("NMMA") requests EPA to adopt proposed standards for certain boat manufacturing processes, including production resin, pigmented gel coat, clear gel coat, base coat gel coat, and carpet and fabric adhesives.

For production resin, the NMMA requests EPA to adopt as new source MACT incineration of styrene emissions using non-atomized application equipment, comparing the percent control at the Bombardier Benton, Illinois facility with the 35 percent styrene resin. Alternatively, the NMMA requests that EPA subcategorize the Bombardier facility and require incineration technology for sources with styrene emissions in excess of 500 tons.

With regard to pigmented gel coat, the NMMA supports the proposed new source MACT requirement of a maximum 32.2 percent HAP gel coat. For existing sources, the NMMA supports a maximum average of 34.4 percent HAP gel coat. The NMMA requests EPA to calculate the MACT floor for clear gel coat based on boat hull and deck fabrication, excluding certain non-representative uses contained in the EPA clear gel coat database. For base coat gel coat, the NMMA supports the same new source MACT requirement for styrene emissions as it requests EPA to adopt for pigmented gel coat, i.e. a maximum of 32.2 percent HAP base coat gel coat. Existing sources also would be limited to a maximum average of 34.4 percent HAP base gel coat. Finally, for carpet and fabric adhesives [3M to provide information].

The NMMA believes that its proposed technology-based standards will achieve the greatest net environmental benefits under the MACT rule, without unduly burdening

**POSITION PAPER OF THE  
NATIONAL MARINE MANUFACTURERS ASSOCIATION  
REGARDING PROPOSED TECHNOLOGY STANDARDS AND EXEMPTIONS  
UNDER THE BOAT MANUFACTURING MACT RULE**

**I. OVERVIEW**

The U.S. Environmental Protection Agency (EPA) intends to set maximum achievable control technology (MACT) standards under Section 112 of the federal Clean Air Act (CAA) for several boat manufacturing processes. The National Marine Manufacturers Association (NMMA) requests EPA to adopt proposed standards for certain boat manufacturing processes, including production resin, pigmented gel coat, clear gel coat, and base coat gel coat. The proposed standards will achieve substantial net environmental benefits under the MACT rule.

The NMMA also requests EPA to adopt exemptions under the MACT rule for six boat manufacturing processes: tooling resin and gel coat; mold sealing, releasing, stripping and repair; use in wood coating of HAP-based finishing materials not to exceed 100 gallons per month; use of no more than 220 gallons per year of HAP-solvents for resin and gel coat equipment cleaning; use of antifoulant paint; and use of skin coat resins. For each of these processes, the associated HAP emissions are *de minimis* and the regulatory costs that would result from MACT standards are not justifiable.

Finally, the NMMA believes that further analysis is needed to categorize carpet and fabric adhesives, which vary widely in both type and associated HAP concentrations. The NMMA does not believe that, based on the existing data, a MACT standard for carpet and fabric adhesives can be established at this time.

**A. Proposed MACT Standards**

For production resin, the NMMA requests EPA to adopt as new source MACT the use of 35 percent styrene resin applied with non-atomized equipment. Non-atomized application equipment with 35 percent styrene resin is equivalent to the percent control that the Bombardier Benton, Illinois facility achieves through its operations.<sup>1</sup> As an alternative to this approach, the NMMA requests that EPA subcategorize the Bombardier facility and require incineration technology for new sources with annual styrene emissions that exceed 500 tons.

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<sup>1</sup>All facilities and associated HAP data referenced in this position paper are from EPA's database.

Based on EPA's database, the NMMA recognizes that new source MACT for pigmented gel coat is a maximum average of 32.2 percent HAP gel coat, and that existing source MACT is a maximum average of 34.4 percent HAP gel coat. However, the NMMA requests EPA to adopt as both new and existing source MACT a maximum average of 34.0 percent HAP gel coat. The NMMA recommends this standard because a lower standard for new sources may eliminate the ability to use certain resins, separate standards for new and existing sources would make it difficult for resin manufacturers to ensure that resins comply with the standards, and the incremental reduction in HAP emissions that would be achieved from imposing a new source MACT standard that reduces styrene content by an average of two percent would not justify the cost of compliance for new facilities.

With regard to clear gel coat, the NMMA requests EPA to calculate the MACT floor based on boat hull and deck fabrication, excluding certain non-representative uses contained in the EPA clear gel coat database. For base coat gel coat, the NMMA requests EPA to adopt the same new and existing source MACT requirement of a maximum average of 34.0 percent HAP content as it requests EPA to adopt for pigmented gel coat.

Section II of this position paper discusses each of these proposed standards in further detail.

## **B. Exemptions for Certain Boat Manufacturing Processes**

The NMMA requests that EPA exempt all tooling resin and gel coat processes from regulation under the boat manufacturing MACT rulemaking. Second, the NMMA requests that EPA exempt mold sealing, releasing, stripping and repair activities from regulation under this MACT rulemaking. The materials currently used by the boat manufacturing industry in these two processes cannot be replaced without jeopardizing the quality and longevity of the tools and molds.

