



VIA E-MAIL

June 6, 2017

Dr. Julia Gress
Safer Products and Workplaces Program
Department of Toxic Substances Control
1001 "I" Street
Sacramento, CA 95812-0806

RE: NAIMA's Comments on Safer Consumer Products Regulations – "Listing Spray Polyurethane Foam Systems with Unreacted Methylene Diphenyl Diisocyanates as a Priority Product" – DRN: R-2016-04; File No.: Z-2017-0307-02

Dear Dr. Gress:

INTRODUCTION

The North American Insulation Manufacturers Association ("NAIMA") appreciates the opportunity to submit comments on California's Department of Toxic Substances Control's ("DTSC") proposed amendment to Title 22, Division 4.5, Chapter 55, section 69511, by "Listing Spray Polyurethane Foam Systems with Unreacted Methylene Diphenyl Diisocyanates as a Priority Product." NAIMA is the trade association for manufacturers of fiber glass and rock and slag wool insulation products.

NAIMA's comments offer alternatives to listing spray foam insulation as a priority product.

Spray Polyurethane Foam Systems, when being installed as an insulation product, create an exposure scenario that can be harmful. During application of spray foam insulation products, fumes and mists can be created. The basic chemical ingredients of spray foam insulation systems include diisocyanates (monomeric MDI and polymeric MDI). Contact with these ingredients in vapor, liquid, or particle form presents a number of health hazards to skin, eyes, and respiratory systems. In fact, an overexposure to diisocyanates can also cause skin and respiratory sensitization.

Applicators and other persons within a close proximity to the spray foam application could be exposed to fumes beyond the Occupational Safety and Health Administration ("OSHA") and the National Institute for Occupational Safety and Health's ("NIOSH") legally required and recommended limits. Precautions for applicators, helpers, and building occupants must be taken to protect them from the fumes, mists, and possible spills. A safety plan is essential in order to protect all possible parties being exposed. Therefore, NAIMA, as described more fully herein, urges the spray foam insulation industry to continue to work with OSHA to implement a comprehensive health and safety program, including requirements for safety planning and personal protective equipment.

Many leading environmental, governmental, safety, and health organizations, including OSHA, NIOSH, and the Environmental Protection Agency (“EPA”) have raised potential health and environmental concerns over possible MDI exposures during spray foam insulation application.¹

Moreover, safety data sheets (“SDS”) for spray foam insulation ingredients disclose that spray foam includes MDI, which can cause irritation, may be harmful or fatal if swallowed, may result in irritation of the upper respiratory tract and lungs and cause pulmonary edema in installers of the product. Some exposed to MDI during the installation process may be permanently sensitized and experience asthma-like symptoms. Exposure to isocyanates can cause permanent damage to the respiratory system such as sensitization and asthma, and can be fatal.² Exposure may occur via inhalation, ingestion, skin contact, and eye contact, which necessitates the use of complex respiratory and personal protective equipment.³

Despite these well-documented health concerns, there are some spray foam insulation manufacturers who are promoting their products in a deceptive manner by suggesting that there is no or limited health and safety concerns; this is not a practice among all spray foam companies. NAIMA has undertaken efforts to correct this misinformation by sending letters to manufacturers challenging their false and misleading safety claims. Even after receiving these letters, these companies continue making claims that would suggest their products pose no health or environmental consequences. Therefore, the first and most important action for spray foam systems is institution of mandatory personal protective equipment for all installation jobs and clearly-stated guidelines on avoiding potential exposures, and second to further educate the public as to the serious possible health risks associated with the application of spray foam insulation products.

There are also various alternative insulation products available to the public that are not chemical-based products made mostly from petrochemical feedstock with potential chemical releases from the manufacture and application of a spray foam product. These alternatives include fiber glass and mineral wool insulation and many others.

COMPREHENSIVE PRODUCT STEWARDSHIP IS A STRONG ALTERNATIVE TO PRIORITY LISTING FOR SPRAY FOAM SYSTEMS

NAIMA polices the insulation industry’s advertising claims and systemically challenges false and misleading claims. Some members of the spray foam insulation industry make claims that are designed to underestimate health and safety concerns surrounding spray foam insulation. For example, one advertisement states that spray foam insulation “creates a safe, non-toxic, and

¹ “What You Need to Know About the Safe Use of Spray Polyurethane Foam (SPF): Briefing on Spray Polyurethane Foam” (https://www.architects.org/sites/default/files/spf_presentation_2009_epa_osha_niosh_cpsc.pdf).

² National Institute for Occupational Safety and Health, *Preventing Asthma and Death from Diisocyanate Exposure*, NIOSH Alert: 1996, DHHS (NIOSH) Publication No. 96-111 (<http://198.246.98.21/niosh/asthma.html>).

³ *Ibid.*

healthy home.” The same advertiser boasts that spray foam insulation does not carry a cancer warning label which introduces the health topic without informing the consumer the breadth and depth of other, non-carcinogenic, health issues linked to spray foam insulation ingredients. Yet another advertiser claims that its spray foam insulation is healthier than competing insulation products. “Tremendous health benefits” is terminology used by a spray foam manufacturer when comparing it to alternative products.

Other spray foam insulation producers characterize spray foam as “environmentally friendly” and green. The Federal Trade Commission has restricted such claims because they likely convey that the product has specific and far reaching environmental benefits and may convey that the product has no negative environmental impact. In a similar type of claim, yet another spray foam insulation advertiser claims that spray foam is natural, and others claim it is made from natural ingredients. Spray foam insulation is made from and created by synthetic materials. “Synthetic” is the antithesis of “natural.”

