



Toxic Chemicals in Products

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Overview



- Reducing Toxics Threats
- Product laws
- Children's Safe Products Act (70.240 RCW) and Rule (WAC 173-334)
- First children's products reports (Aug 2012)
- Ongoing product testing

Reducing Toxic Threats



Green Chemistry

Safer Alternatives

Phase out PBTs

- Benign design
- Kids & environment protected
- Manufacturers share the responsibility

PREVENTION

Averting toxic exposures and avoiding future costs is the smartest, cheapest and healthiest approach.

MANAGEMENT

Needed but costly strategies to prevent the release of toxics to the environment.

CLEANUP

Needed but costly solutions to avoidable contamination.

Identify &
Gather Data
on
Chemicals
of Concern

Washington State Product Laws



Passed	RCW	WAC	Description of prohibition	Effective Dates
1991	70.95G		Lead, mercury, cadmium, and hexavalent chromium in packaging	July 1993-5
2003	70.95		Mercury in most products	Jan 2006
2007	70.76		decaBDE in mattresses	Jan 2008
			residential furniture and electronics, after an alternatives assessment	Jan 2011
2008	70.24	173-334	Children's products reporting law	July 2011
2009	70.27		Lead in wheel weights	Jan 2011
2010	70.28		BPA in baby bottles and sippy cups	July 2011
			sports bottles	July 2012
2010	70.285	173-901	Copper in brake pads	Jan 2015 +
2011	70.295		Coal tar sealants sale/use	Jan 2012/ July 2013

Children's Safe Product Act



- Washington Legislation Passed in April 2008
- Limited concentrations of lead, cadmium and phthalates in children's products
 - Substantially pre-empted by federal CPSIA
- Requires reporting of “chemicals of high concern to children” (CHCCs)

Covered Products



Children's products

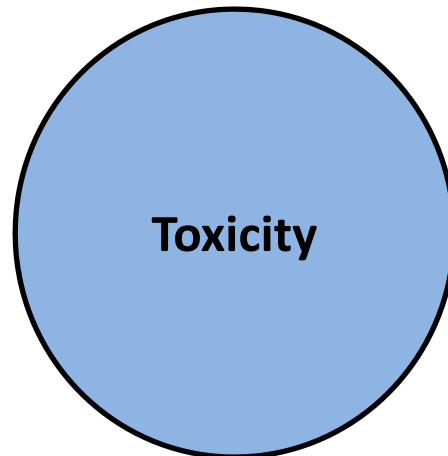
- Toys
- Children's Cosmetics
- Children's Jewelry
- Children's Clothing
- Child car seats
- Products intended to help a child with sucking or teething, to facilitate sleep, relaxation, or the feeding of a child
- Long list of excluded products

“High Priority Chemicals” (HPCs) (in law)



“High priority chemical” as identified by:

- State agency
- Federal agency
- Accredited research university
- Other scientific evidence deemed authoritative



One or more of the following criteria:

- a) Developmental toxicity
- b) Cause:
 - Cancer
 - Genetic damage
 - Reproductive harm
 - Endocrine disruptor
- c) Damage:
 - Nervous system
 - Immune system
 - Organs or other systemic toxicity
- d) PBT
- e) vPvB

“Chemicals of High Concern to Children” (CHCCs) (in law)



Section 4:

Identifying high priority chemicals of high concern for children after considering a child’s or developing fetus’s potential for exposure to each chemical.

One or more of the following criteria:

Chemicals found in biomonitoring studies:

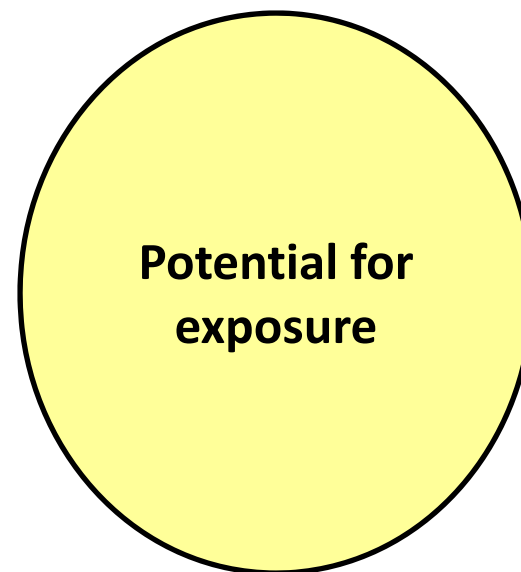
a) Humans

- Umbilical cord blood
- Breast milk
- Urine
- Other bodily tissues or fluids

b) Chemicals found in:

