



# U.S. EPA Design for the Environment Program

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CPDA 2011 Annual Meeting

July 19, 2011

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Design for the Environment Branch

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- DfE and Current Projects
- Chemical Alternatives Assessments
- Safer Product Labeling Program
  - Growth in Labeled Products
  - Enhancements to Labeling Standard
  - How the DfE Label Drives Development of Chemical Data

# What is DfE?

- Goals
  - Safer products
  - Safer chemical ingredients is baseline
  - Life cycle impacts are considered
  - Protecting Consumers, Workers, & the Environment
- Central Elements
  - OPPT technical tools and expertise
  - Multi-stakeholder participation
- Results
  - Currently, industry partners use more than 700 million pounds of safer chemicals each year



# What are Chemical Alternatives Assessments?

- High, Moderate, or Low ratings for:
  - Human health effects
  - Environmental fate and effects
- Involves wide array of stakeholders
- Provides information that manufacturers can use to create more sustainable products
- Helps minimize the potential for unintended consequences by reducing the likelihood of moving to alternatives that could pose a concern

# ES&T Feature Article



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## Feature

### Chemical Alternatives Assessment: Enabling Substitution to Safer Chemicals

*Environ. Sci. Technol.*, 2010, 44 (24), pp 9244-9249  
DOI: 10.1021/es1015789  
Publication Date (Web): November 9, 2010  
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Chemical Alternatives Assessment: Enabling

Lavoie et al. "Chemical Alternatives Assessment: Enabling Substitution to Safer Chemicals." *Environmental Science & Technology* 2010 44 (24), 9244-9249

# Steps to Conducting a Chemical Alternatives Assessment

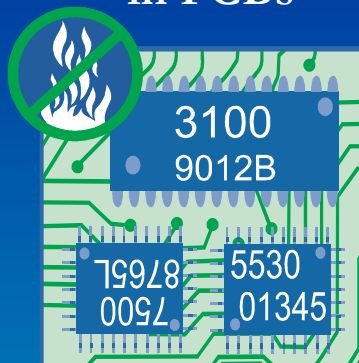


- 1) Refine project definition – through research and preliminary stakeholder consultation
  - Consider cost, technical feasibility & availability of alternatives
- 2) Convene stakeholders
- 3) Finalize scope & identify potential alternatives
- 4) Conduct hazard assessment
- 5) Develop the report
- 6) Apply the information in decision making



# DfE Alternatives Assessments for Priority Chemicals

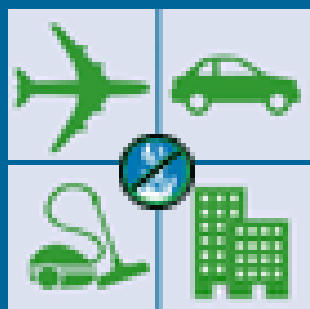
## Flame Retardants in PCBs



## BPA Alternatives in Thermal Paper



## HBCD Alternatives in Foam Insulation



## Flame retardant alternatives to decaBDE



## NPE Alternatives Assessment

This fall: Phthalates  
Alternatives Assessment

# Upcoming Milestones – Current AAs

- BPA in Thermal Paper
  - Developing draft hazard evaluations
  - Post draft report for review & comment – September 2011
- Alternatives to DecaBDE
  - Developing draft hazard evaluations
  - Post draft report for review & comment – October 2011
- Alternatives to HBCD -- Refining list of functional alternatives
- Alternatives to NPE Surfactants -- Draft report this summer
- Phthalates and Alternatives – Kick-off Meeting in August

