



Evaluating Potential Adverse Impacts from Chemicals in Consumer Products – Children’s Foam Padded Sleeping Products Containing TDCPP and/or TCEP

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Safer Consumer Products Program

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Cal/EPA

Safer Consumer Products Program

Implement green chemistry legislation

- Reduce exposure
- Reduce or eliminate chemical hazards
- Look at full product lifecycle
- Encourage reformulation/innovation
- Avoid regrettable substitutes
- Independent of other regulations

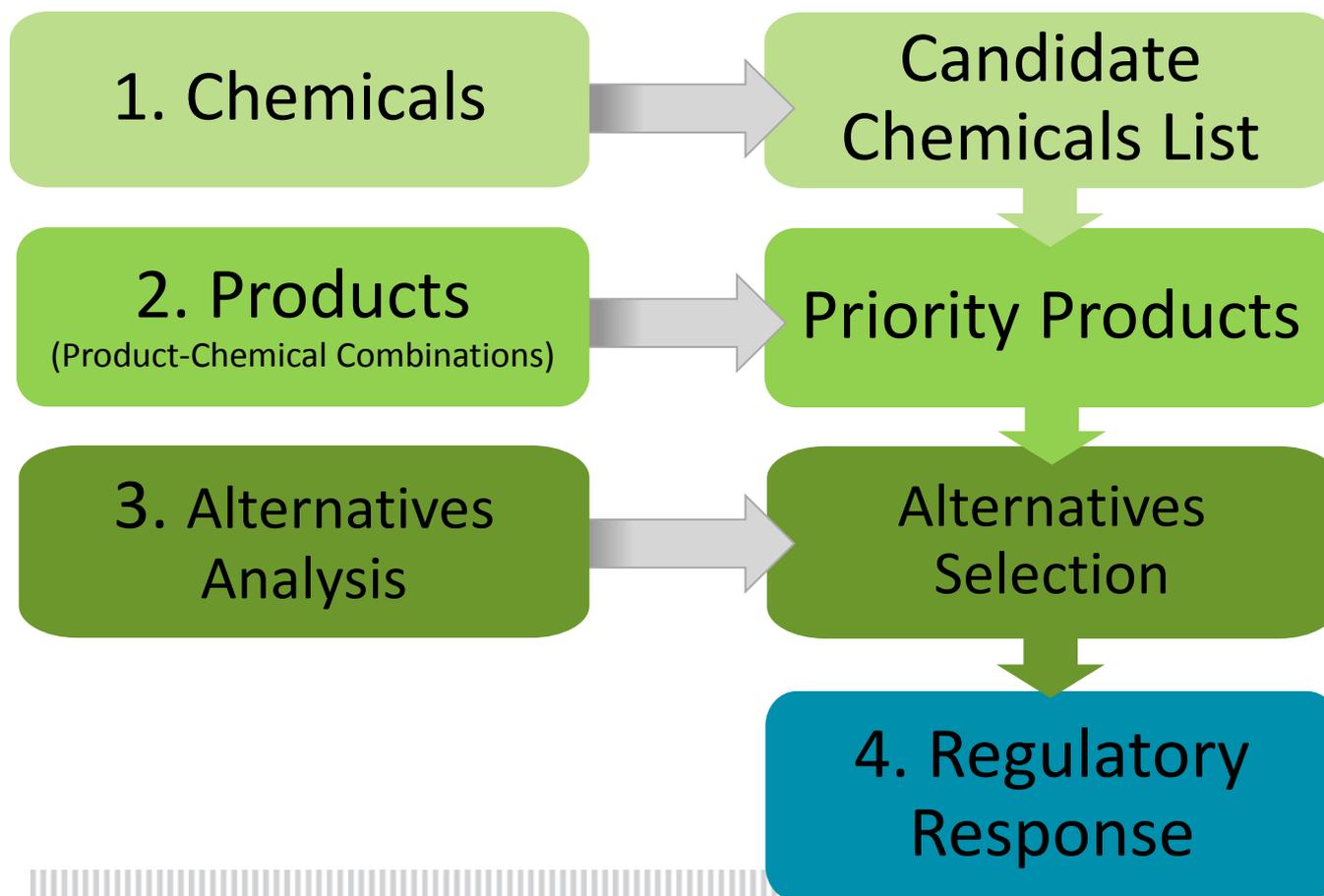


Safer Consumer Products (SCP) Program

- Safer consumer products
- SCP Regulations effective October 2013
- Asks the questions:
 - Is this chemical necessary?
 - Is there a safer alternative?