- Household dust
- Indoor air
- Drinking water
- Elsewhere in the home

c) Added or present in consumer product used or present in the home

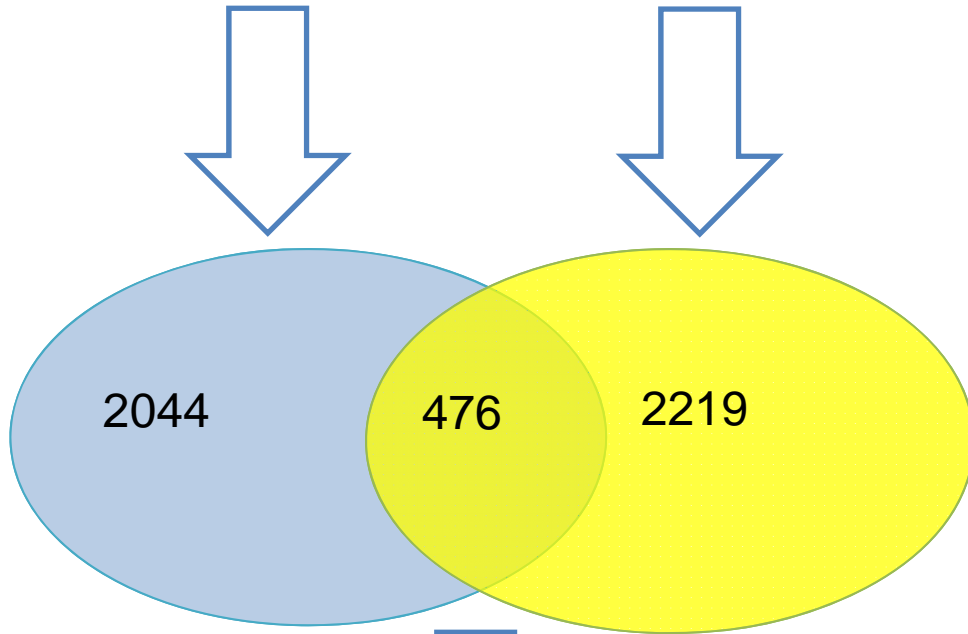


Chemicals of High Concern for Children



High Priority Chemicals

Potential for Exposure

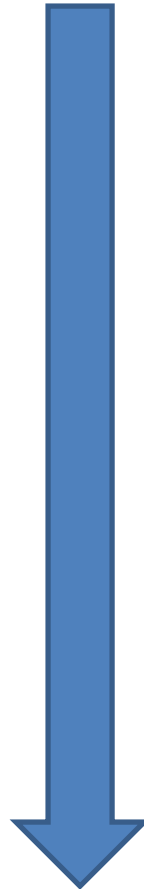


Governor said
"about 50"

Potential CHCCs



476 Potential CHCCs



Overlapping regulatory frameworks



Combustion byproducts



Emerging chemicals



Primarily ecological toxicity

178 chemicals to evaluate in algorithm

Prioritization Algorithm



- Toxicity
 - Development and reproduction
 - Endocrine disruption
 - Cancer
- Exposure
 - Presence in children's products or consumer products
 - European risk assessments
 - Chemical properties
 - NHANES biomonitoring
 - Amount of production/use in US
 - PBT properties

66 CHCCs in Rule



Final review by DOH/UW

<http://www.ecy.wa.gov/programs/swfa/cspa/chcc.html>

CSPA Rule



- Who reports
 - Manufacturer, importer, distributor, trade org.
- What to report
 - Intentional use above detection limit
 - Contaminant above 100 ppm
- What's in report
 - Chemical
 - Function (from list)
 - Material (from list)
 - Concentration in ranges
- Highest concentration for a **component** in a **brick**

Product Components



Companies should report CHCC in components that can be reasonably separated



Product Components



Product component – a uniquely identifiable material or coating

Bio-based Materials (Animal or Plant based)(leather, feathers, wool, silk, etc.)

Synthetic Polymers (synthetic rubber, plastics, foams etc.)

Metals (including alloys)

Glass, Ceramic and Siliceous material

Surface coatings (paints, plating, waterproofing etc.)

Homogenous Mixtures (gels, creams, powders, liquids, adhesives, synthetic fragrances)

Inks/Dyes/Pigments

Textiles (synthetic fibers and blends)

Product Bricks



• Examples (Segments → Bricks)



Arts / crafts / needlework →

- Sand art supplies
- Jewelry craft materials
- Artists paints/dyes,
- Artists pastels/charcoal/crayons



Baby care →

- Baby feeding – bibs
- Baby feeding – bottles
- Pacifiers/teething rings
- Baby carriers
- Baby swings



Beauty/personal care/hygiene →

- Cosmetic aids/accessories
- Fragrances
- Nails – false
- Nails – treatments



Camping →

- Sleeping bags
- Handwear
- Headwear
- Sleep headwear
- Dresses
- Dressing gowns

Footwear →

- Athletic footwear – gen. purpose
- Athletic footwear – specialist
- Boots – general purpose



Household/office furniture/ furnishings →

- Duvet covers
- Pillows, blankets/ throws (non powered)
- Bed sheets/valances



Personal accessories →

- Anklets
- Bracelets
- Rings
- Watches



Stationary / office machinery / occasional supplies →

- Balloons
- Party hats
- Party poppers

Toys / Games →

- Musical toys – non powered
- Musical toys – powered
- Practical jokes
- Dolls clothing
- Puppets



