Susan Thoman, Compost Manufacturing Alliance

Composting, Contamination and Collaboration
WHAT IS THE COMPOST MANUFACTURING ALLIANCE?

- 7 compost industry pioneers
- 20+ compost facilities across the U.S.
- Annual processing capacity of over 2 million tons
- Field validate compostability across major processing technologies
- Connect solid waste system and supply chain to create solutions to contamination
COMPOSTERS ARE MANUFACTURERS—NOT DISPOSAL SITES
ORGANICS CONTAMINATION REDUCTION WORK GROUP (OCRWG)

Sub-Groups
Policies and contracts
Upstream
Education and Outreach
Processors

To get involved with group, contact Washington Organics Recycling Council, www.compostwashington.org
PREVALENT PLASTIC CONTAMINANTS AT COMPOSTING SITES

- Film plastic (polyethylene)
- Hard plastics (polypropylene)
- Polyethylene lined paperboard
- Polyethylene lined Kraft bags
BRIDGING SYSTEMS

ONE SYSTEM

CONSUMER Resident

Supply Chain
Compost and Solid Waste
PLASTIC SOURCES AND DRIVERS

Sorting confusion

Culture of convenience

Food preservation improvements

Food TV shows
UPSIDE OF COMPOSTABLES

• Increase in food diversion
  • Bags (YUCK factor)
  • Closed systems
  • No landfill waste!
• Beneficial product
THE DOWNSIDE OF COMPOSTABLES

CONTAMINATION!

• “Come alongs”
• Technology differences
• Look alikes
• Greenwashing
<table>
<thead>
<tr>
<th>Product</th>
<th>Traditional composition</th>
<th>Compostable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bags and liners</td>
<td>Polyethylene film</td>
<td>Compostable co-polymers</td>
</tr>
<tr>
<td>Meat trays</td>
<td>Extended polystyrene (EPS or Styrofoam)</td>
<td>Blown PLA</td>
</tr>
<tr>
<td>Folding cartons</td>
<td>PE coated paperboard</td>
<td>PLA or clay coated paperboard</td>
</tr>
<tr>
<td>Hot and cold cups</td>
<td>PE coated paperboard PET clear cups</td>
<td>PLA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PLA or wax coated paperboard</td>
</tr>
<tr>
<td>Clamshells and plates</td>
<td>Polypropylene, treated imported fiber</td>
<td>Wood based fiber, wheat straw fiber</td>
</tr>
<tr>
<td>Utensils and straws</td>
<td>Polypropylene blends</td>
<td>PLA and PBS</td>
</tr>
<tr>
<td>Fry and food boats</td>
<td>PE coated paperboard, over varnishes</td>
<td>PLA or clay coated paperboard</td>
</tr>
</tbody>
</table>
## ORGANIZATIONS

<table>
<thead>
<tr>
<th>Organization</th>
<th>What</th>
<th>Performs Testing?</th>
</tr>
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<tbody>
<tr>
<td>ASTM D6400</td>
<td>Lab standard for compostable plastics</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ASTM D6868</td>
<td>Lab standard for coated substrates</td>
<td>Not applicable</td>
</tr>
<tr>
<td>EIN 13432</td>
<td>European certification for ISO 16929 test results</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BPI</td>
<td>Produces certification documents for packaging companies from 3rd party</td>
<td>No</td>
</tr>
<tr>
<td>NSF/Advanced Testing Materials</td>
<td>Performs 3rd party certifications for BPI</td>
<td>Yes - ASTM D6400/D6868</td>
</tr>
<tr>
<td>CMA</td>
<td>Reviews certifications and ASTM data; tests in industrial compost technologies</td>
<td>Yes - field disintegration in actual composting operations</td>
</tr>
</tbody>
</table>
## Differences in Standards

