

April 18, 2017

Cynthia Dunn Supervisor, Extended Producer Responsibility (EPR) Unit CA Department of Resources Recycling and Recovery (CalRecycle) P.O. Box 4025 Sacramento, CA 95812

<u>Re: Additional Comments in Response to the March 22, 2017 Packaging Workshop- Regarding Bio-Based</u> and Compostable Packaging

Dear Ms. Dunn:

In addition to the comments we sent earlier on the packaging workshop and related policy development process, I wanted to provide some additional comments with respect to the consideration of compostable and bio-based packaging in the policy development process. In short, we believe that compostable and bio-based packaging requires further evaluation and should be reviewed as a separate system from recycling and prevention. Before any policies are developed in California that embrace these packaging types as preferable alternatives to traditional petroleum-based plastics or paper, a thorough investigation of the life cycle impacts of each alternative is needed.

Bop-Based Plastics. The potential of new non-fossil fuel based plastics is worthy of consideration. Some products entering the market are touted as creating biological and technical nutrients. However, concerns about the sourcing of biomass feedstock, impacts on recycling of plastics, and legitimizing of wasteful single use plastics consumption must be addressed.

Within the next three years, global production capacity of bioplastics is expected to more than triple, reaching 7.87 million tons in 2019. As a result of in the rise in global production of bio-based plastics, 1.4 million hectares of and for feedstock will be required by 2019. Some tout the use of waste bio-feedstock as an alternative, but there are concerns about the pressure exerted to provide constant feedstock of waste to fuel production of bioplastics.

Bio-based and biodegradable plastics may also disrupt the recycling of conventional plastics. They are hard to sort out of the municipal waste stream and current labeling is inadequate to help sorters make the distinction.

Research indicates that typical bio-based polymers on the market today exhibit similar environmental impacts to petroleum-based products.^{III} Few studies have taken into account the full range of life cycle impacts of traditional versus bio-based plastics, and compared them based on various End of Life (EOL) scenarios. One review of existing studies suggests that including EOL in the Life Cycle Analysis introduces significant variability in results^{IV}. There are so many new bio-based materials entering the marketplace, we believe that careful attention to potential negative externalities is required, taking into account the full life cycle impacts, including impacts on resource extraction, climate, water quality, agricultural processes, land use and biodiversity. Therefore, it is essential that the packaging policies that CalRecycle develops include such an evaluation.

Compostable Plastics and Resin Coated Compostable Packaging. Composting makes sense with respect to the organics portion of the waste stream, but there are questions that need to be resolved before embracing policies that drive a large-scale transition to compostable packaging. The state needs to investigate whether compostable packaging (a) breaks down rapidly enough in commercial compost facilities- based on reality, not on independent lab testing, (b) leaves a toxic residue in compost, and (c) helps accomplish the greenhouse gas (GHG) reduction goals the state has set for solid waste management.

Many commercial compost facilities are experiencing problems with "compostable" plastics that don't break down fast enough or bioplastics that are not designed to be composted being mistakenly added by residents to the compost stream resulting in contamination.

Questions remain as to whether when littered, or entering the marine environment, these products degrade without leaving smaller plastic debris, or micro-plastics, in the environment. Marine degradable plastics have to date been elusive, but even if they are developed, the potential inputs of large quantities of littered marine degradable plastics into the marine environment needs to be evaluated.

There are other concerns about the toxic additives used in compostable packaging and potential residues left in compost that are not addressed by ASTM toxicity testing. Recent reports suggest that a variety of food packaging materials contain carcinogens and endocrine disrupting chemicals_v, including fluorinated substances and biocides. The presence of phthalates and other plasticizers is well documented for plastics of all kinds. Furthermore, scientists do not all agree that the commercial compost process eliminates toxic additives in packaging or that plant growth toxicity, the test used for toxicity in of compostable products, is the right test._{vi}

In sum, we urge that CalRecycle consider putting together an advisory council to identify research gaps and make policy recommendations on the place of bioplastics and compostable packaging in California's packaging and waste management programs. The council should include a balanced group of advisors and perspectives.

Sincerely,

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Miriam Gordon Plastics and Packaging Policy Director

Institute for Bioplastics and Biocomposites, n.d. Biopolymers. Facts and statistics: Nova Institute, 2015. Bio-based Building Blocks and Polymers in the World. Capacities, Production, and Applications: Status Quo and Trends towards

2020.

" "Joint Position Paper: Bioplastics in a Circular Economy," Surfrider, FOE< Zero Waste Europe, European Environmental Bureau, citing European Bioplasitcs 2016.

iii Hottle, T.A., et al, "Sustainability Assessments of bio-based polymers," Polymer Degradation and Stability 98 (2013) 1898-1907

iv Id.

v See recent report on fluorinated substances in fast food packaging-

http://pubs.acs.org/doi/abs/10.1021/acs.estlett.6b00435 and also Clean Water Action's Report, "What's in the Package? Unveiling the Toxic Secrets of Food and Beverage Packaging"

http://www.cleanwateraction.org/sites/default/files/CA_TIP_rpt_08.24.16a_web.pdf

vi Kapanen, Anu, "Eco toxicity assessment of biodegradable plastics and sewage sludge in compost and in soil," academic dissertation in microbiology, VTT Technical Research Centre of Finland (2012). Personal communications: Christopher Higgins, Associate Professor, Dept of Civi and Environmental Engineering, Colorado School of Mines, April 19, 2017