Four-step process



Overview of Product Selection

- Priority Product work plan categories
- Review scientific information on adverse impacts and exposure
- Breadth of use of Product in California
- Sensitive subpopulations
- Extent of other regulatory authorities
- Evaluation of safer alternatives



Prioritization Principles for Identifying Product-Chemical Combinations

- Potential *exposure* to the Candidate Chemical(s) in the product

AND

- Potential for exposures to contribute to or cause *significant or widespread adverse impacts**

*adverse environmental impacts alone are sufficient



Initial Three Priority Products Selected



**Children's Foam-Padded
Sleeping Products
containing TDCPP/TCEP**



**Paint Strippers
containing Methylene
Chloride**



**Spray Polyurethane Foam
Systems containing MDI**



Children's Foam Padded Sleeping Products with TDCPP and/or TCEP



The Products

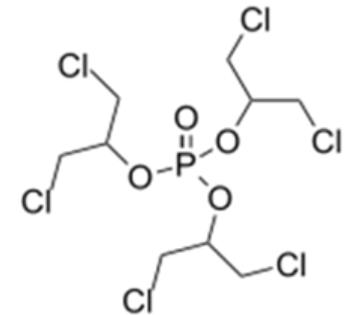
- Nap mats & cot pads
- Sleep positioners
- Travel beds
- Bassinet foam
- Portable crib pads
- Play pens or play yards
- Co-sleepers & bedside sleepers
- Infant and toddler foam pillows



The Chemicals

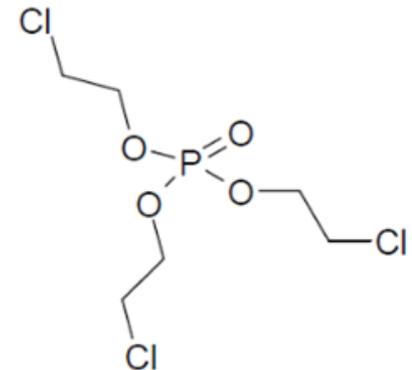
■ Tris(1,3-dichloro-2-propyl) Phosphate

- *TDCPP or Chlorinated Tris*
- *CAS No. 13674-87-8*



■ Tris(2-chloroethyl) Phosphate

- *TCEP*
- *CAS No. 115-96-8*



Hazard Traits of TDCPP and TCEP Include

- Carcinogenicity (Prop 65)
- Reproductive Toxicity
- Endocrine Disruption
- Neurotoxicity
- Kidney and liver damage
- Sensitive subpopulations affected include children, pregnant women, and daycare workers



Exposure Considerations

- Exposure via inhalation, ingestion, and dermal contact
- Not chemically bonded to foam
- Semi-volatile and adsorbs to dust
- Have been widely detected in homes, offices, and daycare facilities
- Detected in children's handwipe samples
- Found in S.F. Bay water and sediment, U.S. streams, and fish and birds



Biomonitoring Studies

- TDCPP and TCEP detected in breast milk
- TDCPP and TCEP urinary metabolites
- Urinary metabolite of TDCPP detected in pregnant women
- TDCPP detected in adipose tissue and seminal plasma



Chemical Use and Manufacturing Info

- TDCPP was a high production volume chemical
- Only one known U.S. manufacturer of TDCPP
 - May have ceased production already
- TDCPP is/was one of the most widely used flame retardants in polyurethane foam
- Chlorinated flame retardants are widely used in children's products
- TDCPP and TCEP still manufactured in China



Why Children's Sleeping Products?

- Detected in various children's products
- Widely available to consumers in California
- Infants and children spend many hours sleeping
- Dust inhalation while sleeping
- Dermal absorption
- Hand-to-mouth ingestion
- No regulatory requirements to include chemical flame retardants



Are There Alternatives?

- Is it necessary?
- No U.S. or California regulatory requirements
- Use a different chemical flame retardant?
- Eliminate the use of chemical flame retardants?



SCP Research Needs

- Research and data generated by academia, government, industry and NGOs helps SCP in our process
- Research can help:
 - Prioritize
 - Evaluate potential
 - Strengthen arguments
- Need evidence of exposure, adverse impacts



SCP Research Needs

- Monitoring studies (including California specific)
 - Aquatic environments, indoor environments, sensitive subpopulations, biomonitoring
- Contaminant source information
 - Product-specific source information
 - Changes in use, emerging contaminants
- Environmental fate of contaminants



SCP Research Needs

- Long-term animal studies
- Studies on hazard endpoints, including:
 - Endocrine disruption
 - Obesity
 - Developmental and reproductive toxicity
- Metabolite toxicity studies
- Sensitive sub-population studies



SCP Research Needs

- Identification of product categories most important for human or environmental exposures
 - Link between exposure and products
- Methods for proper assessment of “pseudo-persistent” chemicals
- Conceptual environmental exposure models for use in AA



SCP Research Needs

- Epidemiological research
- Methods and approaches for filling data gaps*
- Methods and approaches for comparing chemicals with varying amounts of data*



Our Ultimate Goal



Questions?

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