# What Does the DfE Label Mean?

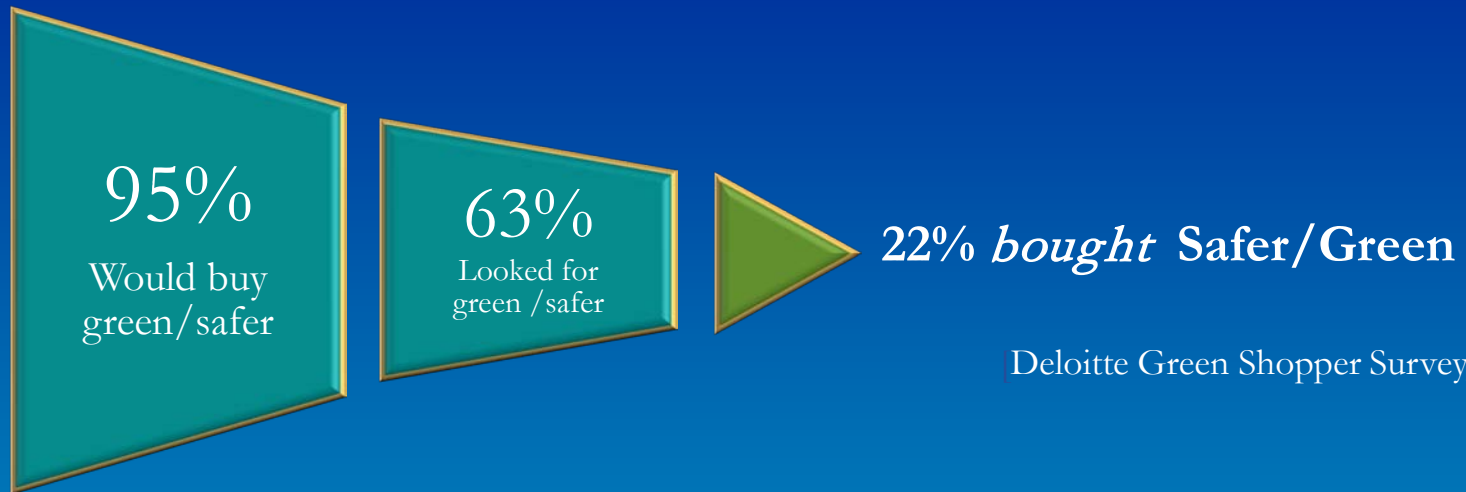
- DfE products use only the safest ingredients and meet strict EPA criteria.



For consumers, the DfE label:

- >> identifies the product as green
- >> enables quick selection

# Demand for Safer (Green) Products



65%

say “*the government should set higher standards for environmental labels on products*”

[Green Gauge Survey of Consumers, 2009]

A top consumers reason for buying green:  
*Limit exposure to toxins & chemicals*

[The Shelton Group]

# Consumer Focus Groups and the DfE Logo



- Focus groups conducted by major manufacturers gauged the appeal of the DfE logo to consumers
- Common theme was that the DfE logo, and its association with the EPA, resulted in the highest level of trust and confidence

# EPA Review: 3 Basic Components

## 1) Review every ingredient by functional use class

- To promote green chemistry
- To understand toxicity
  - Authoritative Government Lists of Chemicals of Concern
  - Literature
  - Analogous chemicals – SAR

