Toxic Chemicals in Single-Use Food Service Ware: K-12 Schools’ efforts towards more sustainable alternatives

May 15, 2019
A non-profit organization dedicated to protecting public health from exposures to toxic chemicals.

The Center for Environmental Health works with large purchasers to utilize their buying power to incentivize the production of environmentally preferable products.
Endocrine Disrupting Chemicals

• Mimic, block, or change the activity of hormones, even at minute doses

• Can cause diabetes, obesity, reproductive harm, promote cancer, and other diseases

• Fetuses, babies and children vulnerable

• Exposure during critical developmental stages can lead to life-long health impacts.
Per- & Polyfluoroalkyl Substances (PFAS)

- Entirely manmade – thousands of formulations in use
- Many are *extraordinarily persistent* in the environment, cannot be broken down by natural systems
- PFAS are detected in air, water, soil, sludge
- Many *bioaccumulate* at the top of the food chain – in birds, fish, livestock, and humans
- Environmental persistence leads to *global distribution* via air and water movement – releases here can be significant for communities on the other side of the world

Slide adapted from Andrew Lindstrom, US EPA
Some Uses & Sources of PFAS

Source: Green Science Policy Institute, reproduced with permission www.greensciencepolicy.org
PFAS Health Effects

Animal toxicity

- Causes liver, immune system, developmental, endocrine, metabolic, and neurobehavioral toxicity.
- PFOA and PFOS caused tumors in chronic rat studies.

Human health effects associated with PFAS in the general population and/or communities

- Associated with kidney and testicular cancer, elevated total cholesterol, accelerated puberty, liver damage, obesity, immune system and thyroid disruption, and other health problems.
PFAS Human Exposure Pathways

- Diet - Fish, seafood, garden produce
- Drinking water
- Incidental soil/dust ingestion
- Inhalation – may be significant

Disposable Foodware & Fluorinated Additives

- PFAS used in foodware for water- and grease-resistance

CEH tested single-use plates, bowls, clamshell containers and food trays


Summary of test results by material type

- **ALL MOLDED FIBER** products tested had high fluorine content (indicating likely treatment with PFAS) – sugarcane/bagasse, wheat straw, wheat stalk, recycled paper fibers, plant fibers

- **Avoid polystyrene**

<table>
<thead>
<tr>
<th>Material Type Tested</th>
<th>Non-Fluorinated</th>
<th>Fluorinated</th>
<th># of Products Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Molded Fibers including: Recycled Paper, Wheat Straw/Wheat Stalk, Silver Grass (Miscanthus), Sugarcane Waste (Bagasse), Blend of Plant Fibers</td>
<td></td>
<td>x</td>
<td>73</td>
</tr>
<tr>
<td>Paper with Unknown Coatings</td>
<td>x</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>PLA-Lined Paper and Paperboard</td>
<td>x</td>
<td></td>
<td>8</td>
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<tr>
<td>“100% Renewable Resources Lined with PLA”</td>
<td>x</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>PLA</td>
<td>x</td>
<td>1-exception</td>
<td>5</td>
</tr>
<tr>
<td>Clay-Coated Paper and Paperboard</td>
<td>x</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Palm Leaf</td>
<td>x</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Untreated/Uncoated (Non-Molded) Paper</td>
<td>x</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>PLA-lined Molded Sugarcane/Bagasse</td>
<td></td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>Plastic-Lined Paper</td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Unknown materials</td>
<td></td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>Bamboo</td>
<td>x</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Concerns with Single-Use Food Service Ware

Lifecycle concerns
- Production/Transportation
- Use
- Disposal (waste)

Toxic Chemicals
- Fluorinated Compounds (PFAS)
- Polystyrene

https://huglythemugly.files.wordpress.com/2011/05/img_2690.jpg
Considerations for Environmentally Preferable Food Service Ware

- **Reusable** (minimize disposables)

For Single-use, EOL Disposition?

- Compostable or Recyclable?

- Examples of Additional Environmental Attributes:
  - Recycled content
  - Forest Stewardship Council (FSC) Certified
  - Chlorine-free bleaching
**BPI-Certified Compostable**


- By Jan 1, 2020, all BPI-Certified products will be “free” of PFAS.

