

# Q&A Guide for Products with BiOH<sup>®</sup> Polyols



## Performance/Cost Questions

**How much soy content is in foam products? Are foams made with BiOH<sup>®</sup> polyols composed of 100% renewable-based ingredients?**

BiOH polyols are used as an ingredient that is blended with other ingredients during the foam reaction. The percentage of BiOH polyols in commercially available foam products today varies, but the renewable-based (or soy-based) content is typically 5-20% of the total foam formulation.

Cargill is continually working with its foam customers to increase the amount of BiOH polyol content that can be used in flexible foam products. This is the first step in a journey!

**Are foams made with BiOH<sup>®</sup> polyols biodegradable?**

Foams made with BiOH polyols are not more biodegradable than traditional petroleum-based cushioning. Products made with our products are long-lasting and durable like traditional cushioning. Polyurethane foam, however, can be recycled at the end of its life.

**Can I get it in any style I like?**

The availability of soy foam with BiOH polyols varies by manufacturer. Some manufacturers use cushions with BiOH polyols across all of their products; others use soy foam in a portion of their styles or collections.

**Will people with soy allergies react to foam products made with BiOH<sup>®</sup> polyols?**

Allergic reactions to soy are generally caused by an immune reaction of individuals who are sensitive to protein found in soybeans. BiOH polyols are processed under conditions that would typically destroy protein. While information is limited on the specific question of dermal and inhalation allergenicity, we believe that the very low level of protein potentially present in BiOH polyols make it unlikely that an individual sensitive to soy will experience an allergic reaction from coming into contact with foams products made with BiOH polyols.

**What about fire retardance issues?**

In our experience, manufacturers test soy foams the same as all petroleum-based foams to ensure that they pass all specifications.

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## Environmental Impacts

**Do you have lifecycle data on BiOH<sup>®</sup> polyols? How do BiOH<sup>®</sup> polyols leave a smaller environmental footprint than the petroleum-based components they replace?**

A preliminary lifecycle analysis of BiOH polyols from Five Winds International compared the raw material and manufacturing processes of our products with those of traditional petrochemical polyols that BiOH polyols replace. The data indicated that BiOH polyols result in:

36% less global warming emissions

61% less non-renewable energy use, 23% less total energy demand

Additional Life Cycle Analysis studies are being conducted and validated by external third parties.

**How much crude oil does using BiOH<sup>®</sup> polyols save?**

For every 1 million lbs of BiOH polyols that replace traditional petroleum polyols, approximately 2200 barrels of crude petroleum (or 92,400 gallons) is saved for other uses. The impact from one sofa or mattress may be small. *However, the impact on petroleum saved from many consumers choosing products made with BiOH polyols can be significant.*

**Does using BiOH<sup>®</sup> polyols affect the rainforests?**

BiOH polyols today are produced in both the United States and in Brazil to serve our global customer base. *Today all of the soybeans we used to produce BiOH<sup>®</sup> polyols for our foam manufacturing customers in the U.S. and Canada are sourced from North America.*

For our Brazilian manufacturing facility, soybeans are sourced locally in Brazil. Responsible sourcing is very important to Cargill (that owns the BiOH polyol business.) Cargill works closely with the environmental group, The Nature Conservancy, to help Brazilian farmers learn and apply the best soy production practices while complying with environmental laws. In 2006, Cargill joined other leading Brazilian soy processors and exporters in announcing an agreement designed to curb deforestation in the Amazon due to soy planting. The centerpiece of the agreement is *a pledge not to purchase soy from lands in the Amazon biome that are deforested after July 24, 2006.* Cargill is committed to working in partnership with others in the industry, the Brazilian national and local Governments, relevant institutes, local communities and NGOs in the areas in which we are present.

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## Impacts of BiOH<sup>®</sup> Polyols on Others

### **How does the use of BiOH<sup>®</sup> polyols affect farmers?**

As new technology like that used to produce BiOH polyols is developed, farmers benefit as new uses and markets grow to create more demand for their crops. The two major growing regions for soybeans today are North America and South America. BiOH polyols are produced in both the United States and in Brazil to serve our global customer base. In our view, purchasing products made with BiOH polyols supports farmers.

### **Does it affect food production for hungry people in developing countries?**

BiOH polyols are made from soybean oil today which is a food product. However, the vast majority of soybeans grown are still consumed as food. Today BiOH polyols currently use less than 1-1000<sup>th</sup> of the world's soybean crop.

### **Do BiOH<sup>®</sup> polyols have an impact on food prices?**

In a word, no. While the bulk of vegetable oils produced are consumed as food, vegetable oils have also been used for industrial and chemical applications for decades. Linseed oil in coatings and epoxidized soybean oil in PVC applications are two examples. Similarly, BiOH Polyols are made from soybean oil.

Rising food prices over the past couple years have been driven by many factors including biofuels, drought related shortages of some grains in 2008, growing prosperity in the developing world, rising petroleum costs, and increased financial investment in commodity markets.

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