

Cornstarch...Kinda Like Plastic, Used as Biodegradable Packaging

Corn is a versatile crop, used not only in food but in manufacturing. One use for corn is packaging- you know those loosefill packing peanuts that go all over when you open a package? Well some of those packing peanuts are made of polystyrene (styrofoam TM). Biodegradable loosefill is manufactured by extrusion, similar to breakfast cereals and pastas. Extrusion uses steam and pressure to "cook" raw materials, then force the "melt" through small dies to atmospheric conditions. The release of pressure and steam causes the material to expand rapidly or "foam."

Perhaps you have been using packaging peanuts in your class to demonstrate what biodegradable means, but now you can tell your students the rest of the story...corn is the renewable resource that we can use to make biodegradable materials and not harm the environment. ECO-FOAM (TM) loosefill is comprised of over 99% cornstarch and a very small percentage of a food grade oil.

In two separate bags, place 10 styrofoam packing peanuts and 10 ECO-FOAM packing peanuts. To determine whether or not your packing peanuts are the biodegradable type, touch your tongue to a piece. If it starts to dissolve, you have a cornstarch-based product. Add one cup of water to each bag, close tight and shake. The ECO-FOAM packaging will dissolve in less than 10 seconds. The styrofoam will remain in the bag, maybe forever, just like they exist in the environment. If you want to eat a piece to show your students the benign nature of the product, go ahead. Hey, while you're at it, your students may want to crunch on half a peanut!

The Center of Science and Industry of Ohio developed an "ECO-FUN" series of investigations and experiments, designed to appeal to students (and educators) of all ages, abilities, and interests. The ECO-FUN educational package includes a brochure outlining all the experiments and a bag of ECO-FOAM loosefill (all other required materials are simple household items) and is available from National Starch and Chemical Co. Just contact them at their website to obtain your kit, <http://www.eco-foam.com>.

Materials

- 10 regular packing peanuts
- 10 ECO-FOAM packing peanuts
- 2 Ziploc bags
- Water



Colorful ECO-FOAM (TM)