## 2) Review formulation as a whole

- Synergistic effects
- pH
- Performance testing

## 3) Partnership Agreement



# DfE Safer Product Labeling Overview

More than 2,500 labeled products

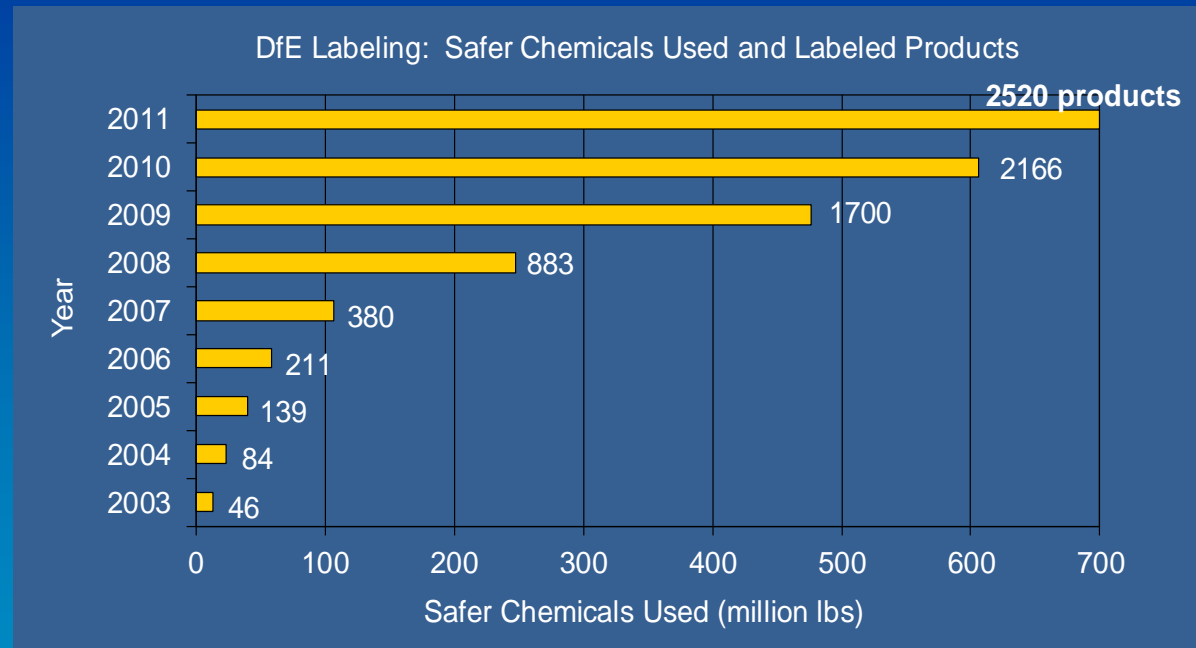
- About 500 manufacturers
- More than 700 million pounds of chemicals of concern reduced per year (modeled based on manufacturer data)

Current sectors include:

- Broad range of cleaning products
- Laundry and floor care products
- Antimicrobial products (OPP Pilot)
- Industrial coatings

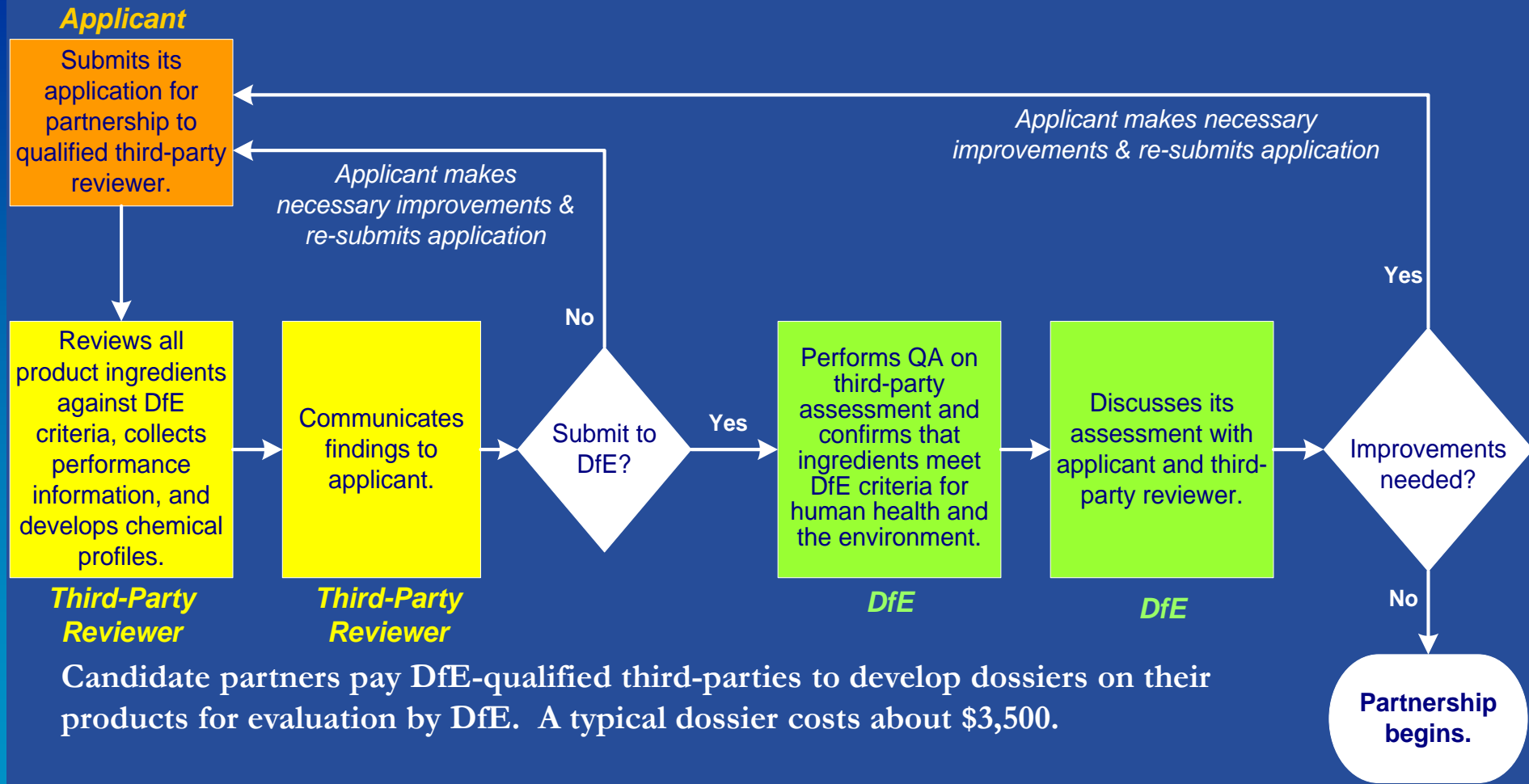
Future sectors with great potential for Green Chemistry innovation

