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June 19, 2008

Environmental Quality Board
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
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INDEPENDENT REGULATORY
REVIEW COMMISSION

Re: Proposed Rulemaking – Control of NOx Emissions from Glass Melting Furnaces

Dear Sir or Madam:

Enclosed please find the North American Insulation Manufacturers Association's ("NAIMA") comments on the Pennsylvania Department of Environmental Protection's proposed rulemaking on the "Control of NOx Emissions from Glass Melting Furnaces."

Sincerely,

Angus E. Crane
Vice President, General Counsel

Enclosure

COMMENTS OF THE
NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (“NAIMA”)
ON PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION’S (“PA DEP”)
PROPOSED RULE FOR THE CONTROL OF NO_x EMISSIONS FROM GLASS
MELTING FURNACES

INTRODUCTION

The North American Insulation Manufacturers Association (“NAIMA”) submits the following comments in response to the Pennsylvania Department of Environmental Protection’s (“PA DEP”) proposed Rule on the control of nitrogen compounds (“NO_x”) emissions from glass melting furnaces. NAIMA is the association of North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Although rock and slag wool insulation manufacturing is covered by the same NAICS code as fiber glass insulation, there is currently only one fiber glass plant operating in Pennsylvania and two closed mineral wool (rock and slag wool) insulation plants in Pennsylvania. Therefore, these comments focus mainly on fiber glass furnaces.

NAIMA’s comments support adoption of NO_x emission limits for fiber glass and rock and slag wool insulation plants consistent with the 4.0 lbs/ton of product pulled limit adopted by the Ozone Transport Commission (“OTC”). Importantly, when the OTC adopted a 4.0 lbs/ton NO_x emission limit, it did so with a November 15, 2006 resolution¹ recommending this emission limit to its 13 member states after a lengthy, thorough emissions inventory and review process. NAIMA also supports the adoption of a performance standard based on the OTC limits. Moreover, the OTC-adopted limit of 4.0 lbs/ton NO_x emission is the same as the limits adopted by other jurisdictions. NAIMA offers the best information currently available and requests that the PA DEP consider this information in its decision-making process.

In addition, while NAIMA’s comments reflect its concern as a regulated industry, NAIMA also is providing information regarding the environmental benefits of the products its members manufacture. These insulation products promote energy efficiency and prevent pollution by reducing greenhouse gas emissions. By reducing the demand for energy, fiber glass and rock and slag wool insulation products help conserve fuel supplies and reduce the amount of pollutants that are released into the atmosphere through the burning of fossil fuels or from other correlating processes. Accordingly, one additional way that the PA DEP could encourage NO_x reductions is through programs that encourage greater residential, commercial, and industrial use of insulation products. (*See Appendix A.*)

¹ OTC Resolution 06-02-A1, “Addendum to Resolution 06-02 of the Ozone Transport Commission Concerning Coordination and Implementation of Regional Ozone Control Strategies for Various Sources,” November 15, 2006.

BACKGROUND

A. OTC Resolution

In November 2006, the OTC effectively adopted a NO_x emission limit for fiber glass insulation furnaces – 4.0 lbs/ton of glass pulled. The State of Pennsylvania participated in the OTC process.

The OTC is a multi-state organization created under the Clean Air Act. OTC members include: Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia. The OTC is responsible for advising the EPA on transport issues and for developing and assisting states in implementing regional solutions to the ground-level ozone problems in the Northeast and Mid-Atlantic regions. The OTC organizes states from Virginia to Maine and the District of Columbia to coordinate reductions in air pollution that benefit the whole region. The OTC provides air pollution assessment, technical support, and a forum through which states can work together to harmonize their pollution reduction strategies.

Beginning in January 2006, the OTC issued a list of candidates for control measures. Glass and fiber glass furnaces were included on the list of “OTC Candidate Control Measures.” The specific OTC recommendation for glass and fiber glass furnaces was development of a control strategy that would require implementation of an oxyfiring program for each furnace at the next furnace rebuild. Regulators from the 13 OTC states analyzed considerable data on appropriate technologies to reduce glass manufacturing NO_x emissions. In addition, the OTC also prepared an emissions inventory, which initially was not completely accurate.