There is in the public arena a concerted effort by some spray foam companies to misinform or mislead the consuming public as to the health and safety connotations. The spray foam industry should instead institute a mandatory program of personal protective equipment and a public education program.

NAIMA instituted such a program with OSHA in 1999 – the Health and Safety Partnership Program (“HSPP”). The HSPP established work practices that applied to the manufacture, fabrication, installation, removal, and other work settings where workers were subject to exposure to synthetic vitreous fibers. The HSPP included a voluntary permissible exposure level (“PEL”), recommended work practices, including personal protective equipment, and an exposure database. The HSPP continues to operate today as the NAIMA Product Stewardship Program. Such a program could effectively address health and safety concerns for spray foam insulation and defuse the misinformation promulgated by some spray foam companies. NAIMA encourages the larger spray foam insulation industry to continue its work to finalize such a product stewardship program with OSHA.

INSULATION ALTERNATIVES ARE AVAILABLE IN THE MARKETPLACE

NAIMA cannot speak to whether there are safer alternatives to the diisocyanates used in spray foam insulation. NAIMA can speak to the fact that there are a variety of insulation products on the market that can provide effective thermal and acoustical performance without the use of diisocyanates.

Spray foam insulation producers frequently claim that they deliver superior thermal performance and that they are able to completely air seal a house. The studies cited below demonstrate that various types of insulation products, with proper air sealing, can deliver comparable thermal and air sealing performance.

In the recent Thermal Metric Study,⁴ it was found that sealed walls of the same R-value perform equally well regardless of the type of insulation used. The test results showed that all wall assemblies experienced a loss in thermal performance due to air movement through the assembly. None of the assemblies tested, regardless of the type of insulation material used, including cellulose, fiber glass, open cell spray foam, closed cell spray foam or extruded polystyrene, acted as a complete air barrier.

In a 1998 report to EPA,⁵ the National Association of Home Builders (“NAHB”) Research Center studied 26 production homes in the Baltimore area constructed by four companies. Each company constructed five homes with non-standard insulation products – cellulose, blown-in-blankets, and low-density polyurethane spray foam. Air leakage and energy use of the alternatives were compared to the builders’ standard practices (typically fiber glass batt insulation in walls and blown cellulose or fiber glass in ceilings). Although air sealing measures were routinely installed with all of the alternative insulation products, sealing measures were not necessarily part of the builders’ standard practice homes (which were constructed prior to the study). Therefore, no causal relationship could be found between insulation type and air infiltration. The study came to the simple yet significant conclusion, “Air sealing seems to have a higher impact [on air infiltration] than choice of insulation.”⁶

In their development of a procedure for identifying air infiltration through various construction elements, Yuill and Yuill⁷ investigated the resistance to airflow of several wall systems. By testing various wall systems in the same home (rather than comparing one home to another), the researchers found that a well-sealed wall cavity with fiber glass batt insulation and drywall resisted airflow as well as the best-performing system in the test, which consisted of housewrap over untaped XPS sheathing. Untaped foam sheathing by itself had very little resistance to airflow – about 1/15 the amount of the housewrap over untaped XPS sheathing.

The NAHB Research Center also conducted a side-by-side field test⁸ of three homes – two constructed of insulating concrete forms (“ICFs”) and one of conventional 2x4 wood-frame construction with fiber glass batt insulation and housewrap. Using two methods (tracer gas and blower door testing), the researchers found virtually no difference between the airtightness of the three homes.

⁴ *Thermal Metric Summary Report*, Building Science Corporation (September 23, 2013) (http://www.buildingscience.com/documents/special/content/thermal-metric/BSCThermalMetricSummaryReport_20131021.pdf).

⁵ *Field Demonstration of Alternative Wall Insulation Products*, 1998, NAHB Research Center Report to the U.S. Environmental Protection Agency.

⁶ *Id.*

⁷ Yuill, G.K., and D.P. Yuill, 1998, *Development of a Field Procedure to Measure the Airtightness of Wall Construction Elements of Houses*, in Proceedings: Thermal Performance of Exterior Envelopes of Buildings VII.

⁸ *Insulation Concrete Forms: Comparative Thermal Performance*, 1999, Report to HUD.

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Otto,⁹ in a side-by-side case study, used an infrared camera and blower door test equipment to identify the thermal performance of two insulating systems under depressurization. The two systems were spray-applied polyurethane foam with foam sheathing and fiber glass batt insulation with foam sheathing, housewrap, and air sealing measures. When subjected to -50 Pa pressure differential, both systems performed well. Wind-washing was discovered in one area of the fiber glass batt wall system, but the air barrier in that area was subsequently found to be compromised.

CONCLUSION

As an alternative to the proposed listing, NAIMA strongly encourages the spray foam industry to work with OSHA to complete and then aggressively implement a comprehensive product stewardship program and educate the public on possible health consequences of spray foam insulation. The success of the NAIMA HSPP/Product Stewardship Program serves as an example of how public-private cooperation can help communicate health and safety hazards and recommend work practices, including the use of personal protective equipment.

Sincerely,



Angus E. Crane

Executive Vice President, General Counsel

⁹ Otto, D., *Installed Performance of Two Insulation Systems During Simulated Wind Conditions*, 1998, in Proceedings: Thermal Performance of Exterior Envelopes of Buildings VII.