



Green Ribbon Science Panel Meeting (GRSP)

[Meeting materials](#) and [live webinar](#)



Department of Toxic Substances Control



CalEPA



GRSP Opening Remarks

December 14, 2023
9:00am - 12:00pm PST



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GRSP Topic 3: Regulatory Responses for SPF Systems



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Regulatory Responses for Spray Polyurethane Foam Systems

Dec 14, 2023

Dr. Kelly Grant



Department of Toxic Substances Control



CalEPA

Regulatory Responses for the Manufacturers of Spray Polyurethane Foam Systems Containing Unreacted Methylene Diphenyl Diisocyanate (SPF Systems)

1. Provide information to consumers and users in California (§ 69506.3);
2. Implement use restrictions that mandate training prior to the sale of the Priority Product (§ 69506.4(e)); and
3. Advance green chemistry and engineering by collectively investing \$8 million to fund grants to develop or make progress towards safer alternative(s) (§ 69506.8).

Note: All regulation citations refer to title 22 of the California Code of Regulations



SPF Systems

- 2-component liquid systems
 - A Side: methylene diphenyl diisocyanate (MDI)
 - B Side: mixture of polyols, catalysts, blowing agents, flame retardants, and surfactants
- When mixed, the A & B sides react to form polyurethane foam
- Used for roofing, insulation, and filling voids and gaps
- No concern for MDI exposure once the foam has cured



Priority Product Definition Includes Four Types of Foam

- High-Pressure Foam: professional use
 - Open-cell 0.5 lb/ft³
 - Closed-cell 2 lb/ft³
 - Closed-cell 3 lb/ft³ (roofs and exteriors)
- Low-Pressure Foam: do-it-yourselfers (DIY'ers) & workers



Candidate Chemical: Methylene Diphenyl Diisocyanate (MDI)

Candidate
Chemical List

Chemicals listed as a concern by
Authoritative Bodies

Priority
Products

Alternatives
Analysis

Regulatory
Response



Respiratory Tox - EC Annex VI Resp. Sens. - Cat. 1

Chemicals classified by the European Union as respiratory sensitizers Category 1 in Annex VI to Regulation (EC) 1272/2008

Respiratory Tox - OEHHA RELs

Chemicals that are identified with non-cancer endpoints and listed with an inhalation or oral Reference Exposure Level by the California Office of Environmental Health Hazard Assessment under Health and Safety Code section 44360(b)(2)

Respiratory Tox - CA TACs

Chemicals identified as Toxic Air Contaminants under sections 93000 and 93001 of title 17 of the California Code of Regulations

