Final Summary of Third PMACT Meeting for Fabric Printing, Coating, and Dyeing

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I. Purpose

The purpose of the third PMACT meeting was for: 1) the EPA to update stakeholders on the status of the PMACT/MACT development; 2) the EPA OPPT presentation on the topic of incorporating pollution prevention (P2) into the rule; 3) a status update from ATMI workgroups on development of process descriptions and emission estimation techniques; and 4) a CRI update on air emission factor development for carpet dyeing and coating.

II. Date and Place

January 29, 1998
U.S. EPA
Environmental Research Center
Research Triangle Park, NC

III. Attendees

See attached list of attendees (Attachment 1)

IV. Meeting Summary

The meeting followed the agenda (Attachment 2) that was distributed to stakeholders with the meeting announcement and this summary is organized accordingly.

Introduction and PMACT/MACT Status

Mr. Paul Almodóvar of the U.S. Environmental Protection Agency (EPA) chaired the meeting and welcomed the stakeholders to the third PMACT meeting for fabric printing, coating, and dyeing. Mr. Almodóvar also noted that a surface coating MACT web site has been established which will be used for posting information such as meeting announcements and final meeting summaries. The web site address is: www.epa.gov/ttn/uatw/coat/fabric/fab_coat.html.

After Mr. Almodóvar's introduction, Mr. Steve York of the Research Triangle Institute (RTI) presented the information that was distributed beforehand in the third PMACT briefing document

(Attachment 3). For topics that were discussed, the following paragraphs present summaries of information provided and issues raised. The page number presented parenthetically with each topic refers to the corresponding page in the attached briefing document.

EPA FOLLOW UP ON SEPTEMBER PMACT ACTION ITEMS (Pages 3 and 4 of 9)

Steve York presented an overview of the stakeholders that are now involved in MACT development to represent nonwoven fabric production, thread manufacturing, and polymeric coating of supporting substrates. INDA, the Association of the Nonwoven Fabrics Industry, has member companies that produce nonwovens using physical, chemical, and thermal bonding techniques. Members of INDA also include converters that coat and laminate nonwovens. The American Yarn Spinners Association (AYSA) includes members that dye yarn and heat-set carpet yarn. Similarly, several other stakeholders are involved that represent members with polymeric coating operations. The Industrial Fabrics Association International (IFAI) includes companies that produce coated and laminated fabrics. Some members of the Northern Textile Association (NTA) do flocking in which a very finely cut fiber is bound with adhesives to various substrates including fabric. The Single Ply Roofing Institute (SPRI) is composed of companies that produce roofing products for commercial and industrial facilities with flat roofs. Production of the roofing products involves coating and laminating woven and nonwoven fabrics with thermoplastics and rubber. The Rubber Manufacturers Association (RMA) represents producers of automotive rubber products including tires, belts, and hoses.

Steve York reported on the answer to the question that had been raised at the September stakeholders meeting of whether a control device installed to control opacity that is achieving co-control of HAP could be used in the MACT floor determination. The answer is yes, the performance of an opacity control device in co-controlling HAP could be used to set the MACT floor. However, the fume oxidizer test results that are summarized in the briefing document are the only test results that are currently available and do not indicate a very good gaseous organic destruction efficiency (overall HAP control efficiency cannot be determined from the test results). David Dunn requested a copy of the fume oxidizer test report from Mr. York.

Regarding the measured VOC emissions from Suessen carpet yarn heat-setting, Mr. York noted that the source of the emissions is unknown. The source could be chemicals that are applied to the fiber by the fiber manufacturer, the fiber itself, or byproducts of the heat-setting process. Stakeholders in attendance did not know the source of the measured VOC emissions, though Carroll Turner submitted that the carpet manufacturing industry disputes the test results.

COATINGS INDUSTRIES DRAFT ICR (Page 6 of 9)

Paul Almodóvar reported that the Coatings MACT group at OAQPS has begun developing a generic ICR for all of the coatings MACTs. Facilities who already responded to the ATMI MACT survey should be able to easily fill out the ICR based on the information they submitted in the ATMI survey. Stakeholders will be given the opportunity to comment on the draft ICR

before it is finalized.