- Hydraulic fracturing fluids
- Personal care products
- Paints and coatings



# Steps to Earning the DfE Label

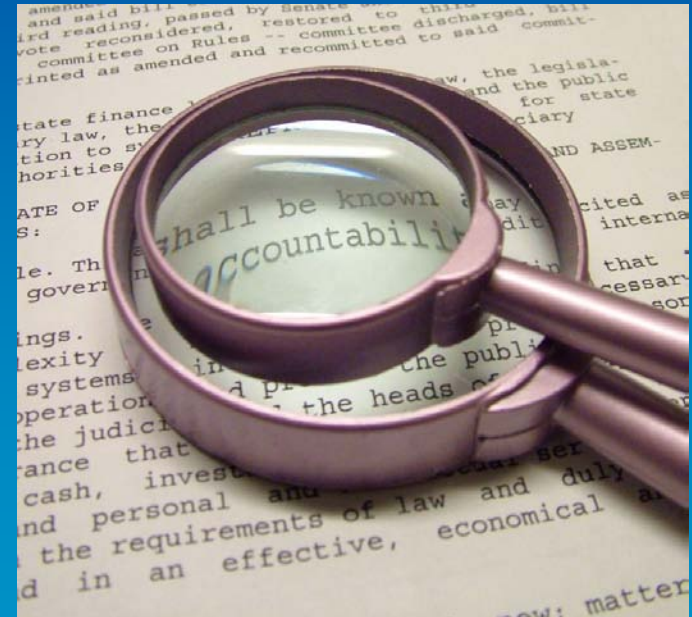
(leveraged through DfE-qualified third-parties)



# Greater Transparency & Enhancements to the DfE Standard



- DfE Standard for Safer Cleaning Products
  - Written in the format of an ANSI Standard
  - Stakeholders are listed on the DfE website
  - Enhancements are posted for public comment
- Stakeholder group helped propose enhancements.
  - Auditing
  - Enhanced packaging requirements
  - Definitional Improvements
  - Enhanced VOC requirements
  - Ingredient communication