Additional Hazard Traits Identified by DTSC ⓘ

- Dermatotoxicity
- Immunotoxicity
- Respiratory Toxicity

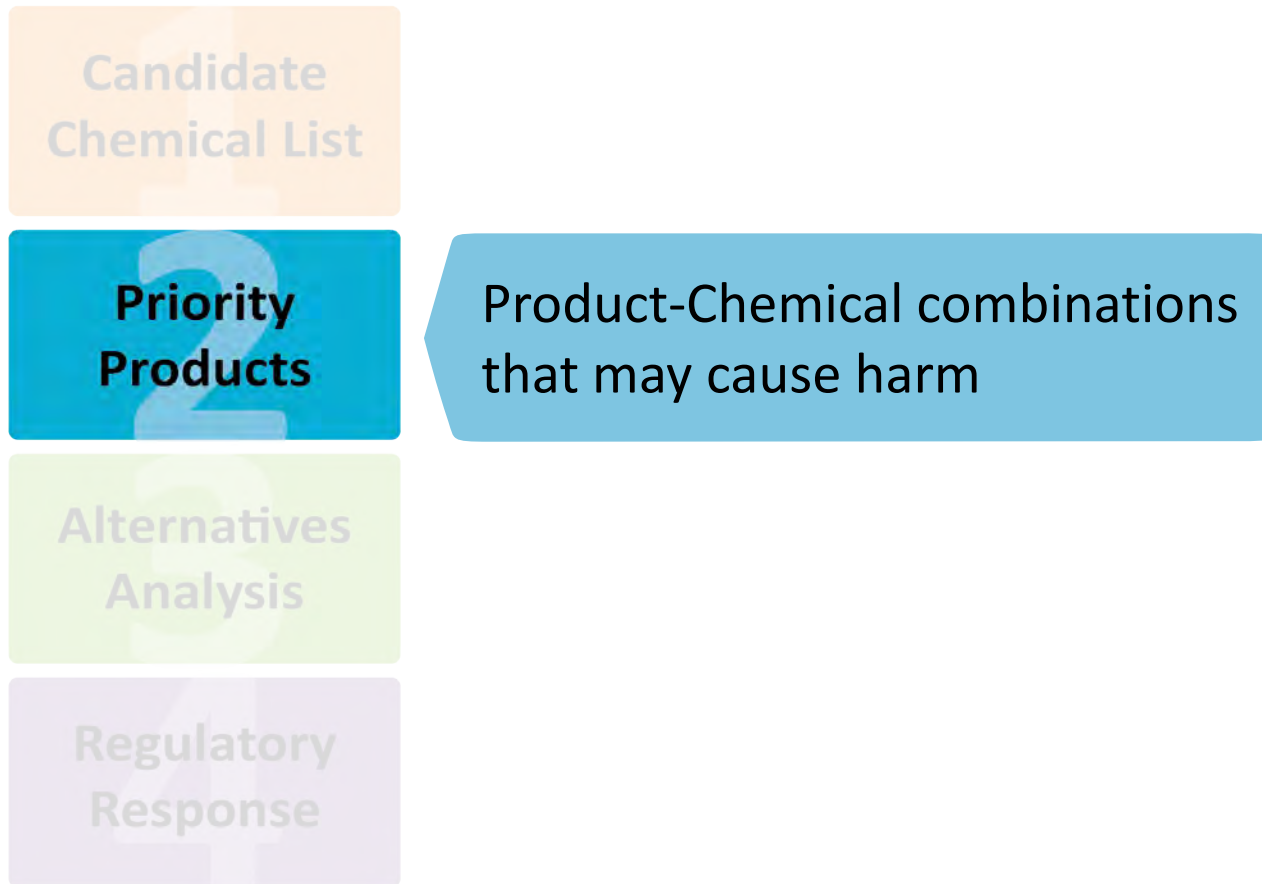


Potential Adverse Impacts from Exposure to MDI from SPF Systems

- Respiratory Toxicity
 - Asthma
 - Extrinsic allergic alveolitis
 - Hypersensitivity pneumonitis
 - Interstitial and peribronchiolar fibrosis
 - Respiratory irritation
- Dermal toxicity
 - Allergic contact dermatitis
 - Dermal sensitization
- Immunotoxicity
 - Allergic sensitization



