Choosing Environmentally Preferable Food Service Ware

Reusable and Sustainable Biobased Products

Disposable food service ware–plates, bowls, cups, cutlery, clamshells and other products–is widely used in hospitals. Disposable products provide some benefits to hospitals—ease of use, minimal maintenance and reduced dishwashing needs. Yet, most of these single-use items end up in landfills, incinerators, or the world's oceans where they can cause significant harm to humans and the environment. Other potential negative impacts include:

- Depletion of nonrenewable resources–fossil fuels;
- Contribution to global warming;
- Generation of air and water pollutants from manufacturing, shipping and disposal;
- Introduction of toxic chemicals into the environment during production, use and disposal; and
- Contamination of food from leaching chemicals.

In recent years, biobased disposables have emerged as an alternative to traditional products. These products are made in whole, or in part, from renewable materials, such as corn, potatoes, sugar cane waste and perennial grasses. Though not new to the market, products made from renewable forestry materials including paper are also categorized as biobased in this document. The renewability of agricultural and forestry resources is a significant environmental attribute. Also, these products have an environmental advantage if they are composted. However, the production, use and disposal of biobased disposables may also negatively impact human and environmental health depending on a variety of factors, such as methods used to produce and harvest the renewable materials and toxicity and persistence of chemical additives used. **For these reasons, it is important to choose biobased food service ware carefully.**

Food Service Ware Materials: Environmentally Preferable Purchasing (EPP) Hierarchy

The raw materials used to make a product can have a significant impact on its overall environmental performance. To assist health care purchasers in choosing environmentally preferable food service ware, Health Care Without Harm (HCWH) has created the following purchasing preference hierarchy for food service ware materials based on the environmental performance of these products across their life cycle:

Most Preferred	Reusable Food Service Ware
More Preferred	Biobased Products—Beyond Baseline Sustainability Criteria
Preferred	Biobased Products—Baseline Sustainability Criteria
Less Preferred	Biobased Products—Do not meet Baseline Sustainability Criteria
Least Preferred	Fossil Fuel-based Disposable Products

Most Preferred: Reusable Food Service Ware

Reusable food service ware requires far fewer material resources, uses much less energy, and generates much lower levels of air and water pollutants and less solid waste in its production, use and disposal than similar disposable products.[1,2] Switching to reusable products can also result in significant cost savings.[3] To maximize the environmental benefits of reusable food service ware, hospitals need to use energy and water efficient appliances. Additionally, when purchasing reusable products it is important to avoid items made from materials whose production, use and disposal can have detrimental human and environmental health impacts, including plastics made from polystyrene, polyvinyl chloride (PVC), polyethylene terephthalate (PET) or polycarbonate. Instead choose lead-free ceramic ware or products made from glass, stainless steel, biobased materials, polyethylene or polypropylene. See the Resources section for informational aides including an on-line calculator to determine cost savings of switching to reusable cups and bowls.

More Preferred: Biobased Products— Beyond Baseline Sustainability Criteria

(See Tables 1 and 2)

"More preferred" are biobased disposables that meet demanding sustainability criteria. At present, products meeting the Beyond Baseline Sustainability Criteria may be difficult to find. However, with the rapid development of the market for biobased products, more sustainable products will emerge, especially as health care demands them.

Preferred: Biobased Products— Baseline Sustainability Criteria (See Table 1)

"Preferred" are biobased disposables that meet a minimum level of environmental performance-the Baseline Sustainability Criteria. Products that meet these criteria are available on the market today. Purchasers should demand that manufacturers and suppliers of biobased disposable food service ware meet these criteria.

Less Preferred: Biobased Products— Do not meet Baseline Sustainability Criteria

"Less preferred" are biobased disposables that do not meet a minimum level of environmental performance. Biobased products manufactured and disposed of without concern for environmental performance are not a panacea to the problems posed by fossil fuel-based plastics. Production of paper products may destroy virgin forests and generate toxic pollutants during the bleaching process. Bio-plastic and fiber products made from conventionally grown agricultural crops can contribute to a wide range of adverse effects to the land, water and wildlife. And all biobased products may contain toxic additives. The slight preference of biobased over fossil fuel-based materials is due to the renewability of biobased materials.