Third, for wood coating, the NMMA requests that EPA adopt an Aincidental use exemption similar to the one that the Agency granted under the wood furniture manufacturing MACT rule for incidental wood furniture manufacturers. Specifically, the NMMA requests that EPA adopt an exemption for the use of no more than 100 gallons per month of HAP-based finishing materials for wood coating activities. The environmental impact from the limited use of finishing materials is *de minimis*. The environmental benefits from regulating this activity do not justify the costs and burden to the industry.

Fourth, the NMMA requests that EPA adopt an incidental use exemption for the use of no more than 220 gallons per year of HAP-solvents for resin and gel coat equipment



cleaning. Although the boat manufacturing industry generally uses non-HAP-based products for equipment cleaning, virtually all facilities maintain a small quantity of HAP-solvents on site for particularly hard to clean equipment. Avoiding all use of HAP-solvents for equipment cleaning would be burdensome and expensive.

EPA also should exempt the use of antifoulant paints because the associated HAP emissions are *de minimis* and reduced-HAP antifoulant paints are not commercially available. Finally, the NMMA requests EPA to exempt the use of skin coat resins from the MACT rule because the associated HAP emissions are negligible and materials substitution to use lower styrene resins currently is not feasible.

Section III of this position paper discusses EPA's authority under the Act to establish these exemptions and the reasons why each of these exemptions is appropriate.

### **C. Carpet and Fabrics Adhesives**

The NMMA has determined that further analysis is necessary to categorize carpet and fabric adhesives appropriately. Boat manufacturers currently use a wide variety of adhesive products with corresponding HAP concentrations that vary substantially, and conduct an extensive range of applications that involve adhesives. Due to this variability, determination of a MACT standard is not feasible at this time.

Section IV of this position paper discusses this process in further detail.

## **II. PROPOSED STANDARDS FOR BOAT MANUFACTURING PROCESSES**

### **A. Development of MACT Standards Under Section 112 of the Clean Air Act**

Section 112 of the federal Clean Air Act requires EPA to regulate emissions from stationary sources of certain listed hazardous air pollutants based on the Maximum Available Control Technology or MACT standard. For existing sources, the MACT standard is determined based on the best-performing 12 percent of all sources within a particular source category or subcategory (the AMACT floor).<sup>2</sup> § 112(d)(3)(A). To set standards more stringent than the MACT floor, EPA must perform a Beyond-the-floor (ABTF) analysis that takes into consideration costs, non-air quality health and environmental impacts, and energy requirements. § 112(d)(2).

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<sup>2</sup>If fewer than 30 sources exist in a particular source category or subcategory, EPA will use the average emission limitation achieved by the best performing five sources in the category or subcategory.

## **B. Proposed Standards for Certain Processes**

NMMA requests EPA to adopt under the MACT rule the following proposed standards for production resin, pigmented gel coat, clear gel coat, and base coat gel coat. The proposed standards maximize the net environmental benefits achieved through reduction of HAP emissions while preserving the ability of the domestic boat manufacturing industry to compete effectively with foreign manufacturers.

### **1. Production Resin**

Production resin is the principal source of styrene emissions from the boat manufacturing process. The NMMA has determined that Aend of pipe≅ control requirements, e.g. Bombardier control of certain styrene emissions, is not a technologically or economically feasible option for new boat manufacturing facilities. Instead, the NMMA proposes that EPA adopt a new source MACT requirement for production resin requiring new and reconstructed sources to control styrene emissions from production resin by one of two mechanisms. The NMMA requests that EPA use non-atomized application equipment to compare the percent control at the Bombardier Benton, Illinois facility with that for the 35 percent styrene resin. This comparison will allow EPA to make an equivalency determination between these two technologies.<sup>3</sup>

As an alternative approach, the NMMA requests EPA to subcategorize the Bombardier facility and require new sources with annual styrene emissions that exceed 500 tons to use control technology. This alternate approach would exempt small new and reconstructed sources and also would prevent the MACT rule from defining new source review or prevention of significant deterioration requirements for such sources.

Further, the NMMA supports EPA=s proposed technology averaging and believes that EPA=s inclusion of innovative technologies, such as vacuum bagging or closed molding, in the averaging alternatives will encourage continued research and development of emissions control technology. EPA has proposed that the Agency use the data from the Corsair Marine

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<sup>3</sup>Bombardier operates under two permits applicable to the same location, one for 500 tons and the other for 149 tons. The operation under the 149-ton permit has no controls. The operation under the 500-ton permit has an incinerator with a 91 percent destruction efficiency, capturing 82.8 percent emissions. This results in an average destruction of 75 percent (the 75 percent destruction applies to one of the three lamination cycles at the facility). Bombardier manufacturers jet boats in a tunnel where emissions are captured during the spray application process. Following this process, the air volume is increased and the incinerator is bypassed as the hand rollout process commences. During the final cure process, the exhaust air volume is decreased and the exhaust gas again is passed through the incinerator.

facility which is equipped with vacuum bagging technology. The vacuum bagging technology at the Corsair facility achieves essentially the same emissions levels as can be achieved from the application of production resin containing 34.2 percent styrene using non-atomized equipment, such as is achieved at the Tracker Marine facility. For this reason, the NMMA does not object to EPA=s proposed use of the data for the Corsair Marine facility if the point value is the same as that for the Tracker Marine facility.

