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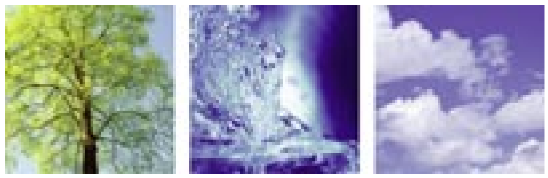

GREEN LOGISTICS

CHALLENGES FOR THE ENVIRONMENTALLY RESPONSIBLE SPECIFIER

ALCAN COMPOSITES

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At the end of a product's life cycle, there are three main options for processing: incineration, recycling, or landfill disposal.

Most specifiers see the problems and hazards of incineration, but they are now finding out that specifying "recyclable" or "biodegradable" products doesn't always mean that these products will, *in fact*, end up that way.

"Recycl*able*" doesn't always equal Recycl*ed*

Specifiers know that recycling is a great practice and the industry strongly encourages end users to provide whatever measures they can to reduce the amount of materials that they send to landfills. Take, for instance, the United States Green Building Council (USGBC), which is responsible for awarding LEED accreditation for sustainable buildings. They contemplated "Occupant Recycling" programs as a potential way to earn points towards LEED certification in their Draft Version of LEED for Retail: New Construction,[1] as well as Commercial Interiors.[2]

To be logistically viable, a recycling program has to have a regionally available recycling center that accepts the specified material. However, not all materials are readily accepted or recycled locally. This presents a problem for any specifier looking to launch a "green" nationwide signage or branding campaign. Their efforts may be thwarted due to a lack of capability at the local level.

Recycling also requires proper collection, separation, and storage of materials; failure at any one of these steps can contaminate the materials rendering them un-recyclable. With plastics, it only takes a small amount of dissimilar plastics to contaminate an entire batch for recycling purposes. Cardboard is no different; the small amount of oil found on pizza boxes can contaminate an entire batch (about $700 million dollars worth of contamination cost occurs each year in the cardboard industry[3]). The logistics are compounded in a "big-box" retail setting, where there's a correspondingly large amount of material to recycle in a store space that can exceed 200,000 SF.[4]

Economics plays a large role in any recycling effort. In dour economic times, such as present day, the demand, and consequently, price for scrap materials plummets. If end users cannot offset the cost to run their recycling program with the money received for their efforts, these programs cease to be commercially viable. More than likely, the reduced demand for these scrap materials means that there are no buyers, so the scrap continues to build and eventually finds its way to the landfill.

"Biodegrad*able*" doesn't always equal Biodegrad*ed*

In response to recycling challenges, some manufacturers have begun promoting "biodegradable plastics."

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Charged by Congress to "prevent unfair and deceptive acts or practices,"[5] the Federal Trade Commission (FTC) defines "biodegradable" to mean "the materials will break down and return to nature within a reasonably short time after customary disposal."[6]

The FTC states that: "…modern landfills are designed, according to law, to keep out sunlight, air and moisture. This helps prevent pollutants from the garbage from getting into the air and drinking water, and slows the decomposition of the trash. With materials like paper and food taking decades to decompose in a landfill, it is difficult to substantiate a claim that a product normally disposed of in a landfill is 'biodegradable'…"[6] In other words, even the FTC finds claims of "biodegradable" difficult to believe, and manufacturers that make this claim may be treading on thin ice.

However, proponents of biodegradable plastics point to the American Society of Testing Materials (ASTM) test D 5210-92: Determining the Anaerobic Biodegradation of Plastic Materials in the Presence of Municipal Sewage Sludge. They claim that materials that pass this test are indeed biodegradable due to Section 5.2, *"This test method may be considered an accelerated test with respect to a typical anaerobic environment, such as landfill sites that plastics encounter in usual disposal methods because of the highly active microbial population of anaerobic-digester sludge."* The "sludge" idea poses two issues: one, any sludge that exists in a landfill environment would naturally seep to the very bottom. Any materials suspended in upper layers wouldn't be affected because they wouldn't be in contact. Two, if this sludge exists in landfills and it isn't decomposing food after 20 years; can anyone reasonably expect that a plastic would readily biodegrade?

Moreover, the economics of biodegradable plastics have not yet been worked out to be a sustainable enterprise. Their costs are substantially greater than that of regular plastics. Indicative of the financial pressures facing the industry, bioplastics supplier Cereplast Inc. has been forced to stop production at its California plant and will not open a recently completed $4 million plant in Indana.[7]

Proponents of biodegradable plastics also point to a new landfill technology called "bioreactors" that introduce liquid and air into the landfill to enhance microbial processes. According to www.bioreactor.org, there are 12 active bioreactors in the US.[8] The US Environmental Protection Agency (EPA) shows that there are 1,754 total landfills in the US as of 2007.[9] This means that a consumer has less than a 1% chance to have their refuse accepted into a bioreactor. Furthermore, water itself is a vital resource that can be in short supply in parts of the country; using it to process garbage puts further pressure on these areas. The EPA is collecting information on the advantages and disadvantages of bioreactor landfills through case studies of existing landfills and additional data so that the EPA can identify specific bioreactor standards or recommended operating parameters.[10] What this means is that, although this technology looks promising, the jury is still out and the EPA will ultimately make the decision on how viable they are. However, existing landfills have plenty of capacity left so it will be a very long time before bioreactors are the standard. Biodegradable plastics are a remarkable technology; however, they have technological, logistical and cost drawbacks that make them less attractive than their petro-plastic counterparts. Bioreactors look promising, but the EPA has yet to set standards, and even when they do, the overwhelming majority of landfills will be the standard "dry-tomb" type for the foreseeable future. When the industry gets to a point in the future to support these developments, more manufacturers will most likely make the switch to biodegradable plastics.

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“Recycled” *always* equals Recycled; Be certain with “Certifications”

The main problem facing specifiers that want to use environmentally friendly materials is that they cannot control the waste stream for a material after its end-life. Specifying “recycl*able*” or “biodegrad*able*” relies upon a future action that cannot be guaranteed. The resulting unintended consequence may actually create waste in two ways: the material can eventually end up in the landfill as waste despite all of the specifier’s best efforts, and extra money is wasted on a product that costs more but ultimately doesn’t fulfill its claim.

However, specifiers can ensure environmentally friendly design in a couple of ways. One way is to request materials that contain recycled content. These products by their very nature have already removed a portion of materials from the waste stream.

Another way is to request products with content that is certified as sustainable. There are many different organizations that offer these certifications. For example, the Forest Stewardship Council (FSC) sets criteria for products carrying their label to assure consumers that they come from forests that are managed to meet the social, economic and ecological needs of present and future generations.[11]

Specifiers can ensure environmentally friendly design by focusing on material attributes such as recycled content and sustainability certifications. Such attributes are verifiable and controllable before the product’s end-life. Post end-life attributes such as “recyclable” or “biodegradable” are uncontrollable with no guarantee that they will indeed be achieved.

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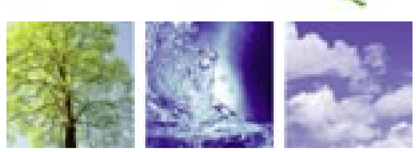

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