Least Preferred— Fossil Fuel-based Disposable Products

The use of fossil fuel-based plastic food ware has serious environmental and public health ramifications that make them undesirable for an institution with the goal of promoting health. For example,

- Fossil fuels are non-renewable resources with environmental, health and political controversies surrounding extraction and use.
- Most fossil fuel-based plastics are not biodegradable or compostable.[4] They do not decompose in the landfills or the environment, including the marine environment. In many parts of the world plastic makes up 90-95 percent of marine debris.[5] This debris is very hazardous to marine life affecting 267 species worldwide including sea birds, sea turtles and other marine mammals.[6]
- Plastic coatings on paper-based food ware items make them less suitable for composting.
- Plastic food service ware is typically not recycled because of food contamination and other factors and thus has extremely low recycling rates.[7]
- Incineration of plastics can release toxic chemicals.
- Styrene, used to manufacture polystyrene–the primary petroleum-based plastic in disposable food service ware[8]–has been shown to leach into food and drinks,[9] especially those that are high in fat or contain alcohol.[10] The International Agency for Research on Cancer classifies styrene as a possible human carcinogen.[11] Concerns about the production, use and disposal of disposable polystyrene products have led numerous local governments to ban their sale or use including Portland, OR; Suffolk County, NY; Oakland, CA; and several other California municipalities.[12]

Are paper products biobased?

Paper products are made from trees. As a biobased and renewable resource, trees have many advantages over fossil fuel-based plastics. Yet, paper products are often made from virgin forests and bleached with toxic chemicals to make them bright white. Additionally, many paper food service ware products are coated with fossil fuel-based plastics, leaving them unsuitable for composting. These issues are addressed in the sustainability criteria outlined in Tables 1 and 2.

Biobased Disposable Food Service Ware: Baseline and Beyond Baseline Sustainability Criteria

For a product to meet the "preferred" level in the food service ware materials hierarchy, it must meet all the material appropriate (note the additional criteria for wood-based products) criteria defined in Table 1.The "more preferred" products need to meet the criteria in both Tables 1 and 2.

Table 1- Baseline Sustainability Criteria for "Preferred" Biobased Products

Criteria	Rationale
1. 100 percent biobased carbon content: no fossil fuel-based materials used in product including coatings	Most biobased food service ware marketed today do not contain fossil fuel based content, though some paper and fiber products are coated with plastic. It is possible to produce food service ware with 100 percent biobased carbon content including coatings.
2. No highly hazardous additives, including both additives mixed into the product and surface treatments: ▪ No persistent, bioaccumulative, toxics (PBTs) ▪ No carcinogens ▪ No reproductive/developmental toxicants ▪ No organohalogen-based chemicals (bromine, chlorine, fluorine or iodine)[i] ▪ No endocrine disruptors *See Resources section for reference chemical lists.	Many chemicals are approved for use as additives in food service ware to achieve certain properties such as heat, water and grease resistance. Some of these chemicals are considered highly hazardous-they have the potential to be released into the environment via manufacture, use and disposal and scientific data tests show that they persist in the environment, bioaccumulate in animals or humans and/or are toxic to animals or humans.
3. No engineered nanomaterials[ii] added	The behavior and characteristics of nanoparticles in materials and living organisms is often unique and unpredictable. To date nanomaterials have not been subject to thorough testing for risks to human health and the environment. Until nanomaterials are subject to comprehensive hazard and exposure assessments that include evaluations of their behavior in the environment, how people and wildlife may be exposed, persistence, bioaccumulation and toxicity, we recommend against their use in biobased materials.
4. No chlorine or chlorine compounds used in production	Bleaching of paper using chlorine or chlorine compounds generates dioxins, a group of chemicals known to bioaccumulate in humans and persistent in the environment thus contributing to pollution of the food chain. EPA considers dioxin a probable human carcinogen. Bleaching is not necessary to produce a functioning product and safer alternatives exist.
5. Certified compostable by an acceptable certification organization or program: ▪ Biodegradable Products Institute (US) ▪ AIB Vincotte Inter (Belgium) ▪ Australian Environmental Labeling Association ▪ Biodegradable Plastics Society (Japan) ▪ DIN CERTCO (European Union) ▪ Cedar Grove Composting ▪ Lab results from an American Society for Testing and Materials (ASTM) approved lab	Certification of compostability—the ability of a given product to fully biodegrade in a *commercial* compost facility—not only increases the likelihood that a facility will accept these products, but also assures that products do not exceed limits on heavy metal content. Programs in other countries give stronger assurance of safety than the U.S standard as they place stricter limits on heavy metal content. [Note: These certifications do not mean that a product will fully biodegrade in home composting or non-commercial scale facilities.]
6. GMO-free[iii] or use of genetically engineered (GE) feedstock is offset through purchase of non-GE feedstock: Certified GMO-free, Identity Preserve,[iv] GMO-offsets,[v] Working Landscape Certificates[vi]	Genetically engineered feedstocks are not adequately assessed for their credible adverse effects on human or animal health or on the environment in which they are produced.[13]
Additional criteria for wood-based feedstock (paper):	
7a. Non-food contact items: must be contain 100 percent recycled content (pre- or post-consumer)	Disposables made from 100 percent virgin wood fiber unnecessarily deplete forest resources. Pre-consumer waste (leftover from the manufacturing process) and post-consumer waste (materials used by consumers and reclaimed) both displace use of virgin wood fiber.
7b. Food contact items: i. Hot beverage cups: must have a minimum of 10 percent post-consumer recycled content ii. All other food contact items must contain 100 percent recycled content (pre- or post-consumer)	For safety reasons, federal regulations place some restrictions on, but do not ban as is often claimed, the use of post-consumer recycled paper pulp in materials that will come in contact with food. At least one paper mill produces pulp from post-consumer waste that can be used to make these products.