ORGANIZATION OF DRAFT ICR (Page 7 of 9)

Steve York gave a brief overview of the types of information that will be requested in the ICR. Form A (General Facility Information) will be used to collect information such as facility name, location, technical contact, principal product, and number of employees. Regarding information requested with Form B (Grouped Information) and Form C (Process Equipment Information), Mr. York noted that the MACT team hopes to incorporate good P2 definitions into the ICR (e.g., reformulations and process change definitions). This will make it easier to incorporate P2 into the final regulation, thereby creating a rule that is environmentally friendly and cost effective. The MACT team will need to distinguish between two types of area sources:

- Those that are not major HAP sources because their process has never required the use of HAPs ("true" area source); and
- Those that are not HAP major sources because they have found ways to reduce HAP usage or HAP potential to emit ("synthetic minor source").

The former group of area sources should not be used to calculate the MACT floor, while the latter should be. The information received in the ATMI survey does not allow EPA to make that distinction.

Form D (Stack Parameters) in the ICR will be used to collect stack height, diameter, and stack gas characteristics. Form E (Control Device Design and Performance Parameters) will be used to collect design parameters such as residence time and combustion temperature for a thermal incinerator and performance parameters such as capture efficiency and control efficiency. Form E (Emissions Information) will be used to collect for each HAP the emission factors used, annual emissions and maximum potential annual emissions. Mr. York noted that with regard to emission estimation techniques, the textile MACT team wants to get more information from CRI and ATMI members. Form G (Process Material Inputs) will be used to collect either the name, stock number, manufacturer, actual usage, and maximum potential usage for each material input to each process or the composition of each material input, actual usage and maximum potential usage.

Participants expressed concern about the approach of collecting HAP information based on materials usage. They noted that an average finishing plant could have as many as 400 active chemicals, the use of which would depend on the product being run. It would be a major undertaking to provide information about all of these chemicals in an ICR. Paul Almodóvar replied that EPA hopes to target specific dye components and finish components that are likely to be big HAP contributors. Another approach could be to group chemicals by certain characteristics, e.g., characterize coatings by type or use. Typical HAP contents could then be provided for each class of chemicals. EPA recognizes that it would be a burden for facilities to provide information about every material used.

A package of draft process diagrams (Attachment 4) indicating potential HAP emission sources and sources of liquid waste potentially containing HAP for each process that has been identified as a potential HAP emission source were distributed at the meeting. Steve York presented the process diagram for a dyeing and finishing range as an example of the complexity of estimating emissions from textile processes and of assessing the effectiveness of add on control equipment in reducing emissions. Paul Almodóvar asked for comments on the process diagrams from meeting participants. These diagrams will be used to shape the categories of information that are collected in the ICR.

Pollution Prevention

Danielle Fuligni and Paul Matthai of EPA's Office of Pollution Prevention and Toxics (OPPT) told the meeting participants that OPPT is targeting some projects for a P2 approach to regulation. OPPT is leading the effort to incorporate P2 into the regulatory process and is hoping for a coordinated effort, including bringing in the States to see what they have done. A national P2 Roundtable request has also addressed the effort to incorporate P2 into the coating rules.

Furthermore, OPPT hopes to "institutionalize cross media approaches to P2 in regulations." Ms. Fuligni and Mr. Matthai pointed out that reformulation of HAP-containing materials may create an environmental burden in some other environmental media. They asked the MACT team and industry to be cognizant of cross-media impacts.

In summary, OPPT aims to promote the use of P2 for meeting Clean Air Act standards. They are working to identify P2 opportunities in a series of upcoming regulations, including the coating MACTs.

ATMI Workgroup Status Update

Julie Fleming of ATMI provided an update of workgroup progress. The ATMI MACT Task Force has formed process specific workgroups to address slashing, preparation, printing, and dyeing and finishing. The workgroups include technical staff from ATMI member companies and have brought in experts from outside of ATMI (e.g., other professional groups, suppliers, and academics) to address the following issues: process boundaries, emissions estimation methods, ATMI survey database anomalies, compliance options including P2 measures, appropriate MACT floors, whether current emission controls affect HAPs, and emission testing recommendations. All of the groups have worked on the first two issues, some have begun to deal with the third issue, and all are aiming to complete the roster of issues.