Based on its preliminary analysis to date of low styrene resins, the NMMA recommends that EPA set both new and existing source MACT at 35 percent styrene using non-atomized equipment. If EPA were to set a lower standard such as 34.2 percent styrene, resin manufacturers would face considerable difficulty in trying to control the specific styrene content to comply with this level. The HAP content should be set at 35 percent to ensure that boat manufacturers continue to have access to the broad range of materials and the variety of applications necessary for proper boat manufacturing.

However, the NMMA will continue to evaluate whether existing source MACT is properly characterized as 35 percent styrene resin using non-atomized equipment. The results of a data search and the information provided from questionnaires do not identify a clear relationship between the styrene levels and the intended use for a particular boat. The effects of low styrene resin on durability are not yet well understood. If the MACT standard requires low styrene resins and gel coats, many boat builders will be required to use vinyl ester resins for skin coat application that contain higher styrene levels. These factors warrant further analysis of whether existing source MACT is 35 percent styrene resin using non-atomized equipment.

## **2. Pigmented Gel Coat**

The NMMA recognizes that, based on EPA=s database, new source MACT for pigmented gel coat is a maximum average of 32.2 percent HAP gel coat, as is achieved by Carver Yachts, and existing source MACT is a maximum average of 34.4 percent HAP gel coat. These new and existing source MACT standards can be determined by one of two alternate approaches. First, EPA can subcategorize the Bombardier facility or average the facility as is discussed in section II.B.1. above with regard to production resin. Alternatively, EPA can subcategorize the Bombardier facility and can exclude from the average any data for the Kawasaki AJet Skis≅ facility. The Kawasaki facility should be excluded from the average because its operations are not representative of pigmented gel coat application within the industry. Personal watercraft are not subjected to the same environmental exposures as are other recreational boats, e.g. long-term ultraviolet (AUV≅) and saltwater exposure, and bottom painting and scraping. In addition, since the database was developed, Kawasaki has discontinued the use of gel coating for personal watercraft.

Rather than set new source MACT at 32 percent and existing source MACT at 34 percent, the NMMA requests EPA to set both new and existing source MACT at 34 percent for several reasons. First, in order for domestic boat manufacturing facilities to remain competitive, these facilities must have access to a variety of pigmented gel coat resins. A lower new source MACT standard likely would eliminate the ability to use certain resins. Second, resin manufacturers would face considerable difficulty if they are required to ensure that resin products comply with two separate standards. Finally, the incremental reduction in HAP emissions that would be realized by requiring new sources to comply with a 32 percent maximum average HAP gel coat would be negligible and would not justify the costs for new sources to comply with such a standard.

### **3. Clear Gel Coat**

Boat manufacturers primarily use clear gel coat for boat hulls and for bass fishing boat decks. The NMMA recommends that EPA calculate the MACT floor for clear gel coat based on boat hull and deck fabrication, and exclude certain non-representative uses contained in the EPA clear gel coat database. U.S. Marine owns six of the eleven top facilities in the EPA clear gel coat database. These facilities are not representative of the industry because the facilities use clear gel coat only for small parts of the boat such as dashboards, head areas and sink tops. These isolated areas are not subjected to the same environmental extremes in terms of temperature, wind, precipitation, and ultraviolet exposure as are boat hulls and decks. Further, the use of clear gel coat at those U.S. Marine facilities that use both clear gel coat and clear gel averages only approximately 15 gallons per year.

### **4. Base Coat Gel Coat**

The NMMA requests EPA to adopt the same styrene level for base coat gel coat as for pigmented gel coat -- for both new and existing sources, a maximum average of 34.0 percent HAP base coat gel coat. Base coat gel coat is the interior gel coat used to protect the laminate. Many boat builders recycle scrap gel coat for use as base coat gel coat. Boat manufacturers currently make limited use of the base coat gel coat process, but this process is extremely important to proper boat manufacturing.

## **III. EXEMPTIONS UNDER THE MACT RULE FOR CERTAIN PROCESSES**

The NMMA requests that EPA adopt exemptions under the MACT rule for six boat manufacturing processes for which the associated HAP emissions are *de minimis* and the regulatory costs cannot be justified. These six processes are: tooling resin and gel coat processes; mold sealing, releasing, stripping and repair; wood coating activities; resin and

gel coat equipment cleaning; use of antifoulant paints; and use of skin coat resins. In other MACT rulemakings, EPA has exempted from regulation HAP emissions from certain processes or activities conducted by major sources. The NMMA believes that the reasons the Agency expressed for adopting such exemptions in other MACT rulemakings apply equally to the six processes or activities for which the NMMA requests an exemption.