i. Halogenated organics as a class tend to be persistent and are often toxic and bioaccumulative, and it is often impossible to avoid creating persistent, bioaccumulative, toxic byproducts during their production.
ii. Nanomaterials are comprised of nanoparticles that are extremely small (particles in the size range of 0.1 nm to 100 nm; a nanometer is one billionth of a meter). Engineered nanomaterials are purposely created through the manipulation of atoms (nanotechnology).
iii. "GMO-free" refers to the use of genetically modified organisms in the field, but not to the use of GMOs in enclosed processing operations where the genetically engineered organisms, enzymes and other entities are contained and not viable outside of the operating system.
iv. Maintaining the unique traits or quality characteristics of a crop from seed through cultivation, storage, transportation, handling, and processing usually by using dedicated storage facilities and sometimes also dedicated harvesting, transport and handling equipment.
v. Purchase of a given amount of non-genetically modified feedstock by the manufacturer within a set period of time to offset the amount of genetically modified feedstock used to make a product.
vi. Working Landscape Certificates cover a broad range of sustainable agricultural practices in addition to prohibiting use of GE seeds.

Table 2- Beyond Baseline Sustainability Criteria for "More Preferred" Biobased Products

Product must meet the baseline criteria in Table 1, ***plus*** the Sustainable Feedstock Criteria, and at least one of the Additional Sustainability Criteria listed below. Beyond 2008, purchasers are encouraged to require that these criteria be met.

Sustainable Feedstock Criteria	Rationale
1. GMO-free	While offsets support the production of GMO-free feedstock, certified GMO-free is most preferable.
2. Feedstock and final product are produced in North America	▪ Long distance shipping of materials and products requires considerable energy and contributes to green house gas emissions, air pollution and human illness such as cancer and respiratory disease.[14] ▪ Labor conditions and livable wages are not always ensured in countries where some biobased feedstock and products are produced. ▪ The demand for biodiesel has already resulted in rainforest destruction in other parts of the world.
If agricultural feedstock	
3. Sustainably grown[vii] with preference for utilizing non-food agricultural resources including: perennial biomass crops and sustainably harvested residues	Conventional agriculture relies heavily on pesticides and fertilizers and excessive water use and contributes to soil erosion and loss of wildlife habitat.
If wood-based feedstock (paper)	
4a. Forest Stewardship Council (FSC) certified virgin content (and no chlorine or chlorine compounds used in production per the baseline criteria)	Harvesting of wood fiber for paper pulp can contribute to loss of wildlife habitat, soil erosion, and degradation of nearby water bodies. FSC certification provides some assurance that wood is harvested in more sustainable and socially responsible ways i.e. without genetic engineering.
4b. Recycled content non-food contact items must be 100 percent post-consumer recycled content	Using post-consumer recycled content provides markets for materials separated for recycling consumers, thus the preferability of a product increases as post-consumer content increases.
4c. Recycled content food contact items: i. Hot cups must have minimum 30 percent post-consumer recycled content ii. All other food contact items must be 100 percent recycled content with minimum of 30 percent post-consumer recycled content	
Additional Criteria	**Rationale**
5. Biodegradable in Marine Environment: meets the standard for biodegradability in the marine environment (ASTM D7081-05)	This standard only applies to non-floating biodegradable plastics. There is no standard for floating plastics at this time, though floating plastics are a major part of ocean debris.
6. Clearly labeled as compostable	This is especially important if food service ware will be composted along with food waste.
7. Additives must be comprehensively tested for the hazards they pose to human health and the environment: tested for persistence, bioaccumulation and toxicity.	The vast majority of chemicals used in commerce have not been adequately tested to determine human and environmental health impacts—"EPA's analysis found that no basic toxicity information, i.e., neither human health nor environmental toxicity, is publicly available for 43 percent of the high volume chemicals manufactured in the US and that a full set of basic toxicity information is available for only 7 percent of these chemicals."[15]

