

# SUSTAINABLE BIOPOLYMER PURCHASER GUIDELINES FOR 2007-2008

Concerns over security, global warming, and resource sustainability are driving an historic shift away from fossil fuels to renewable resources. As part of this shift product manufacturers and retailers are opting for *biopolymers* (also referred to as bioplastics) - plastics made from plants instead of fossil fuels. To help insure that biopolymers do not continue the problems of petro-plastics, a coalition of consumer, environmental, agricultural and social justice groups developed these Purchaser Guidelines. The Guidelines define an initial set of sustainability criteria for companies purchasing biopolymer-based products. These criteria are initial recommendations for purchasers to apply over the next two years to set biopolymers on the path to sustainability.

## PURCHASER LEADERSHIP IS CRITICAL

Widespread adoption of biopolymers could:

- Reduce consumption of fossil fuels.
- Eliminate many of the health concerns associated with petro-plastic production, use and disposal and provide a recycling and composting alternative to landfill disposal and waste incineration.
- Offer new markets to farmers -- creating economic development opportunities for struggling rural communities and manufacturing sectors.

Growing biopolymer use could, however, lead to an expanding unsustainable, unhealthy agricultural and forestry practices, continued use of toxic chemicals in products, and the growth of single-use products and packaging destined for dumps and incinerators.

**The signals purchasers send to the biopolymers market in the next two years will be critical to establishing a sustainable path for this emerging industry.** Consumers, advocacy organizations, farmers and businesses have an opportunity to work together to support truly sustainable biopolymers that are healthy for all communities.

These Guidelines are based upon the *Sustainable Biopolymer Master Guidelines*, which provides a road map for developing healthy, sustainable biopolymers. The purchasing criteria here address issues of immediate concern for each step in the lifecycle -- from feedstock supply to manufacturing to end-of-life.

## **1. BUILDING A MORE SUSTAINABLE FEEDSTOCK SUPPLY**

For biopolymers to improve the environment and public health and support family farmers, an adequate

supply of sustainably-produced feedstocks must be assured. Agricultural production - which supplies most biopolymers currently - can be fossil-fuel and resource intensive, degrade water and soil quality and endanger natural habitat and biodiversity. However, farming can also improve water and soil health, provide refuge and food for wildlife and increase biodiversity and economic prosperity for farmers, their families and communities. Unfortunately, most current farm policies and markets focus only on overall crop yield, without consideration for either impacts on the environment or economic returns to the farmers. The same is true for much of the forestry sector, another potential source of feedstocks for biopolymer production

Purchasers can play a crucial role in supporting the expansion of sustainable crop production and forest conservation through the following mechanisms:

**1A. Purchase biopolymer products made from sustainably produced feedstocks.** Request that biopolymers be made directly from GMO free crops raised without hazardous chemicals and using other sustainable agricultural practices, ideally certified by an IFOAM member or similar organization. Direct sourcing of sustainably-produced feedstocks is difficult at this point. Purchasers can, however, support improved agricultural practices linked to their biopolymer use through an offset program such as **Working Landscapes (WL) Certificates**. These certificates, which function similar to Renewable Tradable Certificates in the energy sector, allow customers to support improvements in environmental practices by farmers, such as eliminating hazardous chemicals, avoiding GMO crops, and improving soil conservation without requiring the direct sourcing of the actual crop and the additional costs this would require for biopolymer production. Companies who purchase WL certificates sufficient to offset the feedstock required for their biopolymer products can legitimately market those products as supporting more sustainable farming practices in the countryside.

**1B. Support farm policies that provide incentives to farmers to produce crops in a more sustainable manner.** Expansion of the Conservation Security Program (CSP) of the US Farm Bill, which rewards farmers for more sustainable practices would spur more sustainable agricultural production across the country.. Companies and individuals can demonstrate their commitment to sustainable agriculture by supporting a strengthened CSP program and encouraging their customers to do the same.