Phased Reporting Deadlines



Manufacturer Categories (based on US gross sales – all products)	Product Tier 1	Product Tier 2	Product Tier 3	Product Tier 4 (to set a date would require a revised rule)
Largest	8/2012	2/2013	8/2013	case-by-case
Larger	2/2013	8/2013	8/2014	case-by-case
Medium	8/2013	8/2014	8/2015	case-by-case
Small	8/2014	8/2015	8/2016	case-by-case
Smaller	8/2015	8/2016	8/2017	case-by-case
Tiny	8/2016	8/2017	8/2018	case-by-case

Reports are due at the end of the months indicated

Reporting Deadlines



Varies based on manufacturer category and product tier

Product Tiers

Tier 1 – Intended to be put in mouth, rubbed on the skin, or is 'mouthable' and intend for 3 and under

Tier 2 – Intended to be in prolonged contact with skin

Tier 3 – Intended for short (less than 1 hr) period of direct skin contact

Tier 4 – No contact with skin or mouth (inaccessible under reasonable use and abuse)

Manufacturer Categories (Aggregate US gross sales)

Largest: > \$1 B

Larger: <= \$ 1 B and > \$250 M

Medium: <= \$250 M and > \$100 M

Small: <= \$100 M and > \$5 M

Smaller: <= \$5 M and > \$100,000

Tiny: <= \$100,000

Chemical Function



Accelerator

Adhesive

Antioxidant

Antistatic agent

Binding agent

Catalyst

Color/pigment

Plastic resin/polymer

Conductive material

Dispersant

Emulsifier

Flame retardant

Flavoring

Fragrance

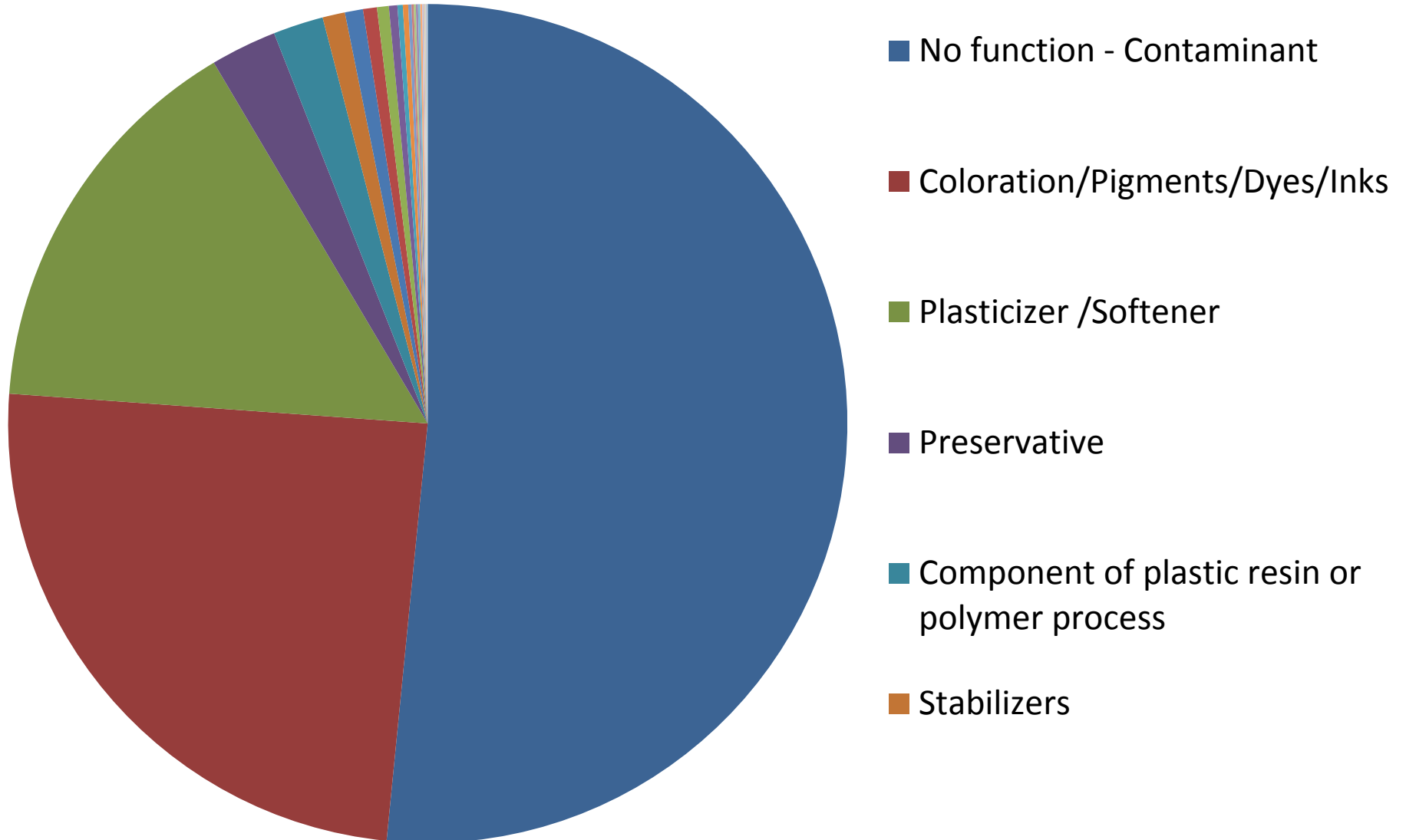
Germicide

Hardener

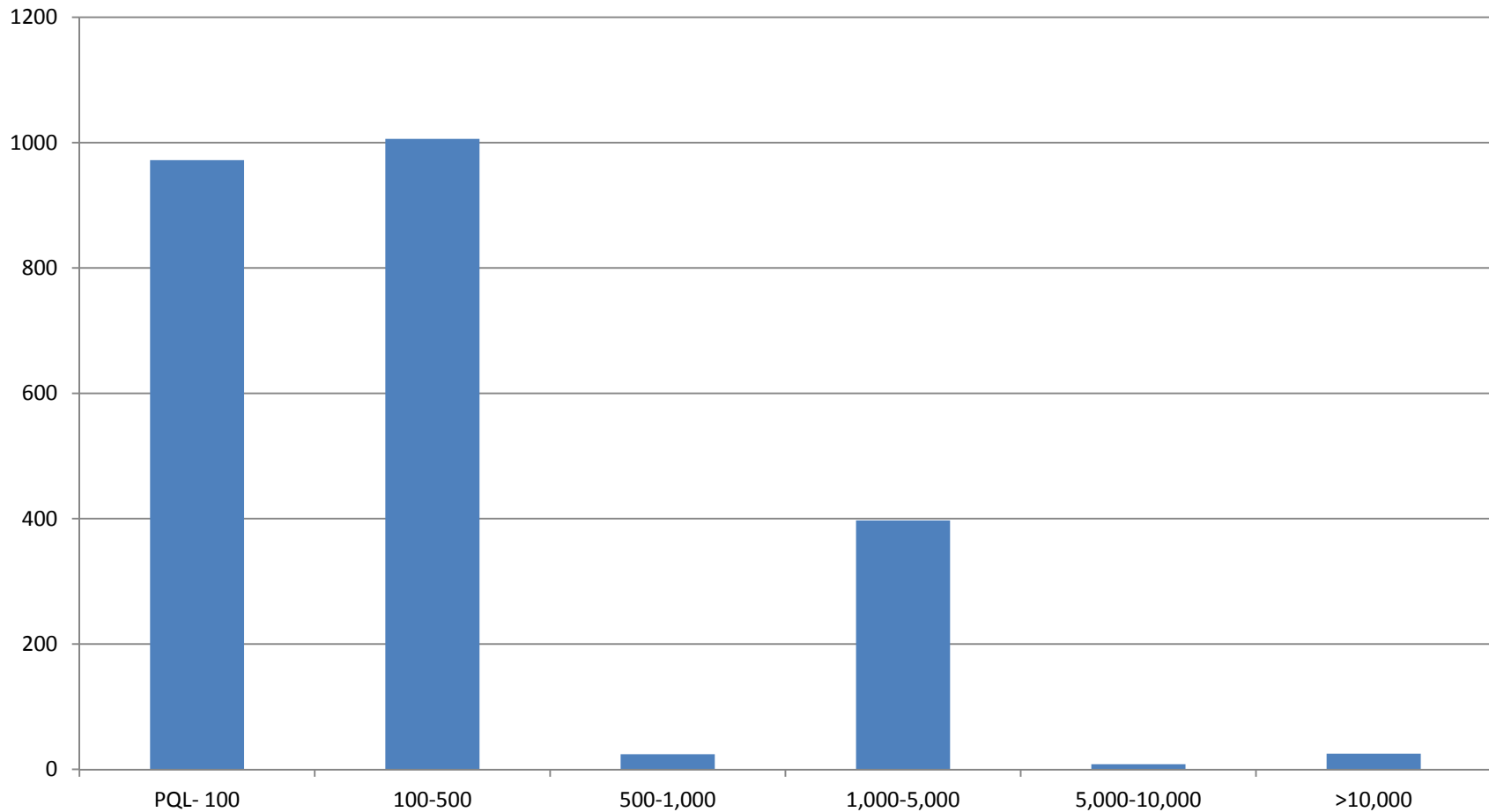
Inactive ingredient

Lubricant

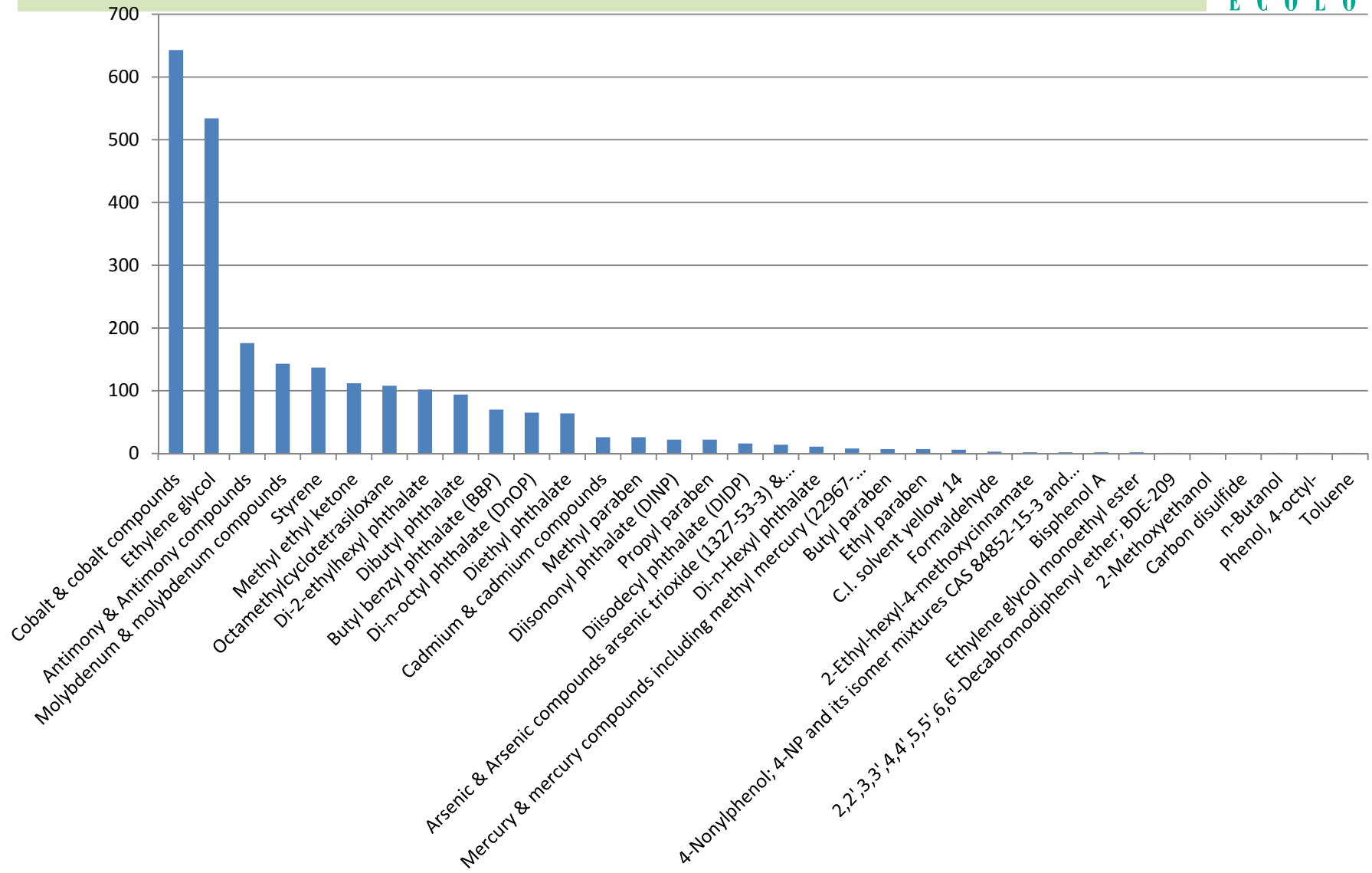
CSPA reports- function



CSPA reports- concentrations (ppm)