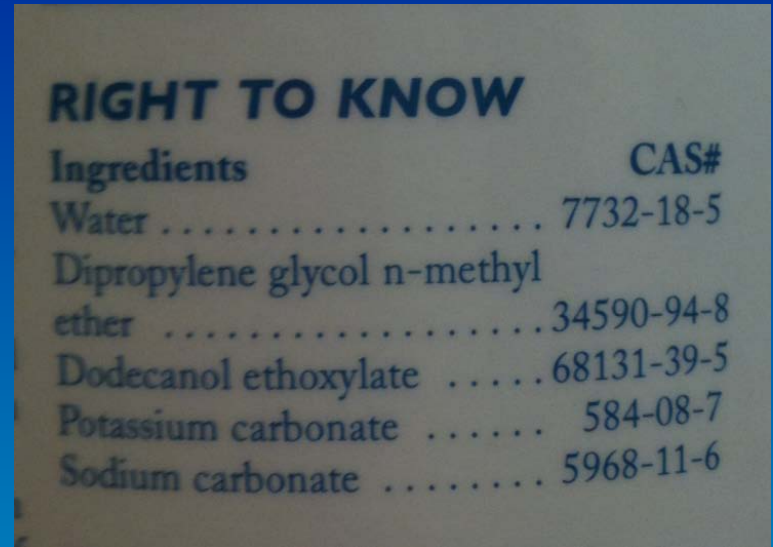
# Enhancements – Auditing & VOCs

- Auditing
  - Yearly review
    - On-site audit
    - Paper Audit
    - Partnership renewal
- VOC Content
  - Use strictest government criteria
    - Either Ozone Transport Commission (OTC) or California Air Resources Board (CARB)

# Enhancements – Ingredient Communication



- All ingredients must be listed
- Non-confidential ingredients
  - On the bottle, or
  - An easily accessible location where ingredients can be found (e.g., a place on the formulator’s website)
- Confidential ingredients, dyes and preservatives -- use a chemical descriptive name
- Scent ingredients
  - Can be listed on the label as “Fragrance”
  - More detailed information must be provided elsewhere
    - e.g., website list of the actual ingredients, or
    - set of chemicals on the IFRA list



Ingredients	CAS#
Water .....	7732-18-5
Dipropylene glycol n-methyl ether .....	34590-94-8
Dodecanol ethoxylate .....	68131-39-5
Potassium carbonate .....	584-08-7
Sodium carbonate .....	5968-11-6

Example of Acceptable Ingredient Communication

# Marketing

- Updated web site – sections for institutional purchasers, consumers, and manufacturers
- Emphasize partner use of the label and promotion of the brand
- Retailer promotions
  - Safeway “shelf talkers” highlight the DfE label
- Direct outreach to consumers
  - Green Festival
  - Facebook



# DfE Criteria Drive Development of Safer Chemicals & Data



- DfE Criteria led to development of safer chemicals
  - Surfactants (not previously in commerce) which are more rapidly biodegradable
  - Dow, BASF, Akzo Nobel
- DfE Criteria have driven development of new test data
  - Biodegradation
  - Aquatic toxicity
  - Carcinogenicity

# DfE for Disinfectants

- Pilot with Office of Pesticide Programs began in May of this year
- DfE is accepting submissions
- Pilot will last three years

## OPP-Focused Requirements

- OPP prohibits certain registration-oriented elements; to qualify for the pilot, a product must be free of:
  - outstanding conditional registration data issues;
  - unresolved efficacy failures (under the Antimicrobial Testing Program or otherwise); and
  - unresolved compliance or enforcement actions.
- Products must also be in the least-hazardous classes (i.e. III and IV) of EPA's acute toxicity hierarchy
- List of all OPP product review elements at <http://www.epa.gov/pesticides/regulating/labels/design-dfe-pilot.html#compliance>

# DfE for Disinfectants

- To qualify for the DfE logo a disinfectant-labeled product must meet the following conditions; in addition to FIFRA labeling requirements:
  - Whole-product Characteristics: Must meet the DfE Standard
    - pH
    - packaging
    - performance
    - auditing
  - Inerts: Every inert must meet the DfE Standard
  - Actives: Every ingredient must meet the DfE Master Criteria for Safer ingredients
- Follow the link for the:
  - DfE Standard for Safer Cleaning Products
  - DfE Criteria for Safer Ingredients

<http://www.epa.gov/dfe/pubs/projects/formulat/about.htm>

# Thank you!

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For more information:

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