Priority Product: SPF Systems

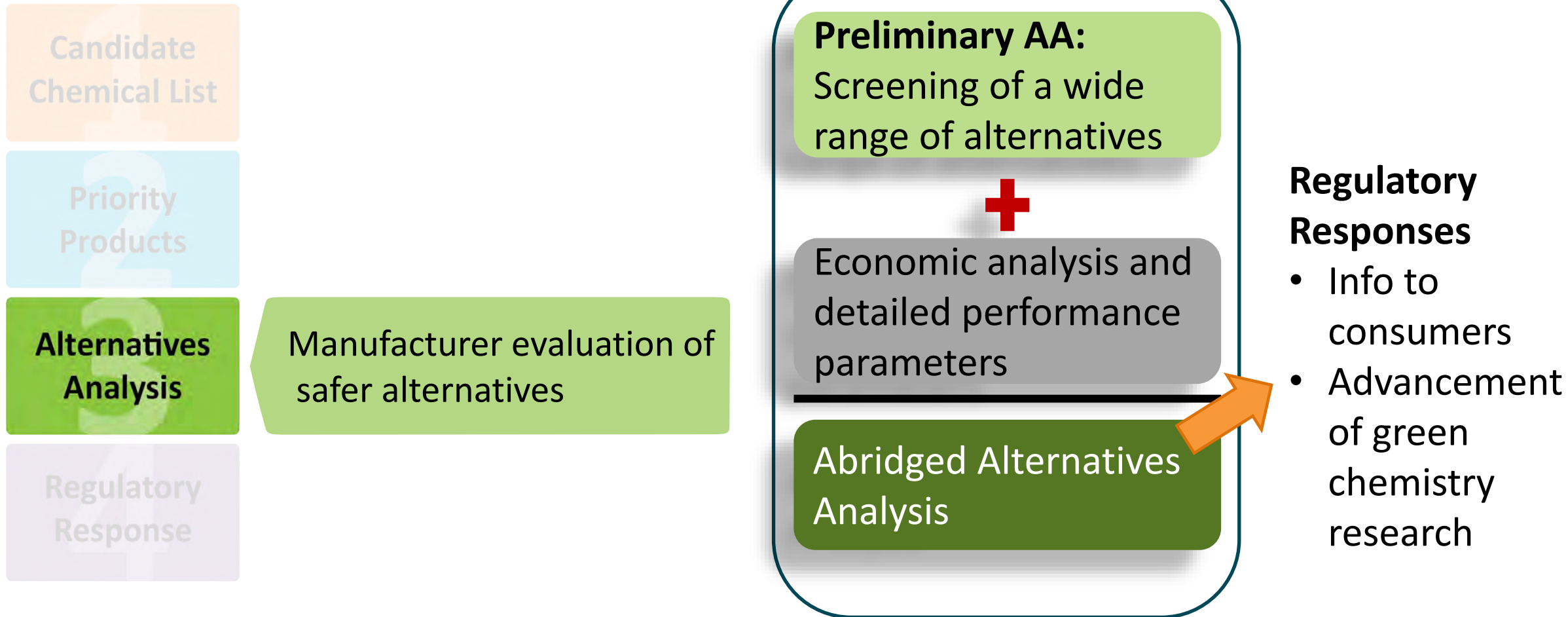


2018 – Rulemaking finalized to add SPF Systems as a Priority Product

- Potential exposure to MDI from the product
- Potential for one or more exposures to contribute to or cause significant or widespread adverse impacts



Abridged Alternatives Analysis (AA) (§69505.5(b))



Abridged Alternatives Analysis Report

REs evaluated several types of alternatives:

- Broader alternative insulations
 - Described as outside the scope of the AA
- Sprayable, reactive insulations that do not rely on MDI
 - Little information found on ingredients and performance
- Alternatives that may reduce exposure to MDI
 - Limited options
- REs found these alternatives to be neither functionally acceptable nor technically or economically feasible.

Abridged Alternatives Analysis Report for
Two-component Low- and High-pressure
Spray Polyurethane Foam Systems Containing
Unreacted Methylene Diphenyl Diisocyanate

Prepared for
American Chemistry Council
Center for the Polyurethanes Industry
Spray Foam Coalition
700 2nd Street NE
Washington, DC 20002

October 14, 2020



SCP Framework Process – Regulatory Response (RR)



Possible Regulatory Response requirements:

- Pre-RR: additional research to inform the RR
- Product info to consumers
- Use restriction on chemicals and products
- Sales prohibition
- Engineered safety measures or administrative controls
- End-of-life management
- Advance of green chemistry and engineering research



Selection Principles for Regulatory Responses (§§ 69506)

Preference is given to regulatory responses that provide the greatest level of inherent protection.