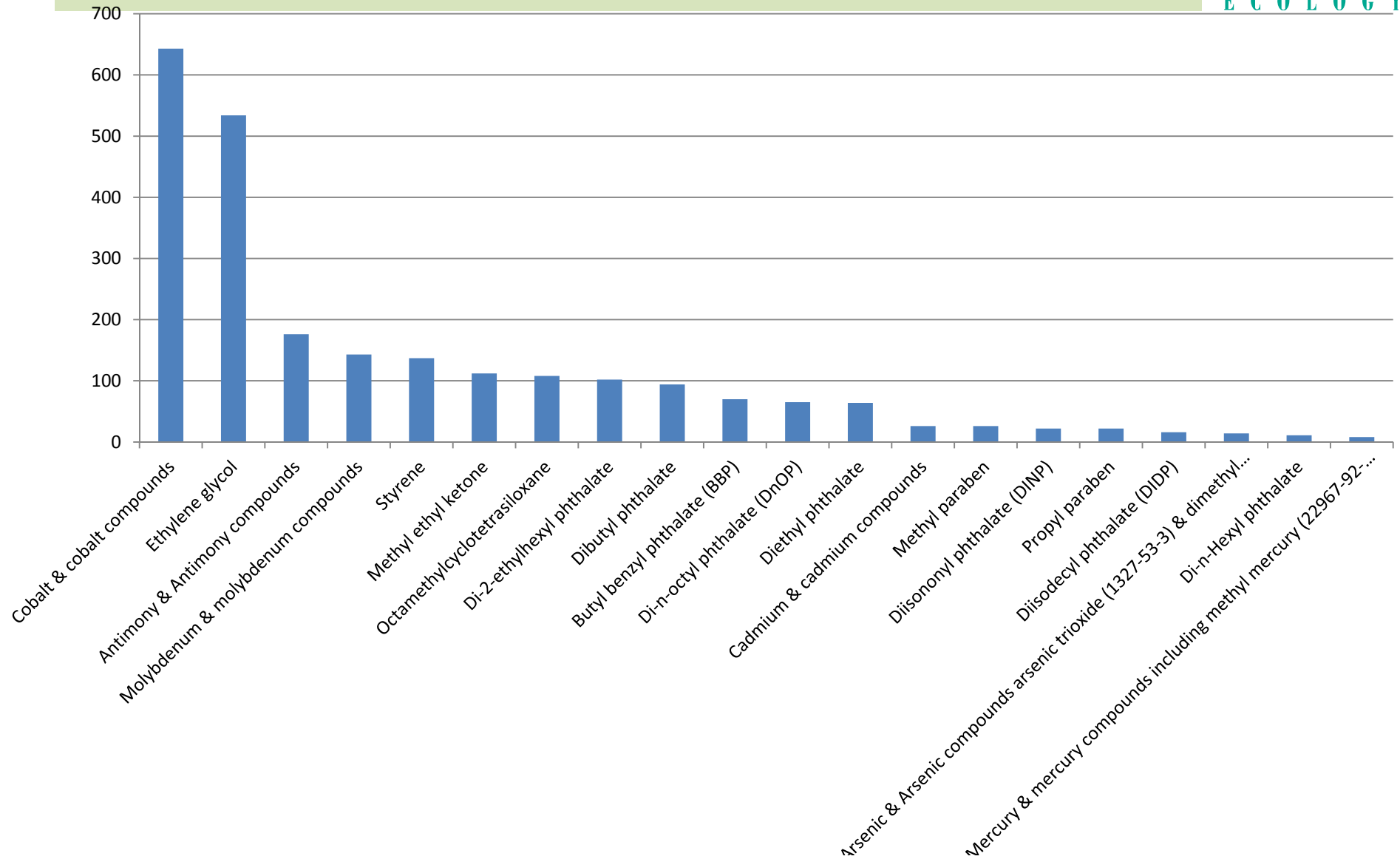


CSPA reports-chemicals





CSPA Reports- Top 20 chemicals



CSPA chemicals not reported



1,1,2,2-Tetrachloroethane (79-34-5)
1,4-Dioxane (123-91-1)
2,4-Diaminotoluene (95-80-7)
2-Aminotoluene (95-53-4)
2-Ethylhexanoic acid (149-57-5)
3,3'-Dimethylbenzidine and Dyes
 Metabolized to 3,3'-Dimethylbenzidine
 (119-93-7)
4-tert-Octylphenol; 1,1,3,3-Tetramethyl-4-
 butylphenol (140-66-9)
Acetaldehyde (75-07-0)
Acrylonitrile (107-13-1)
Aniline (62-53-3)
Benzene (71-43-2)
Benzene, pentachloro (608-93-5)
Benzophenone-2 (Bp-2); 2,2',4,4'-
 Tetrahydroxybenzophenone (131-55-5)
Butylated hydroxyanisole; BHA (25013-16-5)
Estragole (140-67-0)

Ethylbenzene (100-41-4)
Hexabromocyclododecane (25637-99-4)
Hexachlorobenzene (118-74-1)
Hexachlorobutadiene (87-68-3)
Methylene chloride (75-09-2)
N-Methylpyrrolidone (872-50-4)
N-Nitrosodimethylamine (62-75-9)
N-Nitrosodiphenylamine (86-30-6)
p-Hydroxybenzoic acid (99-96-7)
para-Chloroaniline (106-47-8)
Perchloroethylene (127-18-4)
Perfluorooctanyl sulphonic acid and its salts;
 PFOS (1763-23-1)
Phenol (108-95-2)
Phthalic anhydride (85-44-9)
Tetrabromobisphenol A (79-94-7)
Tris(2-chloroethyl) phosphate (115-96-8)
Vinyl chloride (75-01-4)

Product Testing



- Considerations for planning projects
 - Existing product laws
 - Possible reports under CSPA
 - Puget Sound
- In addition
 - Screen with XRF before lab analysis
 - Sample collection 2012
 - Results 2013

