



June 6, 2017

Appendix A

MDI Spills, Leaks, Cleaning and Maintenance risk from Field Applied Spray Polyurethane Foam Roofing

The Lockey (et al 2015) citation and SPFA industry certification program citation are not responsibly connected or related in the DTSC technical document.

DTSC is overzealous in creatively blending different entities statements to imply adverse impact due to accidental spills, leaks, cleaning, and maintenance for unproven spray polyurethane foam situations.

Additionally, we are greatly concerned that the status of Dr. Lockey as a State of California approved and independent reviewer for DTSC's prioritization rule-making is compromised due to the inclusion of his multiple primary sources in its technical paper.

DTSC actions to use his "accidental spill" citation are in conflict with California independent reviewer code as these quotes are primary references for its spray polyurethane foam technical document. We ask that DTSC remove all of Dr. James E Lockey citations in its prioritization rule making and technical documents.

The preponderance of citations used by DTSC in the technical paper are related to in-plant polyurethane operations and do not provide reliable information on product-chemical exterior roof spray foam as having potential for significant adverse impact.

However, these creatively combined citations attempt to imply all isocyanate chemicals as having significant adverse risks including field applied spray foam, non spray foam polyurethane and in-plant pour foam manufacturing from spills, leaks and maintenance.

So let's examine comparative risks of generic in-plant high volume polyurethane manufacturing process and field applied exterior roof spray foam application with regards to potential for liquid isocyanates contact on exposed skin.



In-plant, flexible slab-stock foam plant in Texas uses TDI (more volatile molecule) instead MDI and has near continuous 5 -7 day / 24 hour operations dispensing huge amounts liquid foam.

These plants are have sophisticated mechanical controls and are inside a well ventilated processing tunnels / buildings - yet, the foam is mixed under high pressure impingement at +2000 psi with output around +400 lbs per minute.

These plants have very large bulk storage capacity 12,000 - 60,000 gals of TDI on site fed by high output diaphragm pumps likely operating at 200 gals per minute through 2" - 4" braided or hard plumbed lines with large 3' canister bag filters requiring frequent changes. These facilities are typically well maintained and have substantial secondary containment.

They employ full time, highly trained maintenance professionals using full PPE including long gloves, full apron, eye protection and respirator. These mechanics may have bulk unloading and spill clean-up duties as well as mix head repair on the Production line.

Field applied exterior roof foam uses MDI, but with much lower risk than in-plant.

A San Francisco based residential roof might only field apply foam 2-3 days a week, due to extensive prep work and roof coating application, and only actively spray dispense the product for only 3-5 hours. SPF roofers are limited to during warm, daylight conditions without the presence of surface moisture or dew.

This roofer likely pumps foam components @ 2 gals of MDI per minute in truck 350 ft away from sprayer on roof. The standard mix pressure is 750 - 950 psi and total foam output @ 40 lbs per minute. The roofer uses a low maintenance, Graco fusion foam gun that doesn't require rebuild but infrequently as low as once per month.

Field applied spray foam has natural engineering control and application gun usually 2-3' from human inhalation opening using PPE. The potential for spills is extremely low due to small size carried in the truck in 55 gals of MDI drum with may be 2 A side drum per truck.



The roofer risk is also much lower due to small hoses and low output rate at it uses 1/2" feed line and 3/8" output line, small 4" inline filters, drum pump transfer.

The roof sprayer like the in-plant mechanics is highly trained with full PPE, including long gloves, long sleeves, eye protection, and respirator with duties for infrequent minor machine repairs. One should note that typically all major foam machine rebuilds or feed pump repairs are done by sending it to a third party equipment distributor

The Lockey citation of in-plant operations is not relevant to field applied spray foam products. We firmly state this citation does not accurately define any adverse level of risk from spill, leak or maintenance such that it meets any significant impact threshold. Exterior roof foam clearly has a much low potential of MDI liquid exposure on skin contact versus in-plant operation.

Thx

A handwritten signature in black ink, appearing to read 'Will Lorenz', is positioned above the typed name.

Will Lorenz

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