

Finding Safer Chemical Alternatives: Resources for Selecting Green Chemistry Technologies

May 10, 2018



Process for Continuous Improvement

INVENTORY

ASSESS



OPTIMIZE

SHARE INFORMATION

Designing for Material Health

INVENTORY

What chemicals
are we using?



ASSESS

Preferable
or potential
concern?

OPTIMIZE

How do we improve
the product or process?

SHARE INFORMATION

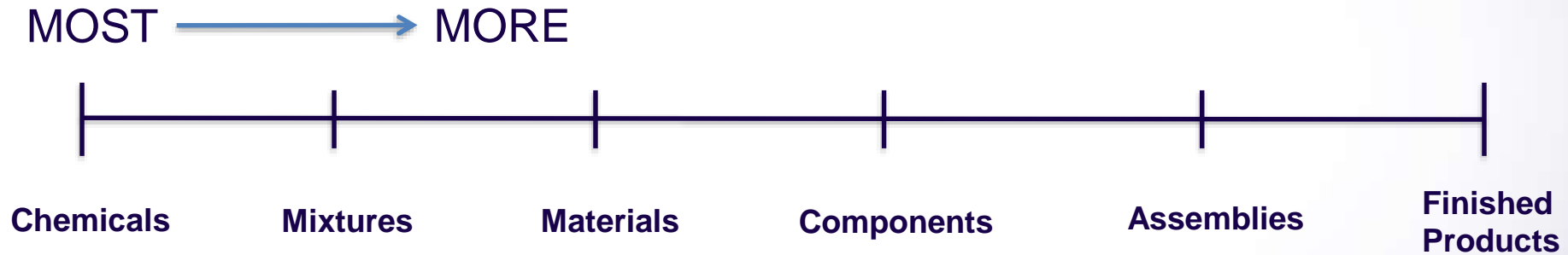
How best to share with market?