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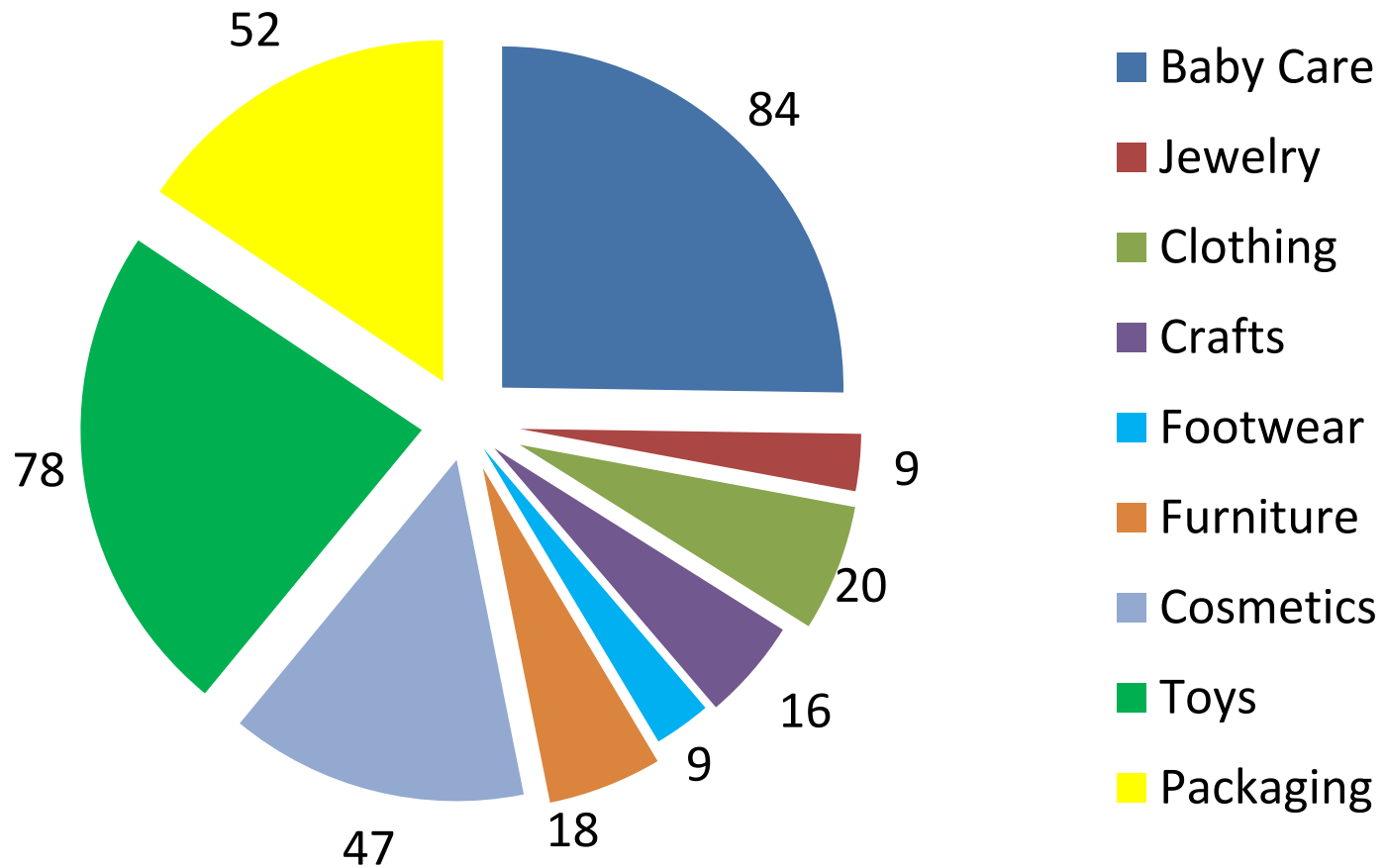
Current Projects



Target chemicals	Target Products
Parabens, phthalates, metals, formaldehyde, volatile organic compounds	Children's cosmetics & PCP, toys, jewelry, packaging
Bisphenol A	Bottles, cups, sports bottles
Flame retardants- PDBEs, polybrominated diphenyl ethanes, TCEP, TCPP, TDCPP, RDP, TPP	Electronics, residential furniture (foam), children's sleepwear