**CMA Composter Approved List**

Cedar Grove Composting Facility verifies compostability of products at WA facility [https://cedar-grove.com/compostable/accepted-items](https://cedar-grove.com/compostable/accepted-items)

- Cedar Grove is now part of the Compost Manufacturing Alliance (CMA) [https://compostmanufacturingalliance.com/](https://compostmanufacturingalliance.com/)
- By Jan 1, 2021, products on CMA-Approved Lists will be “free” of PFAS.
Problems with Polystyrene

• Styrene is reasonably anticipated to be a human carcinogen (2011, National Toxicology Program)
  • Styrene can leach into food or drinks

• Very difficult to recycle
  • Made from petroleum; ends up in landfills, waterways
  • breaks down into smaller pieces; ingested by animals
  • Products contaminated with food;

• May 2017: Determination that food-service foam “cannot be recycled in a manner that is economically feasible or environmentally effective for NYC”
NY’s Guidance document (state food service operations) 2018:

- encourages the purchase and use of reusable food service containers and
- establishes minimum specifications for single-use food service containers and wrappers (including PFAS restrictions).

https://ogs.ny.gov/greenny/food-service-containers-and-wrappers

The City and County of San Francisco developed specifications

PFAS LEGISLATION (2018)

San Francisco’s Plastic and Litter Reduction Ordinance
https://sfenvironment.org/reduceplastic

- to reduce plastic pollution by prohibiting, among other foodware accessories, the distribution of plastic straws. The ordinance will start to take effect July 1, 2019.
- to also eliminate toxic fluorinated chemicals from foodware products while strengthening compostability standards and recycling markets. PFAS restriction will take effect Jan 1, 2020.

Berkeley’s Disposable-Free Dining Ordinance (2019)
Disposable Foodware & Fluorinated Additives

• PFAS can end up in food and landfill/compost

• **Prioritize reusables & minimize single-use.**

• “Compostable” does not equal safe
  (BPI-certified* or Cedar-Grove Accepted compostable products can still have PFAS)

*By Jan 1, 2020, ALL BPI-Certified products will be “free” of PFAS
Things Purchasers/Organizations Can Do

1. Participate in Product Testing
2. Letter to/Discussion with Suppliers
3. Communication with Certifiers (Compostability/Sustainability)
4. Use Model Specifications
5. Prefer Non-Fluorinated Foodware
Database of Products

- Results of product testing is publicly available (Excel file or PDF)
- Findings indicate which products are “fluorinated” or “non-fluorinated”
- Accompanies CEH’s Foodware report

www.ceh.org/disposablefoodware
Free Product Testing Available

• Organizations can submit disposable foodware for testing at NO cost
  • Plates, bowls, clamshells, food trays/boats
• Useful information for discussions with suppliers
• Contributes to list of preferred products

To participate, email foodware@ceh.org
Sue Chiang, MPH, MPP
Pollution Prevention Director
sue@ceh.org
510-740.9389

Thank you!
FOAM-FREE SCHOOL LUNCH:
promoting children’s health, environmental stewardship & waste reduction

Julie DesChamps
Waste Reduction Coordinator, PTA Council Green Schools,
Greenwich Public Schools, Greenwich, Connecticut
Senate Bill 229:
An Act Prohibiting the Use of Styrofoam Trays in Connecticut Schools

Bill Banning Styrofoam Trays in Schools Passes State Senate

Under the bill, each school district is required to develop a plan for discontinuing the use of expanded polystyrene trays.

By Jack Kramer, Patch Staff | May 10, 2019 7:00 am ET

[Image of legislative session]

[Image of Senate Bill 229]

*Amendment*

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*SB00229084*  
02SDO*

Offered by:  
SEN. COHEN, 39th Dist.  
SEN. MINER, 30th Dist.  
SEN. WITKOS, 13th Dist.  
SEN. SOMERS, 18th Dist.

To Senate Bill No. 229  
File No. 583  
Cal. No. 275

"AN ACT PROHIBITING THE USE OF STYROFOAM TRAYS IN CONNECTICUT SCHOOLS."

Strike everything after the enacting clause and substitute the following in lieu thereof:

"Section 1. (NEW) (Effective from passage) Not later than July 1, 2020, each school district, regional school district, regional vocational-technical school and constituent unit of higher education shall develop a plan for discontinuing the use in such district, school or constituent unit, as applicable, of trays made from expanded polystyrene. Such plan shall require the district, school or constituent unit, as applicable, to discontinue such use not later than July 1, 2021, and to prepare for the termination or amendment of any contract for the purchase of such trays not later than July 1, 2020. Nothing in this section shall be construed to require the development of such plan in any school district, regional school district, regional vocational-technical school, or constituent unit of higher education."
```
Greenwich Public Schools
Waste Reduction Initiatives

• Waste Reduction Pilots
• On-site composting
Greenwich Public Schools
Waste Reduction Initiatives
DISPOSABLES: Paper boats

- Safer for student health & environment
- Testing for fluorinated additives: low or no PFAS
- Some use recycled material in production
- Generate considerable waste
- Not recyclable due to food contamination
- Can only be used with certain meals
- May be harder for youngest students to handle
- No segregation of foods
DISPOSABLES:
Molded fiber trays

Good-bye Polystyrene Tray. Hello Compostable Plate.

Chinet® molded fiber cafeteria trays

Help save the environment by choosing Chinet® molded fiber compartment trays, made from 100% recycled paper fibers that are 100% compostable.
**DISPOSABLES:**
Molded fiber trays

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<tbody>
<tr>
<td>F</td>
<td>Chinet</td>
<td>Tray</td>
<td>22025</td>
<td>Chinet 5-Compartment Tray, 8 1/2 x 10 1/2&quot; (smooth, white)</td>
<td>Recycled Paper</td>
<td>Unknown</td>
<td>Unknown</td>
<td>100%</td>
<td>Manufacturer: Huhtamak</td>
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<tr>
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<td>Chinet</td>
<td>Tray</td>
<td>21032</td>
<td>Savaday by Chinet 5-Compartment Cafeteria Tray 8 1/4 x 10 3/8&quot; (rough, off-white)</td>
<td>Recycled Paper</td>
<td>No</td>
<td>No</td>
<td>100%</td>
<td>Manufacturer: Huhtamak</td>
</tr>
<tr>
<td>F</td>
<td>Chinet</td>
<td>Tray</td>
<td>21040</td>
<td>Round 5-Compartment Cafeteria Plate (rough, off-white)</td>
<td>Recycled Paper</td>
<td>No</td>
<td>No</td>
<td>100%</td>
<td>Manufacturer: Huhtamak</td>
</tr>
</tbody>
</table>

**CEH Foodware Database**
REUSABLES: Benefits

- **Student Health**: Safer than styrofoam & disposables containing PFAS for students’ health & environment

- **Waste Reduction**: Eliminate almost half a million trays entering waste stream annually

- **Environmental Impact**: Life cycle assessment

- **Cost Savings**
  - Avoid ongoing disposable purchases
  - Reduce waste hauling & disposal fees
REUSABLES:
Polypropylene Basket Pilot

- Modeled on case study: Bishop O’Dowd HS & Clean Water Action’s Rethink Disposable campaign
- Handwash & sanitize in 3 sink system; dishwasher not necessary
- Lightweight & practical
- Safer option for children’s health
- Inexpensive upfront purchasing cost
- 68% reduction in trash by volume; 30% by weight
- Labor increases
- Health Department concerns
REUSABLES: Stainless Steel Trays & Dishwashers

- Currently piloting at one elementary school
- Stainless steel tray: Winco 6 compartment mess tray, style B
- Champion undercounter dishwashing machine
Thank You

Greenwich Public Schools:
• Lorianne O’Donnell, Operations Director
• John Hopkins, Director, Food Services Department
• Daniel Watson & Stefano Materia, Facilities Department
• School Lunch Food Committee
• GPS Board of Education
• Ralph Mayo, Acting Superintendent
• PTAC Green Schools Committee

Sue Chiang, Pollution Prevention Director, Center for Environmental Health
Samantha Sommer, Clean Water Action

Nancy Larson & Samantha Wilder, Bellevue Public Schools
Tammy Thorton & Heather Priest, Wilton Public Schools
Ron Schulhof & Michelle Sterling, Scarsdale Public Schools
School Reusable Lunch Trays

Nancy Larson, Manager, Facilities, Maintenance & Community Use
Bellevue School District
Bellevue, Washington

The Bellevue School District Mission:
- To provide all students with an exemplary college preparatory education so they can succeed in college, career and life.
Discussion

• Partnership
  • City of Bellevue
  • Bellevue School District

• Phase I - Tray Pilot Program 2012/2013
  • Newport Heights Elementary
    • 630 Students

• Phase II – Expansion 2014/2015
  • 7 More Elementary Schools

• Current 2018/2019
  • 4 Middle Schools
  • 15 Elementary Schools

• Questions
Earth Day 2019

All schools participate in Bellevue School District's Green Genius Initiative to ensure that waste reduction, recycling + composting are practiced + promoted.

365 TONS of food waste are collected + composted from District schools per year.

14,000 Students + staff compost in classrooms to reduce food waste. All schools recycle + compost.

16 Schools using reusable trays during lunch.

13,000 LBS OF FOOD DONATED to Hopelink.

86% of Bellevue Schools have a recycling rate of 50% or higher.

12 Schools have a recycling rate of 70%.

A 16 Year Partnership with The Bellevue School District + Bellevue Utilities.
Recycling in Bellevue Schools’ Lunchrooms

• Video produced with City of Bellevue and Bellevue School District related to recycling in the lunchroom.

  • https://www.youtube.com/watch?v=82q9ZRxaT2Q&feature=youtu.be