vii. For example, see the sustainable agricultural criteria for Working Landscape Certificates at www.iatp.org/ruralcommunities/project_workinglandscapes.cfm and the Sustainable Bioplastic Guidelines at www.healthybuilding.net/bioplastics/index.html.

Challenges and Opportunities

Product Availability and Product Evolution

The biobased food ware market is experiencing rapid growth. This rapid growth means new and potentially improved products at lower cost are constantly entering the market. The challenge for purchasers is ensuring consistent quality and performance in products. The advantage for health care, with its volume and purchasing power, is the opportunity to direct investments among food service ware manufacturers into products that are significantly more environmentally sustainable. The criteria for sustainability outlined in Table 1 and Table 2 are designed with a realistic understanding of what is currently available, while setting goals for the product of the future.

Composting

Use of certified compostable biobased food service ware can maximize the advantages of a hospital food waste diversion program. While certified compostable food service ware is increasingly available and many yard waste collection programs are operational, municipal and institutional food waste collection is in its infancy. Health care institutions can play an influential role in advancing municipal composting by collaborating with local governments and private organizations. See the Resources section for more information on health care composting.

Cost

Biobased products may cost more than non-biobased food service ware. However, prices are becoming more competitive due to improvements in manufacturing, increasing production volume, and rising petroleum prices. Health care purchasers are addressing the cost issue by reducing their use of disposables and passing increased costs onto customers. It may also be possible to offset the increased cost of biobased products through reductions in fees to waste haulers achieved from diverting these products and associated food waste to compost sites instead of landfills and incinerators.

Resources

Resources and Case Studies on Reusable Food Service Ware

Case study-EPA Green Cafeterias, http://www.h2e-online.org/docs/epa91502.pdf

Case study-Harvard University cafeteria switching to reusable cups, http://web.indstate.edu/recycle/IIOR3.html

Case study-Switching to reusable trays in the NYC school system (scroll to number 5-Waste prevention in Schools), http://www.informinc.org/cwp_shortlist.php

On-line calculator to determine cost savings of switching to reusable cups and bowls, http://www.nyc.gov/html/nycwasteless/html/in_business/measurement_tools_cups-bowls.shtml

HCWH Sample Policy for Purchasing Reusable Products, http://www.noharm.org/details.cfm?type=document&id=750

Resources and Case Studies on Composting

Hospitals for a Healthy Environment 10-Step Guide to Composting in Healthcare Facilities, http://www.h2e-online.org/docs/h2e10stepcomposting102903.pdf

Composting at Fletcher Allen Medical Center, http://www.h2e-online.org/docs/epa101597.pdf

Food Composting Facilities Across the US, http://www.bpiworld.org/Files/PressRelease/PRKgQJBS.pdf

Compostable Product Certifications and Organizations

Biodegradable Products Institute (US), Compostable logo, http://bpiworld.org/BPI-Public/Approved/2.html

AIB Vincotte Inter (Belgium), OK Compost label, http://www.vincotte.com/Frontmodules/EN/home.asp?lang=EN

Australian Environmental Labeling Association, Good Environmental Choice Label, http://www.aela.org.au/productsregister.htm

Biodegradable Plastics Society (Japan), GreenPla, http://www.bpsweb.net/english/e_products.htm

DIN CERTCO (European Union), http://www.dincertco.de/en/competencies/products/certification_in_the_environmental_field/the_compostability_mark_ibaw_e/certificate_holder_compostable_products.html

Chemical Reference Lists

Persistent, Bioaccumulative, Toxics (PBTs)

Washington State PBT list-The list starts on page 8 of the rule, found at http://www.ecy.wa.gov/laws-rules/wac173333/p0407_cont_a.pdf.

US EPA, Persistent Bioaccumulative Toxic (PBT) Chemicals; Final Rule (40 CFR Part 372)-List is at http://www.epa.gov/fedrgstr/EPA-WASTE/1999/October/Day-29/f28169.htm.