**a. EPA Authority Under Section 112 of the Act to Exempt Minor Processes**

Section 112 of the CAA requires EPA to develop and implement MACT standards for HAP emissions from certain categories and subcategories of major sources. In developing such standards, EPA must ensure that the standards are Achievable<sup>≡</sup> by affected major sources, taking into consideration the cost of compliance with the standard and the environmental and public health benefits achieved by the standard. See § 112(d).

While the Act specifically addresses the regulation of HAP emissions from sources in identified source categories or subcategories, nothing in Section 112 obligates EPA to regulate HAP emissions from every process or activity undertaken by such affected sources. To the contrary, in defining the scope and parameters of each standard, the Act instructs the Agency to consider the cost to industry, which includes the feasibility of compliance with any standard, and the incremental benefit to human health and the environment achieved through regulation.

The legislative history also clearly demonstrates that Congress intended EPA to take costs into consideration in setting the MACT standards. According to the Senate Report, A[c]ost and feasibility are factors which may be considered by the Administrator when establishing an emission limitation for a category under section 112.<sup>≡</sup> Senate Report at 166. Similarly, the House Report supports the proposition that EPA must consider costs and other impacts. According to the House Report:

In the determination of MACT for new and existing sources, consideration of cost should be based on an evaluation of the cost of various control options. The Committee expects MACT to be meaningful, so that MACT will require substantial reductions in emissions from uncontrolled levels. However, MACT is not intended to require unsafe control measures, or to drive sources to the brink of shutdown.

House Report at 328.

Both the text of Section 112 and the legislative history confirm that EPA is obligated to tailor MACT standards to take into account pertinent differences among sources.

Avoiding the imposition of standards that would yield relatively little benefit at considerable cost to affected sources clearly is within the Agency's obligations under Section 112.

**B. EPA Has Exempted Minor Processes Under Other MACT Rulemakings**

In developing other MACT standards, EPA has recognized that the regulation of HAP emissions from certain processes or activities at major sources is not justifiable based on considerations of cost, environmental and public health benefits, and feasibility of compliance. For example, in developing the MACT rule for wood furniture manufacturing, EPA provided an incidental use exemption. Under this exemption, major sources engaged primarily in the manufacture of products other than wood furniture are subject only to certain recordkeeping provisions, so long as the source uses no more than 100 gallons per month of finishing materials containing HAPs. 60 Fed. Reg. 62930, 62932 (December 7, 1995); 40 C.F.R. § 63.801. In justifying the incidental use exemption in the wood furniture manufacturing MACT rule, EPA explained that the environmental benefit that would be achieved through the regulation of HAP emissions from incidental wood furniture and components manufacturing would be minimal. Because the exemption limits the total coatings that may be used, EPA explained that only *de minimis* HAP emissions would be exempt from regulation. EPA also noted that the MACT rule would impose a considerable burden if it failed to exempt incidental wood furniture and components manufacturing from the work practice standards and the recordkeeping and reporting requirements. 60 Fed. Reg. at 62932.

Based on a similar analysis of the costs and burden to industry and the environmental and public health benefits that would be achieved from regulation, EPA also has exempted the HAP emissions from minor processes or activities in several other MACT rulemakings. For example, the benzene waste operations national emission standard for hazardous air pollutants (ANESHAP) exempts from control requirements (1) sources whose total annual benzene quantity from facility waste is less than 10.0 Mg per year, and (2) waste streams at an affected source that together contain total quantities of benzene less than 2.0 Mg per year. 40 C.F.R. §§ 61.342(a), 61.342(c)(3)(ii); 58 Fed. Reg. 3072. Under the hazardous organic NESHAP (AHON) rule, EPA established a size threshold below which storage vessels are exempt. 40 C.F.R. § 63.119(a)(3). In the industrial process cooling towers MACT rule, EPA exempted residual hexavalent chromium concentrations in cooling water samples equal to or less than 0.5 ppm. 40 C.F.R. § 63.404(b). In the asbestos NESHAP, the Agency provided an exemption for small renovation projects. 40 C.F.R. § 61.145(a)(4). These examples all illustrate that EPA interprets its mandate under Section 112 of the CAA to develop and implement achievable standards to authorize the exemption of HAP emissions from minor processes or activities at sources that otherwise are subject to regulation under Section 112.