<table>
<thead>
<tr>
<th>Type</th>
<th>Testing Protocols</th>
<th>Cycle Time</th>
<th>Temperatures</th>
<th>C:N Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPI</td>
<td>Certifications</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>ASTM D6400, ASTM 6868</strong></td>
<td>• Simulation in lab</td>
<td>&lt;84 days</td>
<td>&lt;130 degrees F</td>
<td>13:1</td>
</tr>
<tr>
<td></td>
<td>• Uses stable compost versus non-composted feedstock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CMA covered ASP and non-covered ASP</strong></td>
<td>• ASTM data review Field disintegration test in actual composting Uses non-composted feedstock</td>
<td>49-60 days</td>
<td>&lt; 140-170 degrees F</td>
<td>30:1</td>
</tr>
<tr>
<td><strong>EN 13432 (ISO 16929)</strong></td>
<td>• Simulation Synthetic feed stock/feed stock</td>
<td>&lt;84 days</td>
<td>104-167 degrees F</td>
<td>20:1; 30:1</td>
</tr>
</tbody>
</table>
Parameters measured in compost streams

- Carbon to nitrogen ratio
- Temperature
- Moisture level
- pH

What microbe communities are present at different stages of the process?
TEMP REGIME COMPOSTING

The diagram illustrates the growth rate of different microorganisms as a function of temperature. The temperature range from -10 to 120°C is shown on the x-axis, while the y-axis represents the growth rate. Different types of microorganisms, including Psychrophiles, Mesophiles, Thermophiles, and Hyperthermophiles, have distinct temperature preferences and growth rates.

- **Psychrophiles** grow best at low temperatures, with a peak growth rate at around -10°C.
- **Mesophiles** have a broad temperature range for growth, with a peak at around 30°C.
- **Thermophiles** have a peak growth rate at around 70°C.
- **Hyperthermophiles** grow at very high temperatures, with a peak growth rate at around 130°F (54°C) and 170°F (77°C).

The diagram highlights the importance of maintaining the correct temperature regime during composting to maximize the growth of beneficial microorganisms.
NOT ALL PAPER IS JUST PAPER…

“Aqueous coatings” carrying poly based over varnish on print (frozen food boxes, paperboard beverage cases)

“Biodegradable” laminated paper bags or grease treated paper
Manufacturer’s must provide:

- SDS on inks and other treatments
- FDA approval for direct food contact must be submitted
- Metals analysis will be conducted
- Levels must meet ASTM requirements and molybdenum must not be higher than 9ppm
- Triggers field testing
- ASTM testing may be required: Toxicity, biodegradation, spectral analysis

If SDS shows any signs of hazard:

If FDA is for indirect food contact:

If there are any extra coatings or treatments – item may be tested.

If treatment is new to CMA, item must be tested.

If item meets disintegration requirement
“LOOK A-LIKES”

COMPOSTABLE
BPI and CG Accepted

NON-COMPOSTABLE

NO

OXO-BIODEGRADABLES!
Only Compostable Bags can be Tinted Green or Brown

*Requirement is effective July 1, 2017

NEW: Effective July 1, 2017, retail stores and services prohibited from providing customers with plastic bags (such as produce bags) that are tinted green or brown.

NEW: Allows stores to provide approved compostable bags for in-store use (such as produce), and they must be colored green or brown.

NEW: Bags may not be labeled “biodegradable,” “degradable,” or similar confusing terms.
'Greenwashing' Costing Walmart $1 Million - Environmental

environmentalleader.com 3 Feb '17, 1am

‘Greenwashing' Costing Walmart $1 Million - https://t.co/c62lpOmirr

Walmart has agreed to pay $1 million to settle greenwashing claims that allege the nation’s largest retailer sold plastic products that were misleadingly labeled “biodegradable” or “compostable” in violation of California law. “We are pleased to resolve this matter with the California district attorneys and are appreciative of them as they have worked with us on this issue,” a Walmart spokesperson told Environmental Leader in an email. “Sustainability is a priority for us, and we have been recognized as a retail leader in this space. We’re proud of the enhancements we have made to help ensure that the products we sell to California customers are in line with the state’s guidance on biodegradable labeling.” The state law bans on the sale of plastics labeled “biodegradable” (or labeled with similar language). California environmental officials have determined such claims are...
COLLECTIVE INVESTMENTS

Capacity/Infrastructure
COMPOSTERS

R&D, Product Development
PRODUCT MFR
COMMON GOALS AND OUTCOMES

MANUFACTURER

DIVERT MORE FOOD

GROW COMPOSTABLES

TO

SYMBIOTIC

CLEAN

GROW MARKETS

MANUFACTURER
Contact Us

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