The MACT Task Force felt that suppliers would be the best source of HAP information, therefore, each work group is going to their suppliers to find out average HAP contents in typical products. They are also working on definitions, applicability, controls, and P2 measures and are searching the literature for test results on the fate of HAPs in processes, especially the fate of glycol ethers. The workgroups have met twice, and will meet every month until the issues are

resolved. A representative from each ATMI workgroup provided an update on progress made.

The slashing workgroup has defined the process boundaries and has engaged suppliers of polyvinyl alcohol (PVA) about achievable methanol (and other HAP) limits in PVA. They are looking at situations where 100 percent PVA is used as well as mixtures of PVA. They also are checking into whether suppliers can certify HAP content on a per shipment basis, as well as at appropriate methods for testing HAP content. The group will go back to the ATMI survey to resolve data anomalies, e.g., did respondents partition their emissions between air and water and if so, on what basis? David Dunn noted that the workgroup wants to separate out the types of slashing where no HAPs or PVA are used. He also is in favor of identifying "compliant formulations."

The preparation ATMI workgroup provided an update, reporting that they have defined process boundaries and noting that their major HAP source is a compound of glycol ether in water-based scours. They reported that the industry is moving away from solvent scouring and toward water-based solvents. However, they were unable to identify instances where solvent scouring may still be done or needed. The group plans to contact suppliers for information on glycol ether content and on the fate of glycol ethers in wastewater. David Dunn pointed out that water-based process usage of glycol ethers may not be equal to air emissions.

The ATMI printing workgroup reported that they have established process boundaries and described the physical methods of printing and are refining data anomalies from the ATMI survey. They have contacted suppliers to identify typical HAP content in printing formulations, and to check the fate of HAPs when they are exposed to high curing and drying temperatures. The workgroup will also ask suppliers about reformulating their pigments and print pastes while still meeting customer specifications. The workgroup noted P2 measures that the industry has adopted like reducing VOCs by moving from oils towards use of synthetics and polymers and implementing work practices to reduce wastage.

The ATMI dyeing and finishing workgroup reported that they also have established process boundaries and definitions for process terms and are going to suppliers and gathering information about the types of HAPs present in materials, especially focusing on the types of glycol ethers present and on formaldehyde. The group is also trying to look at test results for the fate of HAPs in the process. They noted that dyeing and finishing is the most complex process group with challenging issues to tackle.

ATMI reported that there was no coating workgroup in their original roster. ATMI feels that the association does not represent this industry segment very well. However, some interest in participating in a coating workgroup has been expressed by members of the Northern Textile Association (NTA) who have just recently become active on the MACT Task Force. The NTA has had a low awareness of the MACT process; ATMI has educated members on the MACT process and what needs to be looked at in the coating process. It is not clear how this ATMI workgroup will proceed. Mr. Almodóvar stated that he does not want to discourage ATMI

members from participating in coatings work, but recognizes that ATMI members primarily focus on basic textile manufacturing.

Trish Koman introduced herself as the Project Leader for the paper and other web coatings source category and stated that information collected for her source category indicates that fabric coaters are involved in making tapes, wall coverings, and computer components. Ms. Koman noted that there is a lot of overlap between paper and fabric coating.

In response to a question about the concern of NTA with the flocking process, David Trumbull noted that NTA members are active in all traditional textile areas such as cotton processing and warp knitting and that to a large extent, their concerns will be addressed by ATMI participation in the MACT process. However, Mr. Trumbull did feel that wool fabric producers need special attention; there may be differences in wool processing from cotton and synthetic processing. A process that is performed by NTA members that is different from traditional textiles is flocking. Flocking is done on textile substrates as well as on other substrates such as paper and foam. Also, flocking is done on objects such as glove boxes, i.e., flocked material is not necessarily a roll product. The flocking process involves undercoating the substrate, adhesive application, and curing. (It was noted that this could sound like a textile coating operation.) Mr. Trumbull also noted that NTA members are producers of wool felt and he believes that these members generally are not members of INDA.

Gene Roberts offered the opinion that flocking could be in the flame lamination source category and he felt that coating textile products should be in the textile MACT. Paul Almodóvar concurred that EPA believes the coating of textile products should be in the textile MACT, with the possible exception of tire cord. Mr. Almodóvar stated that this question needs to be answered quickly. Trish Koman added that the issue needs to be sorted out efficiently; EPA does not want one source to be covered by more than one MACT. Ms. Koman solicited industry's help in figuring out what makes sense.