**C. The Boat Manufacturing MACT Rulemaking Should Provide Exemptions for Six Minor Processes**

**1. Tooling Resin and Gel Coat**

Fiberglass boat molds, which commonly are referred to as tooling, play a critical role in determining the quality, durability and appearance of the hull, deck, and associated fiberglass parts of a recreational boat. No quick or easy process exists by which quality polyester tooling can be produced. The production of quality tooling involves a precise, painstaking craft. This process starts with careful preparation of the pattern and concludes with the final building of the mold. The surface of the pattern must reflect the mirror finish desired in the mold and the mirror finish in the mold must be maintained to ensure the quality of the final parts. Proper resin and gel coat are the keys to production of quality tooling; if the resin and gel coat are not appropriate for the type of application or are not applied correctly, a poor quality mold will result and a great deal of labor will have been wasted. Thus, proper application and use of appropriate materials are critical to producing quality, aesthetically appealing and durable recreational boats. Improper or less durable tooling increases the total cost of production. The incremental increase in production costs depends upon the number of rejected toolings produced before an acceptable one is created, taking into consideration the increased labor and materials costs and resulting delays in production.

The NMMA believes that EPA should exempt from the boat manufacturing MACT rulemaking all tooling resin and gel coat activities. Boat manufacturers currently use small quantities of HAP-based materials during tooling activities; the corresponding HAP emissions therefore are almost unquantifiable. The costs and burden to industry to regulate HAP emissions from tooling activities cannot be justified.

The NMMA has reviewed both the Information Collection Requests (AICRs<sup>≡</sup>) and other information provided by its members. This information indicates that the average boat manufacturing facility generally uses less than two percent of their total resin and gel coat usage in tooling activities.<sup>4</sup> Some smaller boat builders that make fewer boats, but require the same number of molds, may report a slightly higher resin and gel coat tooling percentage, but even in these cases the total usage and corresponding emissions are negligible. For example, based on the ICR information from a typical production type boat builder, one facility used approximately 3.2 million pounds of resin and 650,000 pounds of gel coat in a

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<sup>4</sup>For example, in 1998, Chaparral Boats used 4080.6 pounds of gel coat in tooling operations, which represented only 0.5775% of the 706,596 pounds of gel coat used in production that year. Chapparal Boats also used 43,195 pounds of resin for tooling operations, which represented only 0.93% of the 4,638,750.50 pounds of resin used in 1998 production. Letter from John Brooks, Chapparal Boats, to John McKnight, NMMA (January 22, 1999).

given year. For tooling operations, this boat builder used approximately 75,000 pounds of resin and 7,000 pounds of gel coat. Based on this information, which corresponds with activities at other boat facilities, generally less than two percent of the total annual resin and gel coat used was for tooling. The total annual combined styrene emissions from tooling resin and gel coat activities at this facility, using the default values in the EPA-ORD styrene emission model and the MACT floor of 35 percent styrene production resin and 34 percent production gel coat, are approximately 4,500 pounds. If a 40 percent styrene resin and a 45 percent styrene gel coat are used for this tooling operation instead of the MACT floor, the increase in total annual combined styrene emissions would be 850 pounds. Even with this higher styrene content, the HAP emissions from tooling resin and gel coat use represent approximately .0033 percent of the total HAP emissions for the facility.

Further, boat manufacturers would face significant costs to meet a MACT standard for tooling resin and gel coat. As the NMMA previously has explained to the Agency, boat manufacturers cannot compromise the quality of the materials used in tooling activities. The production of quality tools depends substantially upon the use of high-quality materials, which contain higher HAPs. If manufacturers were to use low-HAP materials, such as low-styrene compounds, the quality and the longevity of the resulting tools would decrease. Facilities then would be forced to replace low quality tools more frequently, more than offsetting any emissions reductions that would be achieved from the use of the low-HAP substitutes. Ironically, regulation of tooling activities actually may increase rather than decrease HAP emissions. In the alternative, boat manufacturers might be forced to contract for these activities to be performed off-site at sources not otherwise subject to the MACT rule. Such a result also would significantly increase costs at boat manufacturing facilities.

## **2. Mold Sealing, Releasing, Stripping and Repair Activities**

The NMMA requests that EPA exempt from regulation under the boat manufacturing MACT rule all mold sealing, releasing, stripping and repair activities. The use of a preventative mold maintenance program is critical to ensuring the longevity of a tool. Boat builders face a major challenge in trying to maximize the number of parts that can be made before a mold must be reconditioned. Reconditioning is necessary when the styrene buildup reaches a certain point. Boat builders try to determine the exact number of parts that can be manufactured before the part adheres to the mold. For example, a mold typically will produce seven parts before it begins to lose its gloss, at which point it becomes difficult to pull the part away from the mold. Before reaching this point, the boat builder will remove the mold from production and will repair, buff and re wax the mold.

Mold buildup is attributable to adhesion to the mold of styrene from the production gel coat. Normal mold preparation generally is performed by scrubbing the buildup from the



mold using a commercial stripper, toluene, methyl ethyl ketone, or ethyl acetate. The mold then is machine-polished with a glaze. This step is followed by washing and rinsing the mold with cold water to remove any compounding dust and compound vehicle. Six fresh coats of wax then are applied to the mold before it can be placed back into production.

