



## June 24, 2020 | Plastics Recycling in the '20s: Back to Atoms

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Thank you for attending the BPSA Speaker Series webinar on June 24. Below are the questions that were asked during the presentation. If you would like to share any additional feedback about the webinar, please contact Leslie Pizarro at [lpizarro@socma.org](mailto:lpizarro@socma.org).

- 1. Aren't there a number of applications of "lower" physical or performance characteristics to accommodate the recycled content? For example, recovered content from electronic products recycled into traffic cones?**

Sure. But the scale of such things is a drop in the bucket compared to the scale of packaging plastics. And how long does a traffic cone last compared to a bottle?

- 2. Is there a significant market driver to create recovered material content to be recycled into "in-kind" applications (similar performance to the original product using the virgin materials)?**

Exactly. But only for the few things that are explicitly separated (milk, laundry, soda). And those things only seldom go back directly into the same application. Some soda bottles have recycled content. Laundry bottles have a layer of milk bottle resin because it has no color. Milk bottles do not have recycle content. But most stuff gets used in a non-color-specific application (corrugated drain pipe, for example).

- 3. Is there a chemical or physical process to remove legacy "hazardous" content used in "virgin" compounds from many years ago (i.e. lead, certain phthalates, etc.)?**

For vinyl, kind of yes—the Vinyloop solvent recovery process can remove lead but not phthalates. But it's also kind of expensive.

- 4. Are "organics" / food stuff a serious problem in the "curbside" recycling stream, such as pizza remnants in the cardboard box? (or yogurt in a plastic container)**

The paperboard guys are clear: they don't want pizza boxes. If the yogurt containers are being recycled today, they will be ground up and washed, so the yogurt is less of a problem. Thermolyzing in the way I described it would be no problem.

- 5. Can the money made selling the end material pay for the energy cost to recycle it? In other words, is this financially viable as a business?**

Only in times of high virgin pricing.

**6. NIMBY has stopped many of these projects. What must change to get more facilities built on a regional level?**

Not sure what facilities you mean. There are very few thermolyzing operations in the US now. And I'm not talking about incinerators, which are difficult to site, require lots of capital and in only the best case do they recover anything. There are recycling material recovery facilities in many localities.

**7. Can thermolysis be accomplished without using energy from combustion of a fuel? In other words, can facilities be built that rely purely on electrical energy for thermolysis?**

I'm sure they can, but unless the electricity is solar or wind, it still involves combustion of a fuel (coal or natural gas)

**8. Are these methods (back to fragments/atoms) applicable to plastic equipment made of different plastic materials (PE, PA, PC...) which need to be decontaminated (typically by autoclave) before recycling?**

The way I imagine these facilities, those materials would not have to be decontaminated before thermolysis. You're going to have to package them and ship them to avoid human contact, but in principle, the heat of thermolysis is way more than is needed for sterilization.

**9. Is there an economic tipping point that can be achieved by subsidies, like we have seen for photovoltaics?**

I'm sure there is, and I think the industry right now is struggling with where to apply it—as capital or variable cost support.

**10. What materials are being used as an alternative to plastic packaging? Will that help move us in a better direction in regard to recycling?**

Obviously, the most common offsets are metal, glass and paperboard, each of which has its own recycling skeletons in the closet. Also, there are refillable containers which will work in some circumstances. But I have a hard time imagining going to the grocery and buying liquid laundry detergent from a bulk container into your bring-your-own-bottle.

**11. I have heard different reports on how much of the stuff we put at the curb every week as "Recycle" is actually recycled. Everything from "it just goes to landfill anyway", to something more than that but "depends on the state". Do we know?**

Well, "we" may not, but someone does. A lot of whether it gets recycled or landfilled is economic. In good times, recovered material commands a decent price. When virgin prices are low, it's more difficult to make the economic case.

## **12. Why not just stop at making fuel out of the waste?**

You can. The question is what kind of fuel, does it need to be refined and do you get recycling credit for it.