QAPPs 12-07-021, 12-07-022, 12-07-023, 12-07-024, 12-07-025, 12-03-106

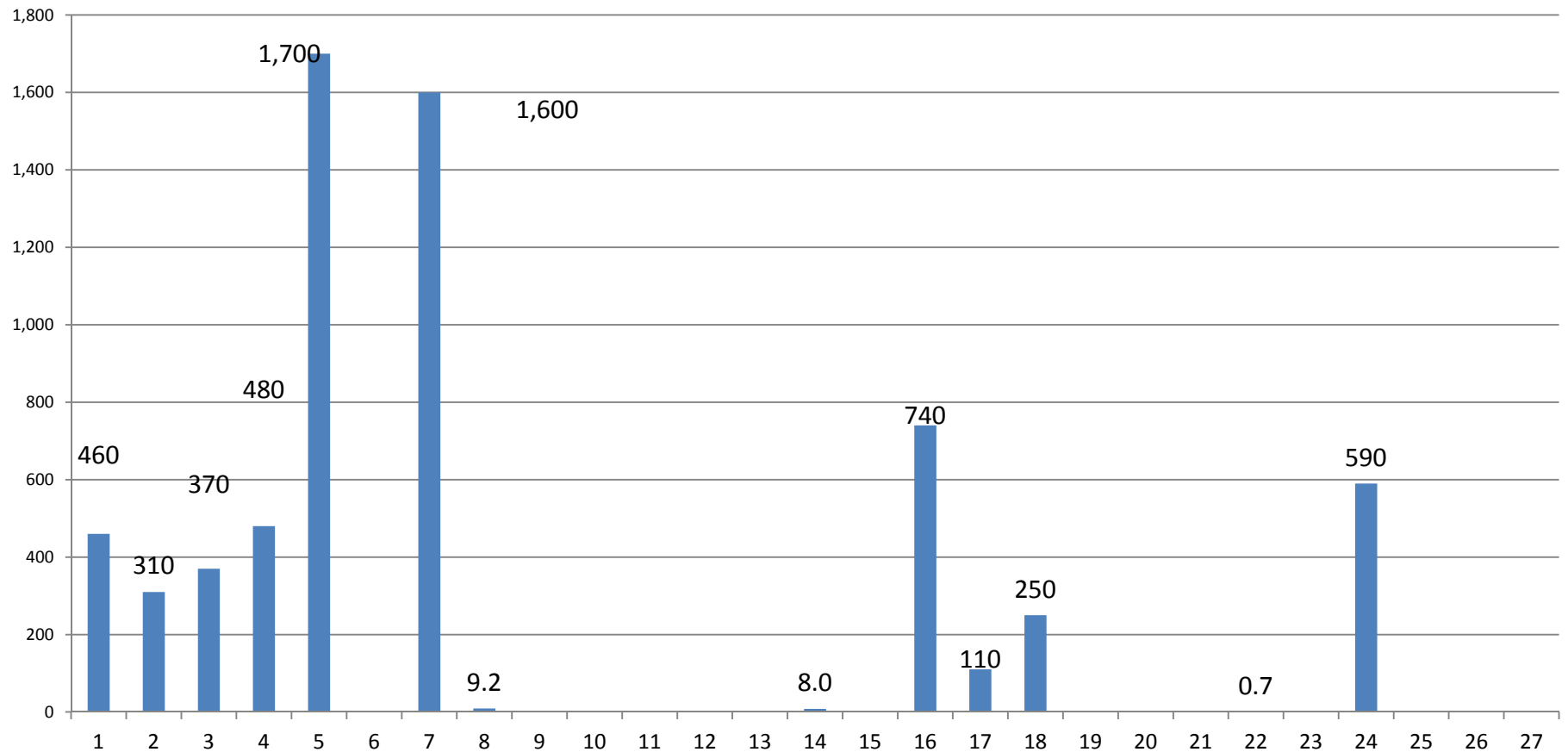
Products Tested



Initial Testing Results in Products



Propyl paraben



Initial Testing Results in Products

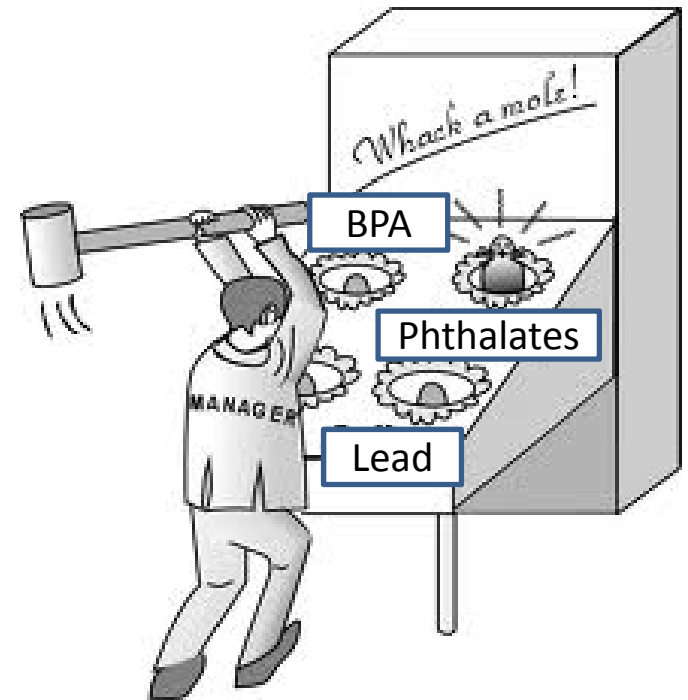


Analytical Results					
Metals	Detected	Low	High	Median	Average
Sb	24	12.0	255	67.00	86.90
As	3	1.2	76	46.50	40.20
Cr	10	1.9	179,000	5.50	17,957.60
Co	13	0.3	244	2.60	28.70
Cu	15	1.9	77,500	25.60	9,599.00
Pb	18	11.5	222	14.10	27.20
Hg	2	0.2	0.3	0.25	0.25
Mo	4	0.3	23	2.50	7.10
Zn	38	3.8	926,000	61.00	48,049.30
Phthalates	Detected	Low	High	Median	Average
DEHP	10	14.1	1,630	41.00	225.10
BBP	1	12.9	NA	NA	NA
DBP	1	11.9	NA	NA	NA
DHP	0	NA	NA	NA	NA
DOP	0	NA	NA	NA	NA
DEP	0	NA	NA	NA	NA
DiDP	3	277.0	68,700	646.00	23,207.70
DiNP	4	373.0	443,000	9,563.00	115,624.80
Parabens	Detected	Low	High	Median	Average
Methyl	12	0.5	1,800.0	30.30	462.20
Ethyl	2	0.5	1.9	1.20	1.20
Propyl	13	0.7	1,700.0	370.00	509.80
Butyl	2	32.0	53.0	42.50	42.50
iso-Butyl	2	30.0	45.0	37.50	37.50

Future



- Ongoing compliance efforts
- Ongoing product testing
- Develop a database for product testing results (like EIM)
- Individual chemicals in products
- Systemic change
 - Shared responsibility
 - TSCA reform



Thanks



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