Use of proper materials also is critical to tooling when the boat builder decides to resurface a mold. a mold will be resurfaced if the boat builder first decides that the mold should be retained and the investment in labor and material is less than the cost of building a new mold. The materials required for this repair activity cannot be compromised.

Based on a review of the ICRs, it is evident that boat molds with complex contours require higher quality sealing, releasing, stripping and repair materials than do molds with simpler, flatter contours. Forcing all boat manufacturers to use lower HAP-based sealing and releasing materials would cause significant problems at those facilities that make boats with more complex contours.

### **3. Wood Coating Activities**

The NMMA urges EPA to adopt under the boat manufacturing MACT rulemaking an Aincidental use≡ exemption for wood coating activities similar to the one that it granted under the wood furniture manufacturing MACT rulemaking. Specifically, the NMMA requests EPA to exempt from compliance with the MACT rule the use in wood coating of no more than 100 gallons per month of HAP-based finishing materials. EPA already has determined under the wood furniture manufacturing MACT rule that the benefits to public health and the environment from regulating use of finishing materials below this *de minimis* threshold would be negligible and, therefore, could not justify the significant costs and burden to industry of compliance. The same analysis applies equally to the use of 100 gallons per month of HAP-based finishes by boat manufacturers.

#### **a. Costs and Burden of Regulation**

Boat manufacturers generally make relatively small quantities of wood components, such as cabinetry, railing, and trim, among other items. Facilities primarily use water-based finishes with low HAP content; however, small quantities of HAP-based finishes are used at some facilities for these wood components. Requiring all boat manufacturing facilities that conduct wood coating to use water-based finishes would impose significant costs on them.

Consumer demand dictates the choice of either a HAP-based or a water-based finish. HAP-based finishes provide a higher gloss and are considerably more attractive for parts

such as rails and trim. If those boat manufacturers that use 100 gallons per month or less of HAP-based finishes are forced to use water-based finishes, such manufacturers likely would lose business to foreign companies not operating under similar restrictions. Further, water-based finishes are less water resistant and must be repaired more often in exposed areas than HAP-based finishes. Such increased repair costs also would be likely to drive consumers to foreign manufacturers.

To avoid the loss of business to foreign competitors, the NMMA anticipates that members may attempt to relocate wood coatings activities off-site to sources not otherwise subject to the MACT rule. This option is far from ideal because it not only would remove from boat manufacturers the ability to customize details of the boat interiors on-site, but the industry still would incur substantial costs to outsource this function. The NMMA also expects that members would experience considerable delays waiting for small wood components that are needed to finish out boat interiors.

The costs of complying with a wood coating MACT standard do not justify the insignificant HAP emissions from such activities. Even if a facility were to use the maximum amount of HAP-based finishing materials requested under the proposed incidental use exemption, i.e. 100 gallons per month, the NMMA estimates that the total HAP emissions from wood coating would only equate to approximately 30 to 110 pounds per month, depending upon the HAP concentration of the particular finish. Wood coatings activities actually result in annual HAP emissions of approximately 0.5 to 1.0 ton per year, depending upon the HAP concentration and the amount of finishing materials used. This amount is less than one percent of the total annual HAP emissions from boat manufacturing facilities.

Further, the NMMA has identified only two facilities that currently use more than 100 gallons per month of HAP-based wood coatings. These facilities produce high-end yachts, a market sector that is extremely sensitive to consumer demand, and that is not capable of remaining competitive with foreign manufacturers if forced to use substitute wood coating products. EPA should subcategorize these facilities given the unique nature of the high-end yacht market. Even if EPA subcategorizes these facilities and exempts the use by the remaining facilities of up to 100 gallons per month of HAP-based finishing materials, the MACT rulemaking still will address almost all of the HAP emissions from boat manufacturing facilities.

For these reasons, the NMMA believes that any benefit associated with regulating HAP-based wood coating activities cannot possibly justify the significant costs to facilities that use 100 gallons per month or less of HAP-based wood finishes (Aincidental users≡) to comply with a wood coating standard under the boat manufacturing MACT rule.

**b. Compliance with an Incidental Use Exemption**

EPA can enforce compliance with an incidental use exemption for wood coating activities through the same requirements that EPA imposed as part of the incidental use exemption in the wood furniture manufacturing MACT rule. Under the wood furniture manufacturing MACT rule, EPA requires sources to maintain records to document that the source does not use on-site more than 100 gallons per month of finishing materials in wood furniture and components manufacturing. Imposing this same recordkeeping requirement on incidental users of HAP-based finishing materials under the boat manufacturing MACT rule will ensure compliance with this requested exemption.

**c. The MACT Floor for Wood Coating Activities**

The NMMA requests that EPA eliminate incidental users from its calculation of the MACT floor for wood coating activities. Many incidental users utilize water-based finishes and, according to EPA's data, such water-based finishes would comprise the MACT floor for wood coating activities. Those boat manufacturing facilities that use greater amounts of finishes generally are yacht and sailboat manufacturers, which use finishes for decks, bulkheads, headers, railings, etc. They generally use higher gloss finishes as dictated by consumer demand. Forcing such manufacturers to meet a MACT standard based on water-based finishes would drive consumers to foreign manufacturers that are not subject to the MACT standards. Excluding incidental users from the MACT floor determination would allow the establishment of a MACT floor for wood coating activities that reflects the types of finishes non-incidental users must utilize to meet customer demand and remain competitive.