In summing up the ATMI workgroup status update, David Dunn proposed that each of the workgroups will develop a “deliverable’. Each workgroup deliverable will include information that will help EPA focus on where the HAPs are in the process. The workgroups have found that there are enough similarities between facilities to go to suppliers for information on "generic" formulations to plug into the standard development. The workgroups will share information with EPA as it is developed, rather than waiting until they have complete information and sharing it all at once. Paul Almodóvar commented that information from the workgroups (even if it is incomplete) will help with ICR development.

CCACTI Emission Factor Development Project Update

Carroll Turner provided an overview of the emission factor development project for the carpet industry. The State of Georgia is funding a study through the Consortium for Competitiveness in the Apparel, Carpet, and Textile Industries (CCACTI) to characterize air emissions from the

carpet and rug industry. The project is being performed by a team of researchers at Georgia Institute of Technology under the direction of Dr. Jim Mulholland. Previous work estimating volatile emissions from carpet manufacturing processes has used data from chemical inventory records and material safety data sheets (MSDS) to perform mass balances. According to Mr. Turner, this approach has been shown to significantly overestimate emissions of volatile species identified in the MSDS while failing to identify emissions of compounds either not listed by chemical suppliers or formed by chemical reaction during thermal processing. In the phase of the CCACTI project that was conducted during 1997, emissions from continuous dyeing and back coating processes were estimated based on field measurements and laboratory studies. Air emissions were assessed at four carpet processing facilities: two plants for continuous dyeing and two plants for continuous latex backing of nylon 6 and nylon 6,6 carpets.

Mr. Ken Fontaine provided a summary of the field measurements for carpet dyeing. The testing was conducted on the "suspected worst actors" in carpet dyeing, i.e., the multicolor lines, since more chemicals go into the lines. Multicolor lines also generate more COD in wastewater than solids lines. The tests were conducted under normal operating conditions, i.e., different colors were run at normal production rates. Based on the data from the two carpet dye plants, a total VOC emission factor of 150 mg/square yd was estimated and a total HAP emission factor of 5 mg/square yd was estimated. Assuming a maximum production rate for the two lines of 13,000 square yd/hr, a VOC potential to emit (PTE) of 16 tons/yr (tpy) was estimated and a HAP PTE of 0.7 tpy was estimated. The HAPs were glycol ethers and aldehydes.

For the dye line operation, a comparison of the estimated emissions from mass balance versus the stack testing showed that mass balance estimated 155 percent higher VOC emissions (15.25 tpy vs. 9.85 tpy) and mass balance estimated 60 percent lower HAP emissions (0.26 tpy vs. 0.43 tpy). The HAP mass balance assumed that all glycol ether went into wastewater. In addition, the researchers felt that the aldehydes could be reaction products from the dryers because they were not present in the input chemicals.

Aarti Sharma asked if there is reason to believe that carpet dyeing is roughly the same as basic textile dyeing. In the discussion about the differences between the two processes, participants noted the following points:

- There is a narrower range of dye classes used on carpets because there is also a narrower range of substrates.
- Carpet dye is generally acid dye, which is just one of the classes of dye used in basic textile manufacture.
- Nylon dying by acid dye or thermasol dyeing would be the closest comparison.
- Very little cellulosic fiber is used in carpets; carpet is mostly synthetic substrates.
- Carpet wet pickup is more than 100 percent, even approaching 200 percent, but traditional polyester or cotton would have a maximum wet pickup of 100 percent. Other fabrics would have a maximum wet pickup of less than 100 percent.
- Fewer shades are used in carpet dyeing. Depth of shade might correlate to HAP emissions.

Ron Beegle submitted that one way to assess how the carpet dyeing study applies to basic textiles is to look at process temperature. If the temperature ranges are similar, you can probably compare results, as long as you're comparing two continuous processes, using the same type of equipment and same pressures. For example, atmospheric dyeing versus jet dyeing under pressure would make a big difference in the fate of the HAP.