Chemical Transparency

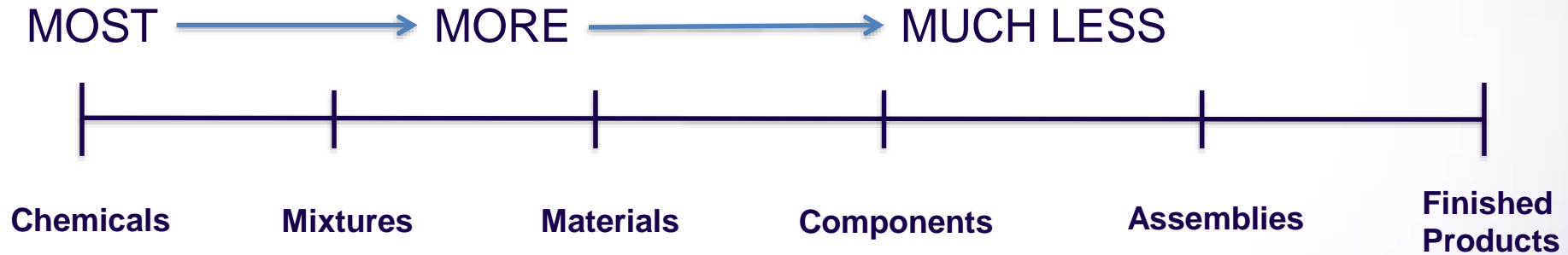
MOST



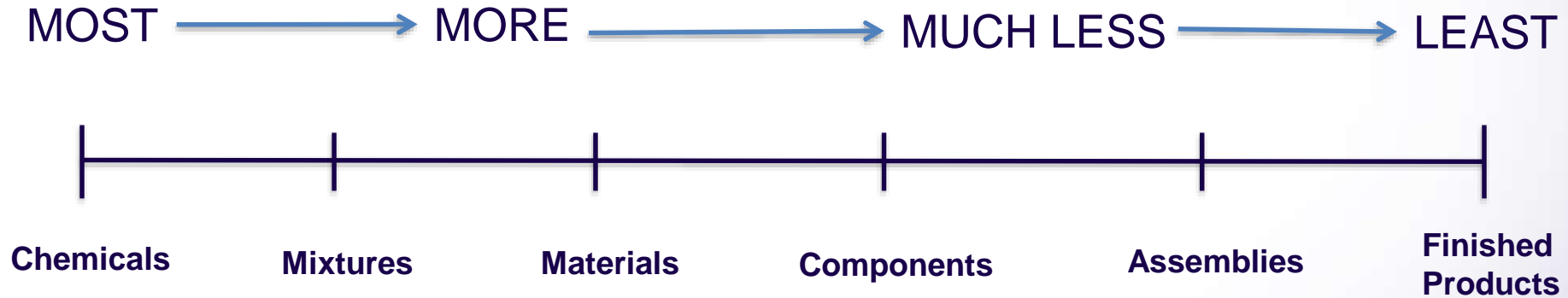
Chemical Transparency



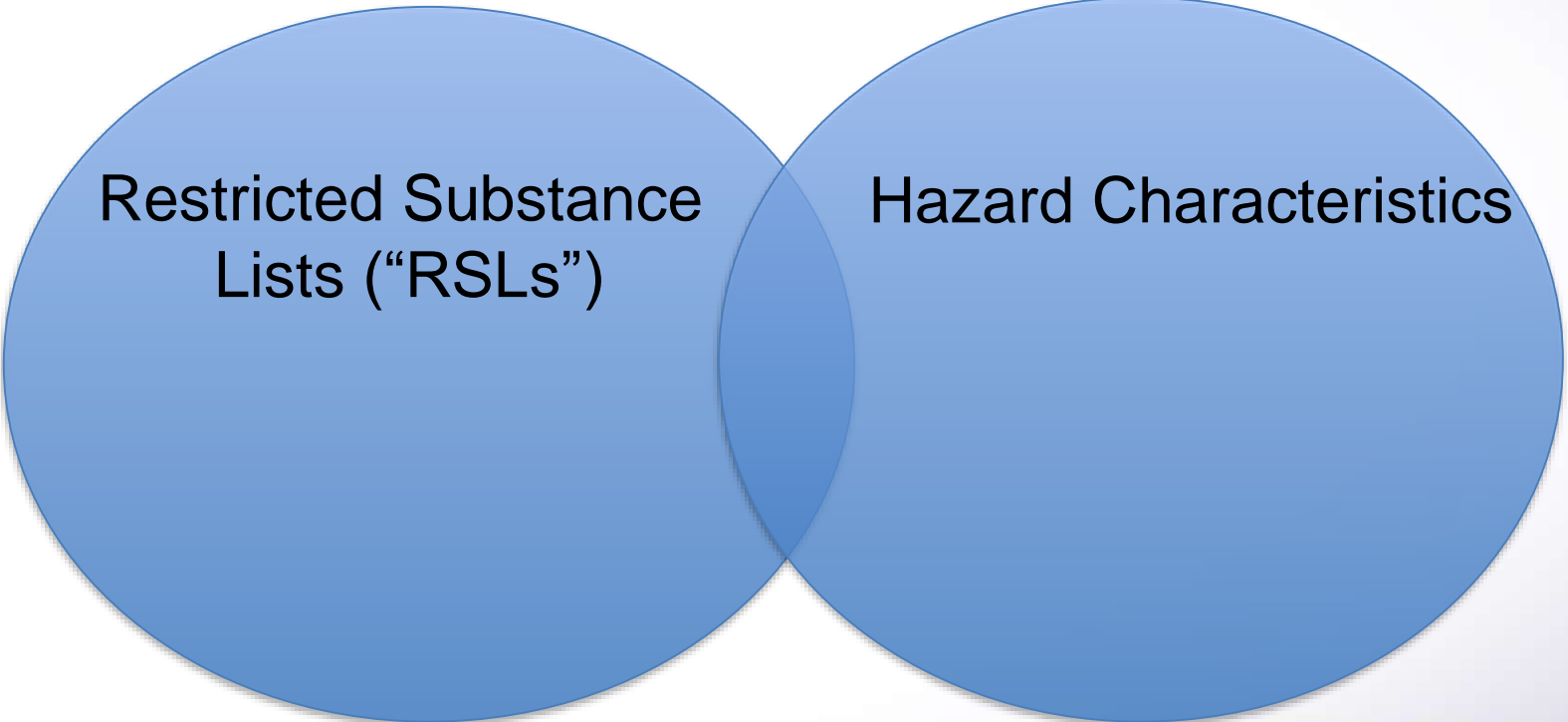
Chemical Transparency



Chemical Transparency



Assessing Chemicals



Restricted Substance
Lists (“RSLs”)