Public health and environmental protection

- Degree that RRs address the adverse impacts
- REs' ability to act
- (Un)Intended impacts on sensitive subpopulations

Economic interests of responsible entities

- Conflicting regulations on the chemical of concern
- Comparative cost of the RR
- Practical capacity of the RE to comply

Government efficiency and cost containment

- RR cost relative to cleanup costs
- Administrative burden
- Ease of enforcement



Abridged AAs Trigger Two Regulatory Responses (§ 69505.4(b)(4))

Manufacturers are required to:

- Provide product information to consumers or users (§ 69506.3)
- Advance green chemistry and green engineering to develop a safer product (§ 69506.8)



Provide information to consumers and users in California (§ 69506.3)

- Provide users with safety information before purchasing the product
- Promote safe use and disposal of the product
- Help users understand the hazards of the product and how to prevent exposures



Information to Both High-Pressure & Low-Pressure Foam Users

Product label or nozzle cover:

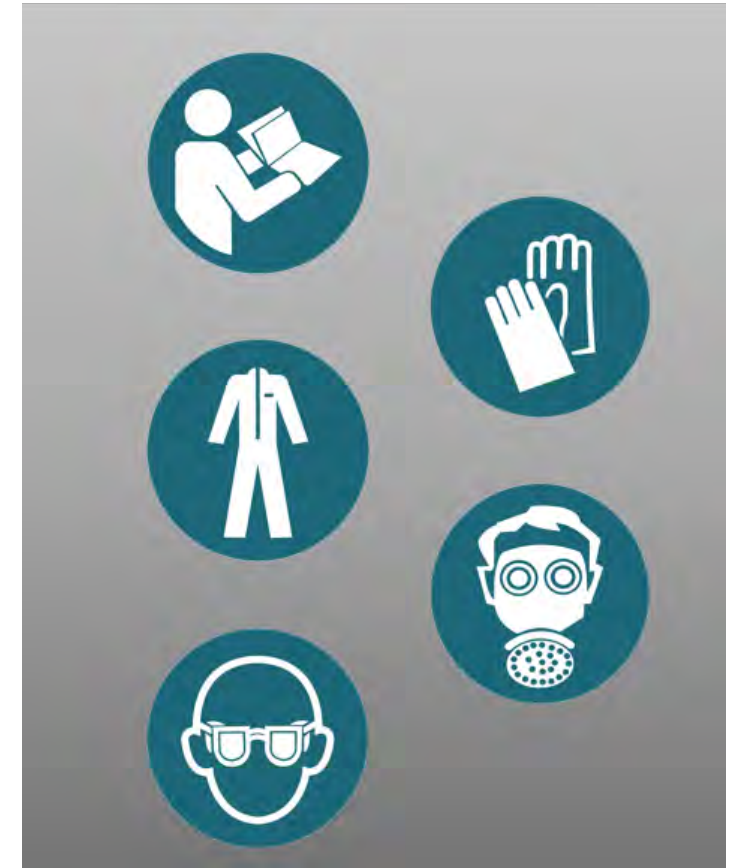
- Statement directing users to take safety training before opening the product
- Easily accessible link, for example a Quick Response (QR) code, to access training
- Graphic of required safety equipment, including: a respirator, eye protection, gloves, and protective coveralls
- Instructions for safe disposal



Information for Low-Pressure Foam users (workers & DIYers)

“Quick Start Guide” with images and limited text

- Instructions to access free online training, e.g., a QR Code
- Images of a respirator with cartridges, eye protection, gloves, and liquid-resistant coveralls.
- “This product can cause asthma and allergic reactions. Protect yourself by properly using personal protective equipment per the manufacturer’s instructions.”
- Instructions provided in Spanish too
- More



Advancement of Green Chemistry and Green Engineering (§ 69506.8)

When a manufacturer concludes that no safer alternative to its Priority Product is functionally acceptable, technically feasible, and economically feasible..., the Department **may require the manufacturer** to initiate a research and development project **or fund a challenge grant** pertinent to the Priority Product that uses green chemistry and/or green engineering principles to do one or more of the following:

- a) Design a safer alternative to the Priority Product;
- b) Improve the performance of a safer alternative to the Priority Product;
- c) Decrease the cost of the safer alternative to the Priority Product; and/or
- d) Increase the market penetration of a safer alternative to the Priority Product.