NAIMA provided OTC with updated and corrected glass furnace emissions data that altered OTC’s projected emissions. NAIMA also provided information that demonstrated that a technology-based standard was not necessary, feasible nor practical. The industry further demonstrated to OTC that the NO_x limits of 4.0 lbs/ton of glass pulled adopted by other jurisdictions were technologically appropriate and economically feasible and would achieve significant NO_x reductions. Thus, the OTC ultimately passed a resolution adopting the limit of 4.0 lbs/ton of melt for fiber glass and rock and slag wool furnaces.²

A 4.0 LBS/TON NO_x EMISSION LIMIT IS SUITABLE FOR FIBER GLASS AND ROCK AND SLAG WOOL INSULATION PLANTS’ FURNACES

NAIMA and its members support PA DEP’s proposed adoption of the OTC Resolution for fiber glass furnaces. A NO_x emission limit of 4.0 lbs/ton of glass pulled should be adopted for several reasons. First, a performance standard based on a 4.0 lbs/ton of glass pulled emission limit is a technologically feasible and pragmatic approach that requires implementation of low-NO_x combustion technology. Second, a 4.0 lbs/ton of glass pulled emission limit is supported by regulatory precedent and the OTC recommendation and therefore would help create uniformity in emission standards.

² OTC Resolution 06-02-A1, “Addendum to Resolution 06-02 of the Ozone Transport Commission Concerning Coordination and Implementation of Regional Ozone Control Strategies for Various Sources,” November 15, 2006.

A. A Performance Standard Based on a 4.0 lbs/ton of Glass Pulled Emission Limit Is Technologically Feasible and Will Require Implementation of Low-NOx Combustion Technology

A 4.0 lbs/ton of melt limit can be achieved by currently available technologies. Each of the available technologies face certain challenges in meeting a 4.0 lbs/ton limit. Moreover, the adoption of a 4.0 lbs/ton NOx emission limit will result in a reduction of emissions from fiber glass manufacturing plants, though the volume of reductions will vary depending upon their current use of existing technology.

B. A Fiber Glass Furnace NOx Limit of 4.0 lbs/ton of Glass Pulled Has Precedent

As discussed above, after a lengthy, thorough process, the multi-state OTC recently adopted a recommended 4.0 lbs/ton of glass pulled NOx emission limit for its 13 member states. This achieves a uniformity that is desirable on a number of different levels. It provides industry with a consistent and predictable regulatory requirement that enables individual companies to develop technology and systems that can be applied to all of its operations regardless of geographic location. Moreover, consistency discourages geographic economic flight caused by one jurisdiction with limits so stringent that companies are forced to flee that state in order to conduct business. NAIMA strongly urges Pennsylvania to recognize the prudence and wisdom of a uniform standard throughout the various states.

STATUS REPORT ON CLOSED FACILITIES

As noted above, there were two mineral wool facilities that operated in Pennsylvania. As described below, both of these facilities have ceased operations.

Celotex, a former member of NAIMA, was identified as BPB/Celotex, a mineral wool production facility, on OTC's list of operating facilities. BPB/Celotex is no longer manufacturing mineral wool in Pittston, Pennsylvania or anywhere else in the United States. BPB/Celotex ceased operating in Pittston, Pennsylvania in December 2003. (See attached press release on plant closing at Attachment 1.) While in operation, the BPB/Celotex Pittston plant had one cupola and an incinerator as part of the cupola process. The Pittston facility is not engaged in the manufacture of mineral wool fibers.