European Union-PBTs highlighted in red in Annex 1 beginning on page 10 at http://www.defra.gov.uk/environment/chemicals/achs/060606/achs0614d.pdf

Carcinogens

California Proposition 65-Scroll down at http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html to link to the most recent list.

US National Toxicology Program (NTP) Report on Carcinogens Known and Reasonably Anticipated Human Carcinogens- http://ntp.niehs.nih.gov/ntpweb/index.cfm?objectid=72016262-BDB7-CEBA-FA60E922-B18C2540

European Union-Categories 1 and 2 list begins on page 20 at http://ec.europa.eu/enterprise/chemicals/legislation/markrestr/consolid_1976L0769_en.pdf

Reproductive/development toxicants

California Proposition 65-Scroll down at http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html to link to the most recent list.

European Union- The list begins on page 128 http://ec.europa.eu/enterprise/chemicals/legislation/markrestr/consolid_1976L0769_en.pdf

Endocrine disruptors

European Union-List is at http://ec.europa.eu/environment/docum/pdf/bkh_annex_15.pdf.

Organohalogen based chemicals

Any chemicals that contain chlorine, bromine, fluorine, or iodine bonded to a carbon atom.

More resources are available at www.healthyfoodinhealthcare.org.

Endnotes

1. Alliance for Environmental Innovation. (1998). *Environmental comparison of reusable ceramic mugs vs. disposable cups made from polystyrene or virgin bleached paperboard*. New York, NY: Richard A. Denison.
2. Alliance for Environmental Innovation. (1998).*Environmental comparison of reusable spoons made from stainless steel vs. disposable spoons made from polystyrene or polypropylene*. New York, NY: Richard Denison.
3. U.S. Department of Energy. (2001). Pollution prevention opportunity assessment-Operation of PNNL cafeterias. Pacific Northwest National Laboratory
4. The term generally refers to plastic or plastic-coated paper products that comply with ASTM-D 6400, "Specification for Compostable Plastics" or ASTM D 6868, "Specification for Biodegradable Plastic Used on Paper and Other Compostable Substrates," which require that the applicable product be "capable of undergoing biological decomposition in a compost site as part of an available program, such that the material is not visually distinguishable and breaks down to carbon dioxide, water, inorganic compounds and biomass, at a rate consistent with known compostable materials (e.g. cellulose) and leaves no toxic residue." Other countries have similar standards for compostable plastic though the limits for toxic residue vary with the ASTM standard being the weakest.
5. Algalita Marine Research Foundation and the California Coastal Commission. (n.d.) *Plastic debris rivers to sea*. Retrieved May 19, 2007, from http://www.plasticdebris.org/
6. California Coastal Commission. (n.d.) *The problem with marine debris*. Retrieved May 19, 2007, from http://www.coastal.ca.gov/publiced/marinedebris.html.
7. U.S. Environmental Protection Agency. (2006) *Municipal solid waste in the United States: 2005 Facts and Figures* (pgs. 49-50). Retrieved May 19, 2007, from http://www.epa.gov/msw/pubs/mswchar05.pdf.
8. Ibid., pp. 78-79.
9. National Toxicology Program. (2006). *NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Styrene* (pp. II-xi and II-7) (NIH Publication No. 06-4475). Washington, DC: National Institutes of Health.
10. *Ibid.*, p. II-8-II-9.
11. International Agency for Research on Cancer. (2002). *Summaries & evaluations-Styrene* (Vol. 82, p. 437). Retrieved May 19, 2007, from http://www.inchem.org/documents/iarc/vol82/82-07.html.
12. Californians Against Waste. (n.d.) *List of local food packaging ordinances*. Retrieved April 25, 2007, from http://www.cawrecycles.org/issues/polystyrene_ordinances_list.
13. Health Care Without Harm. (n.d.) *Position on genetically engineered food*. Retrieved May 10, 2007, from http://www.noharm.org/details.cfm?ID=1540&type=document.
14. Health Care Without Harm. (2006). *SmartWay transport partnership program-Reduce pollution from your vendors' shipping operations*. Retrieved May 19, 2007, from http://www.noharm.org/details.cfm?type=document&id=968.
15. From: "Chemical Hazard Data Availability Study: What Do We Really Know About the Safety of High Production Volume Chemicals?" US EPA, April 1999, http://www.epa.gov/chemrtk/pubs/general/hazchem.pdf.

APPENDIX A:
Sample Survey for Manufacturers of Biobased* Food Service Ware

Note to manufacturer: If the answers to the following questions vary according to product (cutlery, cups, bowls, etc.) or product line, please complete a survey for each biobased product or product line.