Hazard Characteristics

Types of Restricted Substance Lists “RSLs”

- Regulatory
- Authoritative
- Voluntary – “Market-based”

Types of RSLs

- Regulatory
 - ✧ REACH SVHC
 - ✧ California Prop 65
- Authoritative – “Science-based”
- Voluntary – “Market-based”
- Certifications / Ecolabels
- Product Registries

Types of RSLs

- Regulatory
- Authoritative – “Science-based”
 - ✧ International Agency for Research on Carcinogens
 - ✧ NIH - National Toxicology Program
 - ✧ US EPA – IRIS Carcinogens, Priority PBTs
- Voluntary – “Market-based”

Types of RSLs

- Regulatory
- Authoritative – “Science-based”
- Voluntary – “Market-based”
 - ✧ AFIRM
 - ✧ ZDHC – MRSL

Implementing RSLs

- Certifications / Ecolabels
- Product Registries

Implementing RSLs

- Certifications / Ecolabels
 - ✧ OEKO-TEX 100
 - ✧ USGBC LEED v4 Materials and Resources credits
- Product Registries

Implementing RSLs

- Certifications / Ecolabels
- Product Registries
 - ✧ Declare – “Red List Free”
 - ✧ Pharos – GreenScreen List Translator

Hazard Characteristics

- Assessment Methodologies
- Tools / Services / Resources
- Certifications / Ecolabels
- Product Registries

Hazard Characteristics

- Assessment Methodologies
 - ✧ Globally Harmonized System of Classification and Labeling of Chemicals (GHS)
 - ✧ EPA DfE / Safer Choice
 - ✧ GreenScreen for Safer Chemicals
- Tools / Services / Resources
- Certifications / Ecolabels
- Product Registries

Hazard Characteristics

- Assessment Methodologies
- Tools / Services / Resources
 - ✧ SciveraLENS – Rapid Screen
 - ❖ Preferred Lists
 - ✧ EPA Safer Chemical Ingredient List (“SCIL”)
 - ✧ CleanGredients

Hazard Characteristics

- Certifications / Ecolabels
 - ✧ EPA Safer Choice
 - ✧ Cradle to Cradle
- Product Registries

Hazard Characteristics

- Certifications / Ecolabels
- Product Registries
 - ✧ ChemSec - Marketplace



What are your options
for **safer cleaning?**





Look for the
SAFER CHOICE label.



#EPAsaferchoice








epa.gov/saferchoice

Safer Chemical Ingredient List (“SCIL”)

- The listed chemicals are safer alternatives, grouped by their [functional-use class](#).[†]
- Chemicals are marked as a  [green circle](#),  [green half-circle](#),  [yellow triangle](#), or  [grey square](#).[‡]
- This list includes many of the chemicals evaluated through the Safer Choice Program. It does not include confidential chemicals. There may be chemicals not included in this list that are also safer.
- Some of the chemicals listed in these functional use classes may not be on the [TSCA inventory](#) and therefore may not be authorized/allowed for TSCA uses. Persons considering TSCA uses for these substances should engage in appropriate diligence to ascertain whether such use is authorized.



