Find the Hidden Toxics!

North American Hazardous Materials Management Association
National Conference
Portland, ME
August 28, 2018
PFAS (per- and polyfluoroalkyl substances) in Food service ware:

- Paper products, especially molded fiber products
- Pizza boxes
- Bakery and fast food wrappers
- Microwave popcorn bags

PFAS Hazards:

- Highly persistent
- Long half lives in humans
- Endocrine disruptors, associated with changes in cholesterol, liver enzymes, and obesity and sperm count from in utero exposure in humans
- Cause liver, immune system, metabolic, and developmental toxicity in animal studies
Safer alternatives to molded fiber products with fluorinated coatings:

- Clay-coated paper products
- PLA-coated paper products

Resources:

- Center for Environmental Health
- Responsible Purchasing Network
- Clean Production Action
**Upholstered furniture**
- PFAS (per- and polyfluoroalkyl substances) in stain repellent coatings
- Flame Retardants in polyurethane foam cushions
- Anti-microbial additives

**Carpet**
- PFAS (per- and polyfluoroalkyl substances) in stain repellent coatings
- Flame Retardants in recycled polyurethane foam carpet pads
- Antimicrobials, biocides
- PVC, phthalate esters, fly ash in backing
Safer alternatives for furniture:

- Look for “TB117–2013” on tags, and no added flame retardants label
- EPP databases for office furniture
- Ask for no stain repellent treatment

Resources:

- Green Science Policy Institute
- Center for Environmental Health (CEH)
- National Resources Defense Council (NRDC)
- Silent Spring Institute
- Mass Environmentally Preferable Purchasing Program
- Healthy Building Network
Mobile Phones

- Battery: lithium, cobalt, nickel
- Circuit boards: TBBPA, lead, tin, silver, copper
- Screen, circuitry, vibration: rare earth metals (yttrium, neodymium, etc.)
- Capacitors: tantalum
- Casing: Flame retardants
- During manufacturing: acids, solvents, etc.
Safer alternatives for mobile phones:
• Don’t upgrade until it breaks!
• UL sustainability standard 110

Resources:
• Basal Action Network
• Silicon Valley Toxics Coalition
• EPEAT purchasing standards
• UL Environmental Standard
Ships, boats

- Bottom paint, antifoulant – copper, zinc pyrithione, tributyl tin, fluoropolymer and siloxane coatings
- Bilge pump float switches – mercury
- Flares - perchlorate
Safer (yes?) alternatives for bottom paint:

- Ultrasonic anti-fouling
- Wax
- Silicone release coating
- Biomimetic coatings

Resources:
- Northwest Green Chemistry Network alternatives assessment
Tattoo ink

- Inorganic metals (Ni, Cr, Mn, Co) and their oxides,
- carbon black
- TiO2 (some in nanoparticle range)
- azo pigments and dyes, aromatic amines
- Organic pigments, diarylide pigments
- Preservatives, surfactants
- Contaminants: polycyclic aromatic hydrocarbons, heavy metals
Safer alternatives for tattoos:

- Temporary tattoo/stain – henna
- Research manufacturers, ingredient list and SDS

Resources:

- US FDA
- ACS Chemical and Engineering News articles
  - [https://cen.acs.org/articles/94/i33/chemicals-tattoo.html](https://cen.acs.org/articles/94/i33/chemicals-tattoo.html)
- European Commission
Vinyl flooring

- PVC
- Phthalate ester plasticizers (e.g., DINP, BBP)
- Epoxidized soybean oil (ESO) plasticizers
- Titanium dioxide
- Glass fiber
- Polyurethane or acrylate lacquer finish
- Antimicrobials
- Adhesives: diisocyanates, organic solvents
Safer alternatives to vinyl flooring:
- Linoleum flooring, rubber flooring
- Non-resilient flooring: ceramic tile, concrete toppings

Resources:
- Manufacturers’ Health Product Declarations (HPDs) and Environmental Product Disclosures (EPDs)
- Healthy Building Network
- Pharos Database (www.pharosproject.net)
- Health Care Without Harm
Paints:

- Pigments
- Biocides
- Solvents
  - Note: PCBTF (p-chlorobenzotrifluoride), a VOC exempt solvent – recent NTP carcinogenicity study conclusions include:
    - some evidence in and of uterine adenocarcinomamale and female rat of thyroid adenoma,
    - clear evidence in mice of liver carcinoma and hepatoblastoma
Cash Register Thermal Printing Receipts:

- Developers: Bisphenol A (BPA), BPS
- Leuco dyes
- Stabilizers: phenols
Safer alternatives to thermal cash receipts:

- Electronic (email) receipt

Check out this TURI funded public service video and related resources at https://www.bpa-free.me/

This will change how you shop forever.
A great tool to help make sense of the hazards

guides.turi.org/beyondmsds

Environmental, Health and Safety Data Resources: Home

This guide has been created to assist in researching environmental, health and safety information for chemicals.

General Information for Chemicals

These links take you to various pages for finding general, and sometimes detailed, information on chemicals including but not limited to physical properties, health effects, and environmental fate information. Links for finding general ‘use’ information are also included.

- Hazardous Substances Data Bank (HSDB)
  Site includes Physical/Chemical information, exposure limits, animal and human toxicity information. This is also a good place to find information on Metabolism/Pharmacokinetics.

- United States National Library of Medicine - ChemIDplus Advanced
  ChemIDplus is a free, web-based search system that provides access to structure and nomenclature authority files used for the identification of chemical substances cited in National Library of Medicine (NLM) databases, including the TOXNET® system. ChemIDplus also provides structure searching and direct links to many biomedical resources at NLM and on the Internet for chemicals of interest. The database contains over 350,000 chemical records, of which over 300,000 include chemical structures, and is searchable by Name, Synonym, CAS Registry Number, Molecular Formula, Classification Code, Locator Code, Structure, Toxicity, and/or Physical properties.

- Chemical Hazard and Alternatives Toolbox (ChemHAT)
  The chemical information provided by ChemHAT allows you to rapidly understand the types of health effects related to a chemical and the strength of those effects. This information can help you examine your chemical use and identify which hazards you should eliminate or reduce first. ChemHAT also provides information on existing case studies of safer alternatives. This information can help you quickly understand where the potential for substitution exists and what alternatives you should consider evaluating further.

- ECHA - REACH Registration Database

Accessing Library Resources: Books, Journal Articles, Reports, etc...

- TURI Library Catalog

Tools for using this Library Guide

- Chemical Hazard Evaluation Template - Updated February 2018
  This document can be used as a template for your research. The sources (located in the guide) for each endpoint are indicated in brackets.

Webinar: Searching for Information Using This Library Guide

- Access recording of webinar on using this Library Guide