Product Line: _____ Product(s): _____

1. List the primary materials used to make your product(s) including: a) any biobased materials or recycled content (i.e. corn, sugar cane, grasses, harvested forest materials, pre- or post-consumer waste, etc.) as well as any non-biobased materials (i.e. petroleum-based materials) and inorganic material (i.e. glass, limestone), b) the percentage they represent of the total product make-up, and c) the materials country of origin.

a. Material	b. Percentage of Product	c. Origin
(Example) Corn	100 %	United States

2a. Does the product including coatings contain any chemicals that appear on the following lists?

Washington State PBT list ☐ YES ☐ NO
(The list starts on page 8 of the rule, found at http://www.ecy.wa.gov/laws-rules/wac173333/p0407_cont_a.pdf)

US EPA PBT list ☐ YES ☐ NO
(List is at http://www.epa.gov/fedrgstr/EPA-WASTE/1999/October/Day-29/f28169.htm)

European Union PBT list ☐ YES ☐ NO
(PBTs highlighted in red in Annex 1 beginning on page 10 at http://www.defra.gov.uk/environment/chemicals/achs/060606/achs0614d.pdf)

CA Prop 65 ☐ YES ☐ NO
(Scroll down at http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html to link to the most recent list)

US NTP list of carcinogens ☐ YES ☐ NO
(http://ntp.niehs.nih.gov/ntpweb/index.cfm?objectid=72016262-BDB7-CEBA-FA60E922B18C2540)

European Union list of carcinogens ☐ YES ☐ NO
(Categories 1 and 2 list begins on page 20 at http://ec.europa.eu/enterprise/chemicals/legislation/markrestr/consolid_1976L0769_en.pdf)

European Union list of reproductive toxicants ☐ YES ☐ NO
(The list begins on page 128 http://ec.europa.eu/enterprise/chemicals/legislation/markrestr/consolid_1976L0769_en.pdf)

European Union list of endocrine disruptors ☐ YES ☐ NO
(List is at http://ec.europa.eu/environment/docum/pdf/bkh_annex_15.pdf)

2b. Does this product including coatings contain organohalogen-based chemicals? (Any chemicals that contain chlorine, bromine, fluorine, or iodine bonded to a carbon atom) ☐ YES ☐ NO

*For the purposes of this document a product manufactured from agricultural or forestry resources including recycled paperboard is considered biobased.

continued >>

3. Have all of the additives used in the product, including coatings been comprehensively tested for the hazards they may pose to human health and the environment-tested for persistence, bioaccumulation and toxicity?
   ☐ YES ☐ NO

4. Were engineered nanomaterials used to produce this product? ☐ YES ☐ NO

5. Has this product been produced with the use of chlorine or chlorine compounds? (See http://www.chlorinefreeproducts.org/marks.htm)
   ☐ YES ☐ NO ☐ Not applicable (bioplastic)

6a. Has the product been certified compostable by any of the following? (Check any that apply.)
   ☐ Biodegradable Products Institute (US)
   ☐ AIB Vincotte Inter (Germany)
   ☐ Australian Environmental Labeling Association (Australia)
   ☐ Biodegradable Plastics Society (Japan)
   ☐ DIN CERTCO (European Union)

6b. If the product has not been certified compostable by one of the above-listed organizations, has the product been proven compostable by an ASTM-approved lab or received additional testing by Cedar Grove Composting. (If yes, attach copy of lab results.)
   ☐ YES ☐ NO ASTM-approved lab
   ☐ YES ☐ NO Cedar Grove Composting

7. Was the biobased material produced from a genetically-engineered crop or forestry resource?
   ☐ YES ☐ NO

   If no, is the product certified GMO-free? ☐ YES ☐ NO

   If yes, have you purchased GMO-offsets or Working Landscape Certificates to fully offset the amount of biobased feedstock in your products? ☐ YES ☐ NO

8. Was the product itself manufactured in the United States? ☐ YES ☐ NO

9. If the product(s) is made from virgin harvested wood fiber is the biobased material Forest Stewardship Council certified?
   ☐ YES ☐ NO ☐ Not applicable

10. Does this product meet the U.S. standard for biodegradability in the marine environment (ASTM D7081-05)?
   ☐ YES ☐ NO

CERTIFICATION

I _____ (print Authorized Signature Name) certify that the information provided herein is complete and accurate at the time of survey submission.

_____ _____
Authorized Signature and Title Date

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