Preservatives and Antioxidants

Code	Common Name	CAS Registry Number
	1,2-Benzisothiazol-3(2H)-one	2634-33-5
	alpha-Tocopherol	59-02-9
	Ascorbyl palmitate	137-66-6
	Benzoic acid	65-85-0
	Caprylyl glycol	1117-86-8
	Dehydroacetic acid	520-45-6
	Disulfurous acid, disodium salt	7681-57-4

Select a Functional Use Class:

- [Antimicrobial Actives](#)
- [Chelating Agents](#)
- [Colorants](#)
- [Defoamers](#)
- [Emollients](#)
- [Enzymes and Enzyme Stabilizers](#)
- [Fragrances](#)
- [Oxidants and Oxidant Stabilizers](#)
- [Polymers](#)
- [Preservatives and Antioxidants](#)
- [Processing Aids and Additives](#)
- [Skin Conditioning Agents](#)
- [Solvents](#)
- [Specialized Industrial Chemicals](#)
- [Surfactants](#)
- [Uncategorized](#)



CLEANGREDIENTS®



The definitive database of market-ready chemical ingredients pre-approved to meet **EPA's Safer Choice** standard

www.CleanGredients.org



epa.gov/saferchoice

CleanGredients + SCIL

Helping formulators achieve the Safer Choice label



Future-proof your business

Find safer alternatives to hazardous chemicals

Do you want to replace a chemical that is harmful to health or the environment with a better alternative? Search our database to find an alternative product from the suppliers presenting their offerings on the site. A quick and simple way to find the substitute you need.

Do you offer a safer alternative to hazardous chemicals? Show it on Marketplace.

At Marketplace you reach out to customers with an expressed interest in what you have to offer. And get a great opportunity to present your safe alternatives to harmful substances for a better future.

[SIGN UP NOW](#)

Panel Introductions

ANNA LENNQUIST, CHEMSEC



PhD in ecotoxicology

With ChemSec since 2011

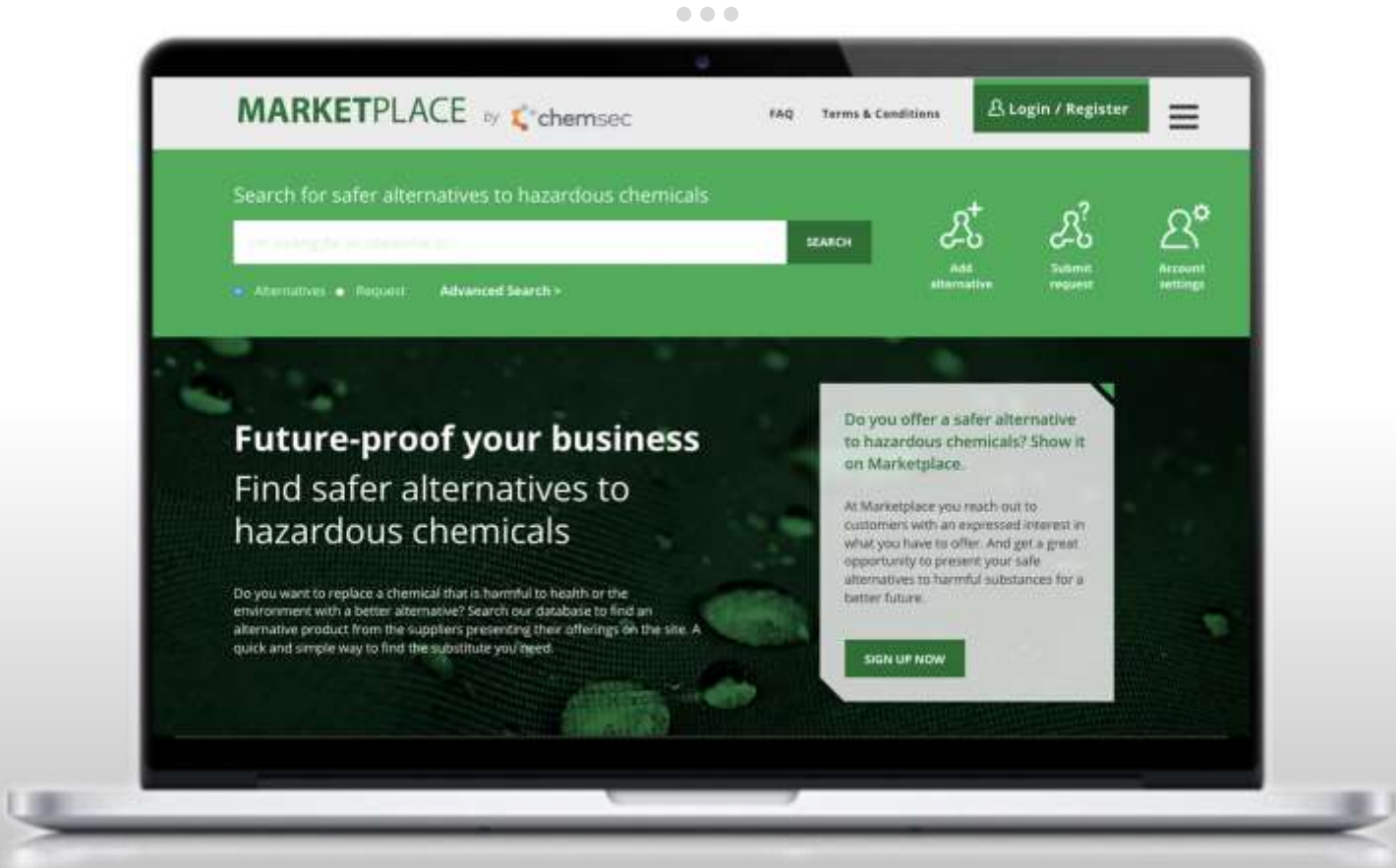
Managed or supported ChemSec's substitution-related projects including *SUBSPORT*, *SIN List*, *Marketplace*