**1C. Require use of Forest Stewardship Council certified feedstocks** for wood cellulose-based biopolymers.

## 2. INSURING THE SUSTAINABILITY OF BIOPOLYMERS IN MANUFACTURING

To be sustainable a product must be made from renewable resources and be toxics-free throughout its lifecycle. Adding fossil-fuel-based plastics, toxic chemicals, or nano-particles to biopolymers (to enhance material performance) threatens the health and sustainability of these materials. Purchasers can encourage manufacturers to develop healthy, high performance biobased alternatives by specifying a preference for the following characteristics:

### 2A. *Use no additives that include highly hazardous chemicals*, most importantly:

- persistent, bioaccumulative and toxic (PBT) chemicals or very persistent and very bioaccumulative (vPvB) chemicals and
- carcinogens, mutagens and reproductive toxicants

**2B. Utilize 100% biobased materials.** If blending is necessary with fossil-fuel-based plastics as part of a transition strategy, prefer polyethylene, polypropylene, and polyethylene terephthalate (PET) plastics that contain no hazardous additives. These are preferred because of their life cycle hazard profile and recyclability. Do not use polyvinyl chloride (PVC), polystyrene (PS), acrylonitrile butadiene styrene (ABS), polycarbonate (PC), or polyurethane (PU).

## 3. CREATING A SUSTAINABLE END-OF-LIFE INFRASTRUCTURE

Biopolymers are just another burden on the landfill unless they are closed-loop recycled or composted into a safe soil amendment product at the end of life. Without the technology and infrastructure in place to handle these materials – and consumer awareness to use it - biopolymers are likely to end up being thrown away rather than recycled or composted. In the case of bottles, biopolymers currently pose both a technical and economic threat to current PET/HDPE recycling operations. Early adopter companies can play a key role developing an effective infrastructure for biopolymer recycling and composting and educating consumers in its use.

**3A. Support local recycling infrastructure development.** Work with recycling communities to develop viable recycling programs and address the multiple challenges of consumer education, product labeling, recycling sorting systems, collection infrastructure and economics. Particularly important for bottles, this may require pilots in communities or cooperating institutional facilities, providing buy back programs and direct support for development of better handling and sorting technology.

**3B. Support clear labeling.** Work with recycling professionals, local government recycling coordinators, and other recycling/composting

stakeholders, to develop adequate labeling of biopolymer products. Currently biopolymers may carry the #7 “Other” chasing arrow recycling symbol, but this symbol is inadequate for biopolymer products and could be replaced with a more appropriate and relevant system.

**3C. For *single-use disposable food service-ware*** (such as plastic cutlery, straws, and foamed polystyrene cups and clamshells), ***switch to reusables first where possible, then replace remainder with biopolymers.*** Biopolymer substitution will not only allow composting of service-ware but also may facilitate composting of huge quantities of food discards. Also consider ***replacing film plastic packaging with biopolymers.***

**3D. Use only products certified as compostable** in industrial facilities by at least by the Biodegradable Products Institute (BPI). Certification by AIB Vincotte Inter, Australian Environmental Labeling Association, Biodegradable Plastics Society or DIN CERTCO or similar programs in other countries will give stronger assurance of safety. Even better are products that are certified as compostable in home bins. Use only products that are ***biodegradable in the marine environment*** (ASTM D7081-05)

**3E. Support composting infrastructure development.** Where the local composting infrastructure does not exist, provide take-back opportunities at the retailer level to facilitate recovery of biopolymer products. Support development of biopolymer composting demonstration projects at existing composting facilities. Support food discard composting programs and operations.

## GETTING TO SUSTAINABLE BIOPOLYMERS

Purchasers can play a leading role in defining the path to sustainable biopolymers. With the volume of your purchasing choices, you can influence the manufacture and development of biopolymers that are sustainable. The consumer, environmental, agricultural and social justice groups involved in developing these guidelines look forward to working with you in defining the path to truly sustainable biopolymers.

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**For more information:** This is a working draft. Check HBN's biopolymer web page for the latest version of this document and the *Sustainable Guidelines for Biopolymers Master Document*, to provide comments and for references on chemical additives to avoid, Working Landscape certificates and other issues raised in this document.  
[www.healthybuilding.net/biopolymer](http://www.healthybuilding.net/biopolymer)

Prepared by the  
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