MFS, Inc., a former member of NAIMA, was identified as a mineral wool production facility on OTC's list of operating facilities. MFS, however, is no longer manufacturing mineral wool in Bethlehem, Pennsylvania or anywhere else in the United States. MFS ceased operations in March 2006. As the attached news release from the United States Attorney's Office for the Eastern District of Pennsylvania indicates (See Attachment 2), MFS was having difficulty complying with its permitted air emissions limits. A proposed Consent Decree, *United States v. MFS, Inc.*, was lodged with the United States District Court for the Eastern District of Pennsylvania.³ The Consent Decree requires the performance of injunctive relief including performance testing and payment of penalties. (See Attachment 2.)

³ 72 Fed. Reg. 13,822 (March 23, 2007).

CONCLUSION

NAIMA strongly urges the PA DEP to adopt its proposed NO_x emission limit of 4.0 lbs/ton of melt for fiber glass and rock and slag wool insulation furnaces. Adopting this emission limit not only reduces emissions but promotes and preserves the same emission limit established for the industry by the Ozone Transport Commission and other jurisdictions. Maintaining a uniform NO_x emission limit throughout the country grants the industry a predictable and manageable regulatory scheme, and it also prevents inequities among the various jurisdictions.

Attachments

Appendix A – Environmental Benefits of Insulation Products

Fiber Glass and rock and slag wool insulation products promote energy efficiency and prevent pollution by reducing greenhouse gas emissions. By reducing the demand for energy, fiber glass and rock and slag wool insulation products help conserve nonrenewable fuel supplies and reduce the amount of pollutants that are released into the atmosphere through the burning of fossil fuels.

The Harvard Studies Document the Benefits of Improving Efficiency

Two studies conducted by the Harvard School of Public Health (the “Harvard Studies”) analyzed the benefits of increased insulation and projected resultant reductions of the following pollutants: PM_{2.5}, NO_x, and SO₂. These numbers were acquired using a model designed to predict emissions reductions of fine particulate matter and its precursors, nitrogen dioxide and sulfur dioxide.

An estimated 45 million homes in the U.S. lack the proper levels of insulation according to today’s energy standards. At the time of the study, an estimated 1.2 million new single family homes were built each year, but varying energy codes in each region meant that many of those homes would not be insulated to the internationally accepted minimum standard – 2003 IECC with 2004 IECC Supplement. Most commercial and industrial buildings similarly were under-insulated.

The Harvard Studies, however, have determined that improving energy efficiency of homes not only saves energy and reduces environmental air pollution, but also has a significant, immediate, positive impact on public health. Improving the energy efficiency of commercial and industrial buildings will provide these benefits as well.

The Harvard Studies demonstrate that properly insulated buildings significantly reduce the release of sulfur oxide, nitrous oxide, and fine particulate matter. With every Btu of energy produced, harmful gases such as nitrous oxide and sulfur oxide are released into the air, causing pollution in our communities. But a well-insulated home, commercial building, or industrial facility reduces the amount of energy required to maintain a comfortable living or working environment. Reducing energy consumption means power plants burn less fossil fuel to produce the energy and the result is a reduction in polluting gases emitted into our communities. Each Btu saved through energy-efficiency technologies such as insulation means cleaner air and improved public health.

Harvard researchers stated that the “magnitude of the economic and public health benefits indicates that creative public policies to encourage” increased insulation “may be warranted.”¹ Harvard researchers concluded that “[t]his approach allows us to quantify the benefits of energy efficiency on a national scale not seen before, which takes us far beyond energy savings and energy security. Now, it is clear that improving energy efficiency not

¹ Jonathan I. Levy, Yurika Nishioka and John D. Spengler, “The public health benefits of insulation retrofits in existing housing in the United States,” *Environmental Health: A Global Access Science Source*, April 2003, p. 14.

only helps us as a nation, but also has an immediate, positive impact on us, as individuals, and our families.”²

A. Specific Findings – Existing Homes

As reported by the Harvard School of Public Health, bringing all existing homes up to 2003 IECC with 2004 IECC Supplement codes would reduce PM_{2.5} by 31,000 tons, would reduce NO_x by 100,000 tons per year, and would reduce SO₂ by 190,000 tons per year:

According to our calibrated energy model, increasing residential insulation in the 46 million existing homes where insulation retrofits are necessary would save approximately 800 TBTU per year – 17 MMBTU . . . per household per year. . . . Given these energy savings, the aggregate emission reductions from residential fuel combustion and power plants include approximately 31,000 fewer tons per year of PM_{2.5}, 100,000 fewer tons per year of NO_x, and 190,000 fewer ton per year of SO₂.³

That likely is equally true of commercial and industrial buildings.⁴

The Harvard study is careful to point out that the majority of emissions are linked to power plants and a significant share of pollution reduction achieved from increased insulation would be from power plants.

The reduction of pollutants through increased insulation identified by Harvard shows substantial regional variations in emissions intensity. Interestingly, the largest reduction in pollutants through increased insulation can be achieved in non-attainment areas.

² NAIMA “Harvard Study Findings,” NAIMA-036, September 2003.

³ Levy, Nishioka and Spengler at p. 7.

⁴ In a study conducted by The Alliance to Save Energy, it was reported that insulation in existing commercial buildings saves at least 30 percent of the total U.S. commercial consumption – 2,305 trillion Btus. The study found that if all existing commercial buildings had been built to ASHRAE 90.1 standards, an additional 380 trillion Btus would have been saved. Moreover, the report stated that 20 percent of commercial buildings have no insulation and, if retrofitted, could save a potential 497 trillion Btus. The report also found that if all existing commercial buildings had been insulated to ASHRAE 90.1 standards, carbon emissions would have been 10.5 million short tons lower. Alliance to Save Energy, *Green and Clean: The Economic, Energy, and Environmental Benefits of Insulation* (Washington, DC: April 2001, pp. 12-16). The study also found dramatic energy savings for manufacturing facilities with accompanying reductions in pollution. *Ibid.* at pp. 18-23.

Table 1.⁵

Regional emission reductions for existing single-family homes increasing insulation from current practice to IECC 2000 levels.

	Northeast (NE/MA)	Midwest (ENC/WNC)	South (SA/ESC/WSC)	West (MTN/PA)	Total
PM_{2.5} (tons/year, % of national total)					
Electricity	82 (4%)	260 (12%)	1,600 (74%)	210 (10%)	2,100
Residential (NG + Oil)	210 (21%)	480 (49%)	200 (20%)	94 (10%)	990
Total	290 (9%)	740 (24%)	1,800 (57%)	300 (10%)	3,100
SO₂ (tons/year, % of national total)					
Electricity	9,100 (5%)	21,000 (12%)	130,000 (78%)	8,300 (5%)	170,000
Residential (NG + Oil)	14,000 (69%)	3,000 (15%)	3,100 (15%)	260 (1%)	20,000
Total	23,000 (12%)	24,000 (12%)	140,000 (71%)	8,600 (4%)	190,000
NO_x (tons/year, % of national total)					
Electricity	2,900 (4%)	9,300 (12%)	57,000 (74%)	7,500 (10%)	77,000
Residential (NG + Oil)	6,800 (28%)	11,000 (44%)	4,700 (20%)	2,000 (8%)	24,000
Total	9,700 (10%)	20,000 (20%)	62,000 (61%)	9,500 (9%)	100,000

Note: Estimates are presented to two significant figures; sums may not add due to rounding. Percentages represent the fraction of benefits within each region.

NAIMA stresses the significant reduction of not only PM_{2.5}, but even more dramatic reduction of SO₂ and NO_x achieved through higher levels of insulation. The reduction of SO₂ and NO_x is particularly relevant in light of EPA's determination that "reducing SO₂ and NO_x will allow us to move with greater certainty toward achieving our nation's air quality goals."⁶

B. Specific Findings – New Homes

According to the second Harvard study, insulating new homes to even the modest 2000 IECC levels would over ten years save 300 billion Btus – 28 supertankers of crude oil or 300 billion cubic feet of natural gas.⁷ Based on this volume of energy savings, Harvard researchers estimate the following reduction of pollutants:

First focusing on the aggregate emission reductions, the 300 TBTU energy savings is associated with reduced emissions of approximately 1,000 tons of PM_{2.5}, 40,000 tons of SO₂, and 30,000 tons of NO_x during the 10-year period. . . . On a per-unit basis, the emission reductions PM_{2.5} are fairly similar across regions (ranging between 0.02 kg/year in the Midwest and 0.01 kg/year in other regions). Patterns are similar for NO_x with the South and Midwest having the greatest per-unit emission reductions. At the state level, Texas had the greatest reduction of PM_{2.5}, and Virginia had the greatest reductions of NO_x and SO₂, all of which were largely related to substantial electric space heating.⁸

⁵ Levy, Nishioka and Spengler at p. 7.

⁶ 70 Fed. Reg. at 65,997.

⁷ This calculation is based on the then-reported 1.2 million new homes built each year in the U.S.

⁸ Yurika Nishioka, Jonathan I. Levy, Gregory A. Norris, Andrew Wilson, Patrick Hofstetter, and John D. Spengler, "Integrating Risk Assessment and Life Cycle Assessment: A Case Study of Insulation," *Risk Analysis*, Vol. 22, No. 5, 2002, p. 1009.

Table 2:⁹

Cumulative Emission Reductions Associated with Increasing Insulation in New Homes, Both Aggregate Savings and Per House Average Savings Per Year Over a 10-Year Period (Presented to Two Significant Figures)

	Electricity			Residential (Natural Gas + Oil)			Total		
	PM _{2.5}	SO ₂	NO _x	PM _{2.5}	SO ₂	NO _x	PM _{2.5}	SO ₂	NO _x
Aggregate (tons)									
Midwest	65	5,100	2,300	160	20	3,200	220	5,200	5,500
West	39	1,600	1,400	85	11	1,800	125	1,600	3,200
South	360	30,000	13,000	90	12	1,800	450	30,000	15,000
Northeast	16	1,800	580	57	2,400	1,600	74	4,200	2,200
Total	480	39,000	17,000	390	2,500	8,400	870	41,000	26,000
Per unit (kg/year)									
Midwest	4.5E-03	3.6E-01	1.6E-01	1.1E-02	1.4E-03	2.2E-01	1.5E-02	3.6E-01	3.8E-01
West	2.4E-03	9.4E-02	8.5E-02	5.1E-03	6.8E-04	1.1E-01	7.5E-03	9.5E-02	1.9E-01
South	1.2E-02	9.9E-01	4.3E-01	3.0E-03	3.9E-04	6.1E-02	1.5E-02	9.9E-01	4.9E-01
Northeast	2.3E-03	2.6E-01	8.3E-02	8.2E-03	3.5E-01	2.3E-01	1.1E-02	6.1E-01	3.2E-01

Consistent with EPA's stated commitment in the Advance Notice of Proposed Rulemaking on residual risk to consider energy in evaluating risk, NAIMA urges EPA to give weight in its analysis to the tremendous benefit that installed mineral wool products offer to the environment – facilitating significant energy savings which, in turn, reduces the emissions of pollutants.

⁹ *Ibid.* at p. 1010.



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FOR IMMEDIATE RELEASE

BPB Announces Changes in Ceilings Division

TAMPA, Fla., (October 23, 2003) - BPB America Inc., marketer of interior wall and ceiling products, today announced a 3-part refinement in its business strategy to enhance its position in the walls and ceilings markets.

REORGANIZATION

Having successfully incorporated the former Celotex® ceilings business within BPB in North America, it is now appropriate to refine BPB's business strategy for the next phase. The ceilings sales, technical and manufacturing management teams will be aligned with the gypsum board group to better realize the synergies between the businesses.

"We will continue to serve our customers with dedicated gypsum board and ceilings sales teams, but our management teams will be better aligned," says Brent Thomson, President and CEO of BPB America Inc. and BPB Canada Inc. "I believe this change will make it easier for our customers to do business with BPB in North America."