www.chemsec.org

- Sweden-based non-profit
- Working to phase-out hazardous chemicals
- Focus both on policy implementation and to support corporate voluntary measures
- Funding from governments and charity funds
- Chairs a Business Group consisting of: *Apple, Adidas, Boots, Coop, Dell, Eaureau, H&M, Ikea, Kingfisher, Lego, Shaw floors, Skanska, Sony and the Swedish construction federation*

MARKETPLACE.CHEMSEC.ORG



CURRENT USERS



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Huntsman
DyStar
HeiQ Materials
Ceramic-Coatings Europe
AB
The Sherwin-Williams
Company
ALLIED Feather & Down
Greenway-Denmark
Corbion
Bieau
Bernd
Schwegmann GmbH &

Co.
KG Esti Chem A/S
ETH Zürich
OrganoClick
prometho GmbH
X-fire
Jerol
Ökobon GmbH
Bio Gen Active AB
Paxymer
Nordic Paper
Rivertop Renewables
Clariant
jobaTEC GmbH
Vergason Technology Inc

Corbion
H&M
Rudolf Group
Acticell
Circa sustainable
chemicals Ltd
Good natured products
inc
IHI Hauzer Techno
Coating B.V.
Kafrit
Oerlicon





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Teresa McGrath

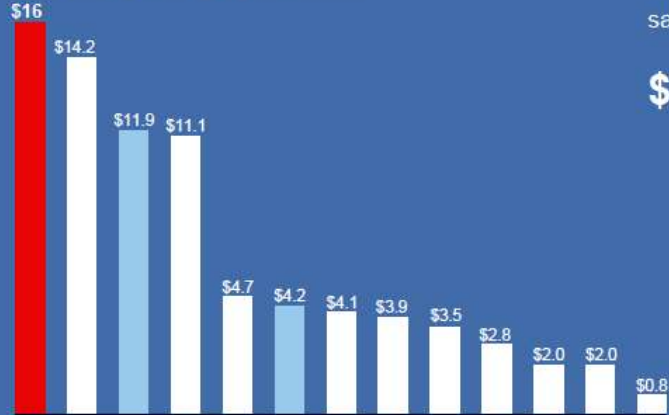
ENVIRONMENTAL REGULATORY TOXICOLOGIST





SHERWIN-WILLIAMS. + valspar™

GLOBAL PAINTS AND COATINGS INDUSTRY LANDSCAPE
(CY2016 SALES, \$ IN BILLIONS)



Combined PPG (1) SHW Alzo (1) RRPM VAL Axalta Nippon BASF (1) Kansai Jotun Masco (1) Benjamin Moore

Source: Public filings and company estimates. Note: Reflects USD exchange rate average for the EUR, JPY, and NOK. (1) Excludes Non-Coatings segments.

sales of approximately

\$16 billion



adjusted EBITDA

\$2.7 billion

60,000+ employees