The NMMA believes that basing the MACT floor on non-incidental users can be accomplished by establishing separate subcategories for incidental users and non-incidental users of wood finishes. Under Section 112 of the CAA, EPA has the authority to establish separate subcategories of sources. The CAA does not define the term "subcategory"; however, the text of Section 112 demonstrates that Congress intended EPA to consider various factors in developing regulations that are appropriate for different source categories and that recognize the important differences among different types of sources within a category. Section 112(d)(1) specifically provides that the Administrator may distinguish among classes, types and sizes of sources within a category or subcategory in setting the MACT limits. The NMMA believes that the different types of wood coating activities engaged in by incidental and non-incidental users warrant subcategorization.

#### **4. Resin and Gel Coat Equipment Cleaning**

In the initial ICRs submitted to EPA for this rulemaking, boat manufacturers did not identify the use of HAP-based solvents for resin and gel coat equipment cleaning. Therefore, EPA is considering establishing a MACT floor of zero for resin and gel coat equipment cleaning. However, several boat manufacturers have since corrected their ICRs to identify the use of small amounts of HAP-based solvents for equipment cleaning. Specifically, boat manufacturers have identified the use of styrene, methylene chloride and solvents containing 10 to 20 percent toluene, in amounts ranging from 100 to over 1,500 gallons per year.<sup>5</sup>

The NMMA believes that these corrected ICRs would require EPA to recalculate the MACT floor for equipment cleaning. However, the NMMA believes that this process can be avoided if EPA were to retain the floor at zero but grant an incidental use exemption of 220 gallons per year of HAP-based solvents for resin and gel coat equipment cleaning. This would ensure that HAP-based solvents are not used indiscriminately for equipment cleaning but would offer sources flexibility to use HAP-based solvents for particularly hard to clean equipment.

##### **a. Costs and Burden of Regulation**

In the boat manufacturing process, resin and gel coat frequently harden or adhere to the equipment used to apply these materials. Boat manufacturers primarily use non-HAP-based products to clean this equipment; however, non-HAP-based products are not always sufficient to remove the resin and gel coat. On occasion, facilities must use HAP-based solvents to remove materials that are hard to clean. The NMMA believes this problem will increase with the use of flow coaters, which EPA anticipates requiring under the boat manufacturing MACT rule. Most facilities currently use spray coaters with a single orifice nozzle to apply resin and gel coat. Flow coaters use a nozzle with multiple tiny orifices for materials application, making the equipment far more difficult to clean.

Non-HAP-based products that can remove resilient materials from resin and gel coat equipment as effectively as HAP-solvents are not commercially available. As a result, facilities will need to maintain a small quantity of HAP-based solvents on site to clean equipment that cannot be cleaned effectively with non-HAP-based cleaning products. Without the ability to use a small amount of HAP-based solvents, boat manufacturing

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<sup>5</sup>See Letter from Jerry Swartz, Island Packet Yachts, to Madeleine Strum, EPA (January 11, 1999) (ASwartz Letter); Letter from Dennis Pearson, U.S. Marine, to Madeleine Strum (January 12, 1999); Letter from Tim DePriest, Operations Manager, Stratos Javelin Boats, to Madeleine Strum (December 21, 1998).

facilities would incur significant costs. At a minimum, they would face significant equipment down-time to clean equipment with non-HAP-based products. Alternatively, boat manufacturers might be forced to throw away equipment that cannot be cleaned with non-HAP-based products. This practice would be exceptionally wasteful. Replacement of this equipment several times per year would result in significant costs that do not justify the minimal HAP emissions from the use of 220 gallons per year of HAP-based solvents.

As an alternative, facilities simply could clean equipment off-site. Equipment parts are portable and easily could be taken off site and cleaned with solvents that are readily available at the local hardware store. This solution would allow facilities to avoid significant down-time for equipment cleaning with non-HAP-based products or the discarding of equipment that cannot be cleaned. The NMMA does not believe that EPA should encourage this practice as it will allow boat manufacturers to avoid all accountability for the HAP-solvents used for resin and gel coat equipment cleaning.

Boat manufacturing facilities typically use 200 to 300 gallons of HAP-based solvents annually.<sup>6</sup> The HAP-based solvents are not 100 percent volatilized during use. Facilities temporarily store spent solvent in drums and recycle the spent solvent. Given the significant costs and burden to industry to regulate these *de minimis* emissions, EPA cannot justify the negligible environmental or public health benefit attendant to regulation.