Advancement of Green Chemistry and Engineering (§ 69506.8)

- Require REs to collectively pay \$8 million into the Green Chemistry Innovation Fund (GCIF)
- The GCIF will be used to fund grants for R&D projects by academics and industry
- Administered by a third party
- Independent review panel of experts will select 5-6 projects for funding
- Grants would last 2-3 years
- Sufficient funding to attract high-caliber proposals with multiple approaches to develop safer products



Justification for \$8 million contribution

- The investment in R&D should be greater than the second stage of a two-stage AA (about \$150k) [§ 69595.4(b)(4), FSOR]
 - With 13 responsible entities that's \$1.95 million
- Partly based on information in the Abridged AA Report
 - AA states there are 4 distinct products
 - \$2M/product is high-middle range for R&D costs
 - [Investment in Green Chemistry Innovation Fund for SPF Systems](#)
- Consulted with experts
 - Sufficient to attract multiple, qualified grant proposals



Proposed Criteria for Evaluating Research Proposals

- Scientific merit
- Applicability to spray foam insulation
- Achievable within the period of the research
- Risk-to-reward ratio
- Potential degree and speed with which adverse impacts to workers could be eliminated
- Potential for and proximity to commercialization
- Extent to which green chemistry and engineering principles are used



Use Restriction § 69506.4(e):

Restriction on who may purchase or use the product

- REs are required to develop and institute a mandatory training program and ensure that all users of SPF Systems have successfully completed requisite training before sale of product.
 - REs are strongly encouraged to subsidize the training for the workers
 - Professional users are required to take rigorous training
 - i.e., Spray Polyurethane Foam Alliance (SPFA) training program or equivalent
 - Low pressure foam (LPF) users must take free, online training
 - The Center for the Polyurethanes Industry training meets the minimum requirements for LPF



Use Restriction § 69506.4(e): Annual Reports

- The number of:
 - New trainees
 - Renewing trainees
 - Trainees who have moved up to a higher level of licensure
- Total SPF workers in CA, with estimates of new and continuing members of the workforce
- Details & efficacy of incentive programs for workers to take the training
- Details of outreach efforts to distributors & employers to verify training



Next steps in the RR process

- Synthesize GRSP & public comments
- Revise the NOPD to determine final RRs
 - The regulations do not establish a specific timeframe
- Issue the Notice of Final Determination & reach agreement with the REs on implementation
 - Deadlines to implement RRs
 - Provide a response to comments summary



Thank you.

Clarifying Questions?



Questions to Panel (Part I – Green Chemistry)

1. Manufacturer preference: R&D project funding or internal R&D? What conditions encourage manufacturer participation in a grant program?
2. How can SCP set up the grant program to maximize its efficiency and effectiveness?
3. Additional criteria for choosing a research path and ensuring fruitful internal research by manufacturers. Elements required in RE's progress reports for transparency in resource allocation.
4. Appropriateness and rationale for the Green Chemistry Innovation Fund (GCIF). Additional information for evaluating proposed funding amount. Strategies to encourage accurate cost estimates for R&D of safer alternatives.



Questions to Panel (Part I – Green Chem, Continued)

5. How can this regulatory response encourage commercialization?
6. What is your vision for how intellectual property (IP) would work in the grant scenario? Is there any way to encourage sharing if progress is made towards safer alternatives?





15 min Meeting Break

Meeting Resumes at 11:00 am



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Questions Continued... Info to Users & Use Restriction

1. SCP will require simple graphics and clear statements to communicate hazard traits, safe handling procedures, and disposal instructions on low pressure foam systems. Do you think this approach effectively communicates the safety concerns to users? What ways can we improve it?
2. What measures can be taken to ensure successful implementation of the mandatory training program for both professional and DIY users of SPF Systems? How can the training program be effectively promoted and made accessible to users?





Green Ribbon Science Panel Meeting Concluding Remarks



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Further Information

- [Safer Consumer Products Regulations](#)
- [SCP Email List](#)
 - Upcoming regulations, events, workshops
- Further questions? Email us at SaferConsumerProducts@dtsc.ca.gov
- [Safer Consumer Products Website](#)

Thank you!