Troy Virgo presented a summary of the field measurements for carpet back coating, which was conducted at two plants with continuous latex backing of nylon 6 and nylon 6,6 carpets. Each plant applied a styrene/butadiene latex with calcium carbonate filler. Latex coatings may vary between suppliers. The thickeners potentially may contain HAPs. Methanol was the HAP being studied, and 1,3 butadiene, styrene, and acetaldehyde were present as impurities. No data have shown formaldehyde to be present. Most major companies have switched to methanol-free or reduced-methanol thickener. The low-methanol latex thickener substitutes ethanol for methanol.

Based on the data from the two carpet coating plants, a total VOC emission factor of 400±130 mg/square yd of carpet was estimated and a total HAP emission factor of 25±5 mg/square yd was estimated. Assuming a maximum production rate of 16,000 square yd/hr, a VOC PTE of 60 tons/yr (tpy) was estimated and a HAP PTE of 4 tpy was estimated. The HAP emissions included glycol ethers, aldehydes, and styrene. Points to consider regarding the PTE estimate include:

- Only low face weights can run at high speeds
- Low face weights receive less latex backing
- The industry average maximum line speed (based on 12 plants in the Dalton area) is 8,500 to 9,000 square yd/hr.

Questions, Comments, and Discussion

Paul Almodóvar opened the floor up for discussion. Ken Fontaine commented that the test results on heat setting of carpet yarn will not be ready for at least a year, and the existing test (done at World Carpet) has questionable results.

Lamont Powell raised the issue of whether it is feasible for textile plants to ask suppliers for data about the HAP content of all the chemicals they supply. For example, Mr. Powell's company may supply from 2,000 to 3,000 dyes to the textile industry. Because there is no typical dye formulation, it will be very data-intensive to try to provide information on each and every chemical. Furthermore, HAP content information is not the same as "HAPs as applied." Components from different suppliers may be mixed at the plant.

Jeff Silliman agreed that there are too many dyes used to characterize. Mr. Silliman noted that the ATMI workgroups are trying to identify the sources of HAP and focus on these. Each workgroup has started by defining what type of product has HAP involved and then identifying

the sources of HAP. David Dunn suggested that EPA try to add the same sort of focus on the major HAP players to the information-gathering effort. For instance, perhaps some types of printing do not involve HAPs. Mr. Dunn also mentioned slashing as a process for which enough information might already be available without asking more questions.

Paul Almodóvar agreed that the data collection effort should be focused on chemicals that are HAP contributors and acknowledged that there are advantages to minimizing the quantity of data collected in the ICRs and then analyzed. One way might be to identify enough information in the literature that we do not have to collect information on certain processes through the ICR. Mr. Almodóvar stated that EPA is open to suggestions on data gathering and regulatory schemes. Gene Roberts submitted that the ICR is a major concern to the industry.

Gene Roberts requested clarification from EPA on how facilities with low HAP emissions will enter into the MACT floor determination. Paul Almodóvar replied that EPA can only include major sources and synthetic minors in the MACT floor. EPA will therefore have to be very careful to include facilities that have become area sources by applying P2 measures.

David Dunn questioned how EPA will identify synthetic minors, since synthetic minors have no permanent permit requirements. For instance, some area sources may have eliminated HAP usage, so their PTE is low enough that they do not have to apply for permits. Paul Almodóvar emphasized that EPA needs to identify facilities using P2 measures, since the best performing 12 percent drives the standard.

Steve York also expressed concern about facilities that are major sources because of boiler emissions. He noted that facilities that are major for criteria pollutants but not for HAP aren't considered major for MACT purposes. Don Greene responded that his company has a facility that is major for HAP emissions because of emissions from the boiler.

Gene Roberts raised the issue of the definition of glycol ethers. The ATMI workgroups all are concerned about glycol ethers. Many glycol ethers are water soluble, though high molecular weight glycol ethers are not water soluble. Glycol ethers are the main HAP involved in textile preparation, but they're high molecular weight, so ATMI workgroup members are skeptical that they volatilize. Furthermore, some fibers that are bought contain long-chain, high molecular weight glycol ethers. Glycol ethers are the HAP that could put preparation into the rule as a major source of HAP emissions. Mr. Roberts asked if the SARA Title III definition could be used.

Paul Almodóvar acknowledged that glycol ether definitions are not clear, and that EPA is having to deal with this issue for all the MACTs. Also, EPA has received a petition to delist some classes of glycol ethers. Mr. Roberts asked if ATMI can propose what glycol ethers are of concern to the textile industry? Mr. Almodóvar responded affirmatively.