**b. Compliance with an Incidental Use Exemption**

EPA can enforce compliance with this incidental use exemption through recordkeeping. Specifically, the Agency can require boat manufacturers to maintain documentation regarding the total amount of HAP-solvents used per month or per year for resin and gel coat equipment cleaning to ensure that the 220 gallon per year restriction is not exceeded.

**c. Recalculation of the MACT Floor**

Boat manufacturing facilities initially identified in their ICRs that no HAP-solvents are used on site for equipment cleaning activities. Based on this representation, EPA is considering a MACT floor of zero for resin and gel coat equipment cleaning. Affected sources subsequently have revised their responses to the ICR to reflect the use on-site of

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<sup>6</sup>Island Packet Yachts indicated that it uses approximately 260 pounds per year of pure styrene for equipment cleaning as well as for other purposes, including to strip molds of wax, as a thinning agent for use in gel coat repairs and for thinning resin applied to wood to allow the resin to penetrate the wood thoroughly. These uses of pure styrene accounted for only 1.63% of Island Packet Yachts' total styrene emissions in 1997. Swartz Letter at 2.

small quantities of HAP-solvents. Therefore, a floor of zero would ignore the *de minimis* amounts of HAP-solvents that most boat manufacturing facilities maintain on-site for minor equipment cleaning needs. If EPA adopts the requested incidental use exemption for resin and gel coat equipment cleaning, EPA can avoid establishing a MACT floor and, hence, a MACT standard for resin and gel coat equipment cleaning.

## **5. Use of Antifoulant Paints**

Finally, the NMMA requests EPA to exempt from regulation under the MACT rule use by boat manufacturers of antifoulant paints. Fiberglass and aluminum yacht hull boat manufacturers apply one or more coats of antifoulant paint to seal and protect certain exposed areas of the boat. One gallon of antifoulant paint typically will cover 400 square feet for a single coat, or 200 square feet for two coats. The total HAP emissions associated with the application of antifoulant paints do not warrant regulation under the MACT rulemaking.

Different types of paints are used for various parts of the boat and for different types of watercraft. Antifoulant paints vary in HAP concentration from approximately 0.92 to 6.97 pounds per gallon of paint; however, no single antifoulant could be used by all boat manufacturing facilities for all types of applications. Reduced-HAP antifoulant paints currently are not commercially available and even if developed for limited applications, will not be available for at least the next four to five years. For these reasons, EPA should exempt antifoulant paints from regulation under the MACT rulemaking.

## **6. Use of Skin Coat Resins**

Finally, the NMMA requests EPA to exempt the use of skin coat resins from regulation under the MACT rulemaking. Skin coat is the protective layer of resin applied between the gel coat and the laminate that provides corrosion resistance and prevents osmotic blistering. Boat manufacturers must apply skin coat if low styrene resins and gel coats are used which generally are less durable than higher styrene products. Some boat manufacturers must use skin coat resins that contain high styrene vinyl ester resins in order to protect the laminate adequately and to prevent blistering. These facilities cannot substitute another type of resin for the high styrene resin without significantly impairing the effectiveness of the skin coat. However, the application of skin coat resins using non-atomized equipment instead of spray coaters will reduce considerably the HAP emissions from skin coat application. Because the total HAP emissions associated with the application of skin coat resins are *de minimis* and materials substitution currently is not a feasible alternative, EPA should exempt the use of skin coat resins from regulation under the MACT rulemaking.

#### **IV. CARPET AND FABRIC ADHESIVES**

The NMMA has determined that it currently is not feasible to determine MACT for a general carpet and fabric adhesives category because of the extensive range and variation in the types of adhesive products and the corresponding HAP concentrations, and with the applications for which such adhesives are used. To demonstrate the extensive variations within this category, the NMMA has attached to this position paper data collected by industry members regarding carpet and fabric adhesives. The NMMA is conducting further analysis of this data to determine how to categorize carpet and fabric adhesives and establish appropriate MACT standards.

#### **V. CONCLUSION**

The EPA should adopt the proposed MACT standards for production resin, pigmented gel coat, clear gel coat, and base coat gel coat that the NMMA has discussed in section II of this paper. Based on considerations of the costs and burden to industry imposed by, and the public health and environmental benefits achieved from regulation, the EPA should exempt from the boat manufacturing MACT rule: (1) all tooling resin and gel coat activities; (2) all mold sealing, releasing, stripping and repair activities, (3) use in wood coating of HAP-based finishes of 100 gallons per month or less, (4) use of HAP-solvents for resin and gel coat equipment cleaning of 220 gallons per year or less, (5) the use of antifoulant paints, and (6) the use of skin coat resins. EPA has the authority under Section 112 of the CAA to exempt HAP-emitting activities from the MACT rule and has done so under several other MACT rulemakings. The costs and burden to industry of regulating these processes likely would drive consumers to foreign competitors. Finally, the NMMA believes that further analysis is required to identify the appropriate categories for carpet and fabric adhesives and the NMMA currently is reviewing the available data to determine how to establish appropriate MACT standards.