PLANT CLOSING

BPB's cast ceiling tile manufacturing plant near Pittston, PA, operated by BPB America's affiliate, will cease production on Dec. 31, 2003. In operation since 1957, the plant employs 65 full-time people in a 125,000 square foot plant on 80 acres on Route 92 north, near Pittston, PA.

"The Pittston plant has produced our cast ceiling tile line since 1957. Over the past several years customer preferences have shifted, moving away from the look of cast ceiling tiles, toward products with smoother finishes," says Thomson. "This action is being taken to focus our efforts and resources on products meeting the current and evolving needs of our customers for the long term."

"We regret that these changes carry a personal cost for a great team of employees, many with long service to the company. We will do our best to assist with their transition," says Thomson.

INVESTING IN THE FUTURE

In order to continue to enhance our position in the commercial market, BPB announced \$1.6 million in capital investment for the Plymouth, WI plant which produces the Capaul® Brand of ceiling tiles, and the Meridian, MS plant which produces the Celotex® Brand of ceiling tiles. This is in addition to the over \$12 million invested in

capital improvements since BPB entered the US market in 2000. "I believe these investments, and the organizational changes I've described, will position BPB in North America as a stronger and more competitive supplier," says Thomson.

CONTACT: **Pamela A. Bush**, Director, Corporate Communications, BPB America, Inc. • 813-286-3932 • Fax 813-286-3991 • pamela.bush@bpb-na.com

BPB in North America, www.bpb-na.com, manufactures and markets wall and ceiling systems for use in residential and commercial buildings. Backed by 80 years of experience and worldwide research and development, the organization serves the domestic and international markets with innovative products and superior customer service.

BPB plc is the world leader in the supply of gypsum wallboard and plasters, and a major supplier of insulation, ceiling tiles and related products for internal linings, serving growing markets for building systems in over 50 countries. For more information, visit www.bpb.com.



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UNITED STATES ATTORNEY'S OFFICE NEWS RELEASE

U.S. FILES CIVIL COMPLAINT AGAINST MFS, INC. TO LIMIT EMISSIONS OF HAZARDOUS AIR POLLUTANTS

December 20, 2005 - U.S. Attorney Patrick Meehan and the United States Environmental Protection Agency today announced the filing of a civil complaint in the District Court for the Eastern District of Pennsylvania against **MFS, Inc.**, seeking an injunction and civil penalties for violations of the Clean Air Act standards for the emissions of hazardous air pollutants. MFS is a for-profit mineral wool manufacturer located in Bethlehem, Pennsylvania. Mineral wool is a fibrous material used in the production of insulation and ceiling tiles. It is produced by melting blast furnace slag, silica and bauxite in high temperature "cupola" furnaces and then discharging the molten material onto rapidly rotating wheels converting the molten material to fibers.

The Clean Air Act establishes standards for the control of hazardous air pollutants for many industries including the mineral wool sector. MFS is subject to the Clean Air Act National Emission Standard for Hazardous Air Pollutants (NESHAP) for the Mineral Wool industry which required performance testing and a limitation of particulate emissions by no later than June 2003. The particulate emission standard in this NESHAP serves to control metallic hazardous air pollutants such as arsenic and lead. To date, MFS has not conducted performance testing and is not in compliance with the NESHAP.

The United States is seeking a Court Order requiring MFS to test its emissions, report the measurement to EPA, control any excess emissions, and substantial civil penalties for past violations.

"The bottom line is that resolving this case will make our air safer for the citizens of Bethlehem and for the environment of the Delaware Valley" said Meehan. "Delay in meeting this protective standard is not acceptable."

EPA Regional Administrator Donald S. Welch remarked that MFS is the only mineral wool manufacturer in the United States that has not yet achieved this standard. "Standards such as this, based on sound science and designed to protect human health and the environment, must be implemented by all."

Special Assistant United States Attorney Christopher A. Day and EPA Assistant Regional Counsel Russell Swan are handling this case for the United States.

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