EPA would very much like to get more data on glycol ethers and to do some testing. Trish

Koman suggested that OAQPS might work with the EPA PPD to leverage some funding for testing.

The issue of developing a realistic potential to emit (PTE) was raised. Paul Almodóvar noted that currently the issue of PTE is being litigated, so there is still some uncertainty about what a realistic PTE is.

ATTACHMENT 1

Third PMACT Meeting for Fabric Coating, Printing & Dyeing
1/29/98
List of Attendees

Name	Organization	E-mail Address	Telephone #
1. Paul Almodóvar	USEPA/CCPG	Almodovar.paul@epamail.epa.gov	919/541-0283
2. Melissa Malkin	RTI	Melissa@rti.org	919/541-6154
3. Aarti Sharma	RTI	Sharma@rti.org	919/541-6767
4. Robert Zerbonia	RTI	raz@rti.org	919/990-8611
5. Tracey Norberg	Rubber Mfrs Assoc.	tracey@rma.org	202/682-4839
6. Ron Beegle	Mount Vernon Mills	ronb@mvmills.com	706/734-2311
7. Lamont Powell	Clariant Corp	lamont.powell@clariant.com	704/331-7717
8. Tommy Thompson	Sara Lee	TThompson@SLHNET.com	336/519-2715
9. Gene Roberts	WestPoint Stevens	roberts.gene@westpoint-stevens.com	706/645-4645
10. Julie Fleming	ATMI	jfleming@atmi.org	202/862-0580
11. David Dunn	ERM	ddunn@ERM.GA.com	770/590-8383
12. Donald Green	Cranston Print Works		704/684-6417
13. Arthur Toompas	Cone Mills Corp.	Toompasa@cone.com	910/379-6226
14. Jeffrey Silliman	Milliken & Co.	Jeff_silliman@milliken.com	864/503-1844
15. David DeWulf	INDA	ddewulf@inda.org	919/677-0060
16. Carroll Turner	CRI	CRI@alltel.net	706/226-2477
17. Ken Fontaine	Beaulieu Group, UC	kfontaine@mindspring.com	706/270-5345
18. Troy Virgo	Shaw Industries, Inc.	tvirgo@shawinc.com	706/275-4352

Name	Organization	E-mail Address	Telephone #
19. John Burke	NC DPPEA	john_burke@p2pays.org	910/249-1480
20. Ron Ryan	USEPA/EFIG	ryan.ron@epamail.epa.gov	919/541-4330
21. Gary Moore	ITT	garym@itt.edu	804/296-5511
22. Ken Babb	NC DAQ - FRO	ken_Babb@fro.enr.state.nc.us	910/486-1541
23. Jimmy Pruitt	John Boyle (IFAI)	JPruitt@JohnBoyle.com	704/872-6303
24. Lewis Johnson	AYSA	Lewis Johns@AOL.com	704/824-3522
25. Steve York	RTI	SBY@rti.org	919/990-8629
26. Trish Koman	EPA	koman.trish@epamail.epa.gov	919/541-4120
Attended by Telephone			
27. David Trumbull	Northern Textile Asso..		
28. Jerry Summers	Guilford Mills		
29. Paul Mathai	EPA, PPD		
30. Marzieh Shahbazaz	State of GA		
31. Danielle Fuligni	EPA, PPD		

ATTACHMENT 2

A G E N D A

Third PMACT Meeting for
Fabric Printing, Coating, and Dyeing
January 29, 1998

Topic	Lead	Time
Introduction and PMACT/MACT Status	**P. Almodovar/S. York**	**1:00 - 1:30 p.m.**
• **Follow up to September PMACT action items**		
• **Draft coatings industry ICR**		
• **Survey of coating manufacturers and suppliers**		
• **Schedule**		
Pollution Prevention	**D. Fuligni**	**1:30 - 2:00 p.m.**
ATMI Workgroup Status Update	**J. Fleming**	**2:00 - 2:30 p.m.**
• **Slashing**		
• **Preparation**		
• **Printing**		
• **Dyeing and Finishing**		
Break		**2:30 - 2:45 p.m.**
CCACTI Emission Factor Development Project Update	**C. Turner**	**2:45 – 3:00 p.m.**
Questions, Comments, and Discussion		**3:00 - 4:00 p.m.**

ATTACHMENT 3
Overview

PRESUMPTIVE MACT FOR FABRIC PRINTING, COATING, AND DYEING

EMISSION STANDARDS DIVISION
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
U.S. ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, N.C.

JANUARY 29, 1998

PURPOSE

- EPA update on status of PMACT/MACT development

- EPA Office of Pollution Prevention presentation

- Status update from ATMI workgroups on development of process descriptions and emission estimation techniques

- CRI update on status of air emission factor development for carpet dyeing and coating

- General questions, comments, and discussion

EPA FOLLOW UP ON SEPTEMBER PMACT ACTION ITEMS

- Look for more information/involve stakeholders for nonwoven fabric production and thread manufacturing
  - INDA
  - Yarn Spinners Association

- Involve more polymeric coating stakeholders
  - Industrial Fabrics Association International (IFAI)
  - Northern Textile Association (NTA)
  - INDA
  - Single Ply Roofing Institute (SPRI)
  - Rubber Manufacturers Association (RMA)

- Evaluate test results of fume oxidizer used to control tenter frame opacity
  - Tenter frame on finishing range processing men's wear apparel fabric (worst case)
  - Tenter frame temperature ranged from 374 to 380 °F
  - Exhaust vented through fume oxidizer (exhaust gas temperature ~ 500 °F)
  - Total hydrocarbon concentrations and emission

rates determined by EPA Method 25A
  - Measured gaseous organic destruction efficiency of 38.4% (avg. of 3 runs)

- Evaluate available emissions test results from carpet yarn heat-setting
  - Measured VOC emissions from 3 autoclaves with individual stacks and 4 Suessens vented through a common stack
  - VOC emission measurements by EPA Method 25; speciation by EPA Method 18
  - Autoclave emissions (formaldehyde and acetaldehyde) on the order of pounds per year
  - Suessen emissions estimated as 34.7 TPY VOC using highest conversion factor (lb VOC/lb carbon) of targeted compounds
  - Previous studies have shown VOC emissions to be ≈ 50% caprolactam; speciation identified formaldehyde and acetaldehyde (not quantified)

FABRIC PRINTING, COATING, AND DYEING PMACT/MACT STATUS

- Development of draft coatings industries information collection request (ICR)
- Survey of coating manufacturers and suppliers
- Schedule

COATINGS INDUSTRIES DRAFT ICR

- ICR will be sent to facilities in 9 different source categories
  - Facility with operations in more than one source category will only respond to one ICR
  - Common questionnaire will provide consistent information across source categories

- Format of ICR will be similar to many Title V permit forms and emission inventory forms
  - Familiar set of questions for respondent
  - Requested information should be readily available

- Draft ICR will be distributed to stakeholders for review and comment before being finalized

ORGANIZATION OF DRAFT ICR

- ICR will consist of 7 forms (A-G)
- Form A – General Facility Information
- Form B – Grouped Information (grouped equipment/processes that operate integrally)
- Form C – Process Equipment Information
- Form D – Stack Parameters
- Form E – Control Device Design and Performance Parameters
- Form F – Emissions Information
- Form G – Process Material Inputs

PLANNED COATING MANUFACTURERS AND SUPPLIERS ICR

- Feasibility of coating manufacturers and suppliers ICR is being evaluated

- Advantages

  - Coatings data collected directly from suppliers
  - More precise chemical data obtained than data available from MSDS

- Disadvantages

  - Information not obtained on composition of dyes, finishes, etc., as applied
  - Data for chemicals manufactured to customer specifications probably considered proprietary by suppliers

SCHEDULE

- EPA complete draft ICR in February
- Stakeholder review of draft ICR in March
- EPA revise draft ICR based on input from stakeholders and finalize mailing lists in April
- EPA mail ICR in MAY

ATTACHMENT 4

Available on request from Paul Almodóvar (919) 541-0283 or Steve York (919) 990-8629. The draft process diagrams are also figures in the draft preliminary industry characterization, which is available electronically on this web site (www.epa.gov/ttn/uatw/coat/fabric/fab_coat.html) under Documents for Review.