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Composites Recycling Conference 2020 | Online

May 19 – 21, 2020



Standards and Specifications for Composites Recycling

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Standards and Specifications for Composites Recycling

Overview

- Introduction
- Importance of Specifications
- Recycling and Markets
- Challenges
- Summary
- Thank You/Questions

Standards and Specifications for Composites Recycling

The Voice of the Recycling Industry™

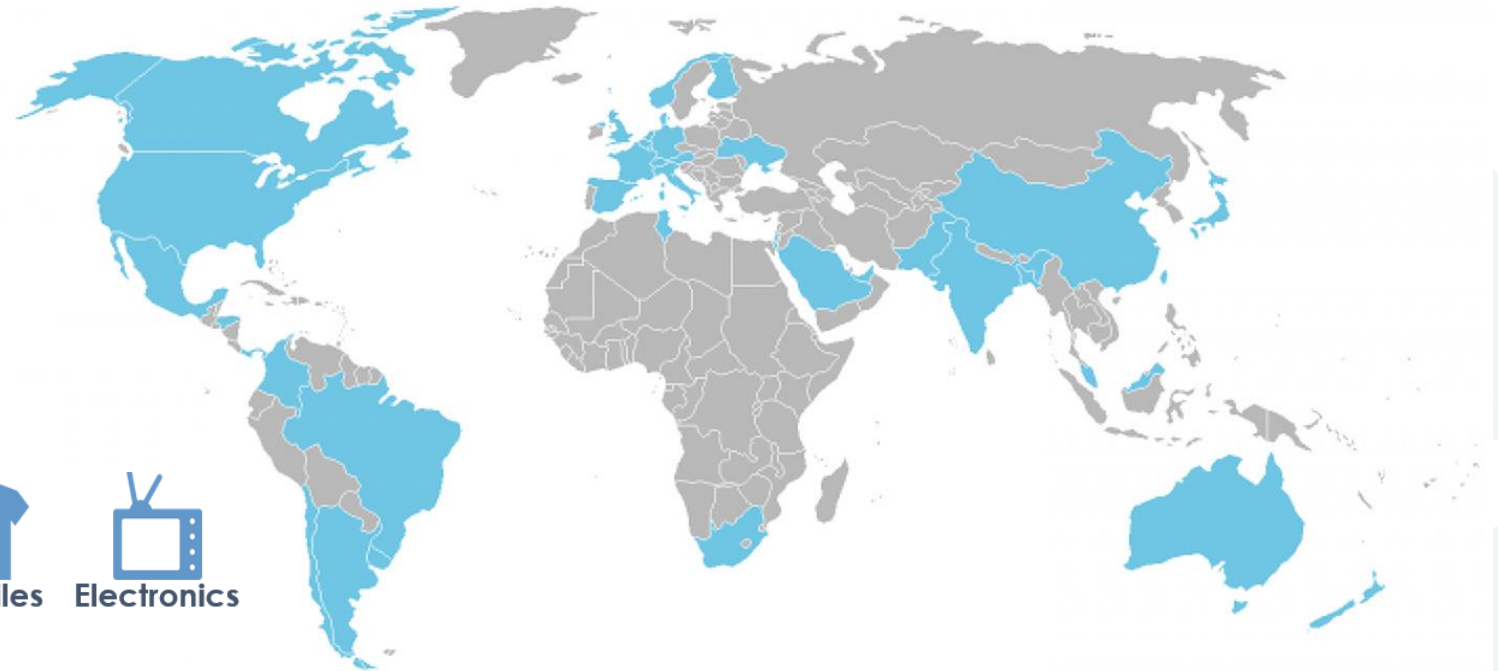
1,300+

Members

41 4,000+

Countries

Locations



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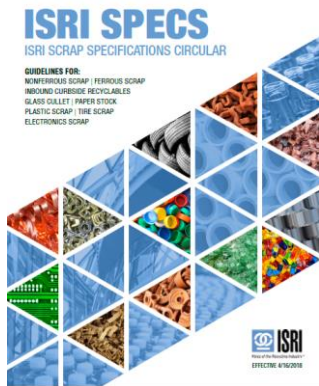


What Makes for Successful Recycling

Recycling is a Commodities Business Driven by Demand

It doesn't matter how much scrap is collected and processed, if there is no market on the other end to utilize the material, the recyclables will not move ... and recycling has not occurred.

Manufacturers will only purchase the scrap if it meets quality requirements.



ISRI's Scrap Specifications play a key role:

- Provide the global standard for consistency & quality
- Reflect tolerances allowed by manufacturers
- Common language
- Introduced Inbound MRF Specifications last year

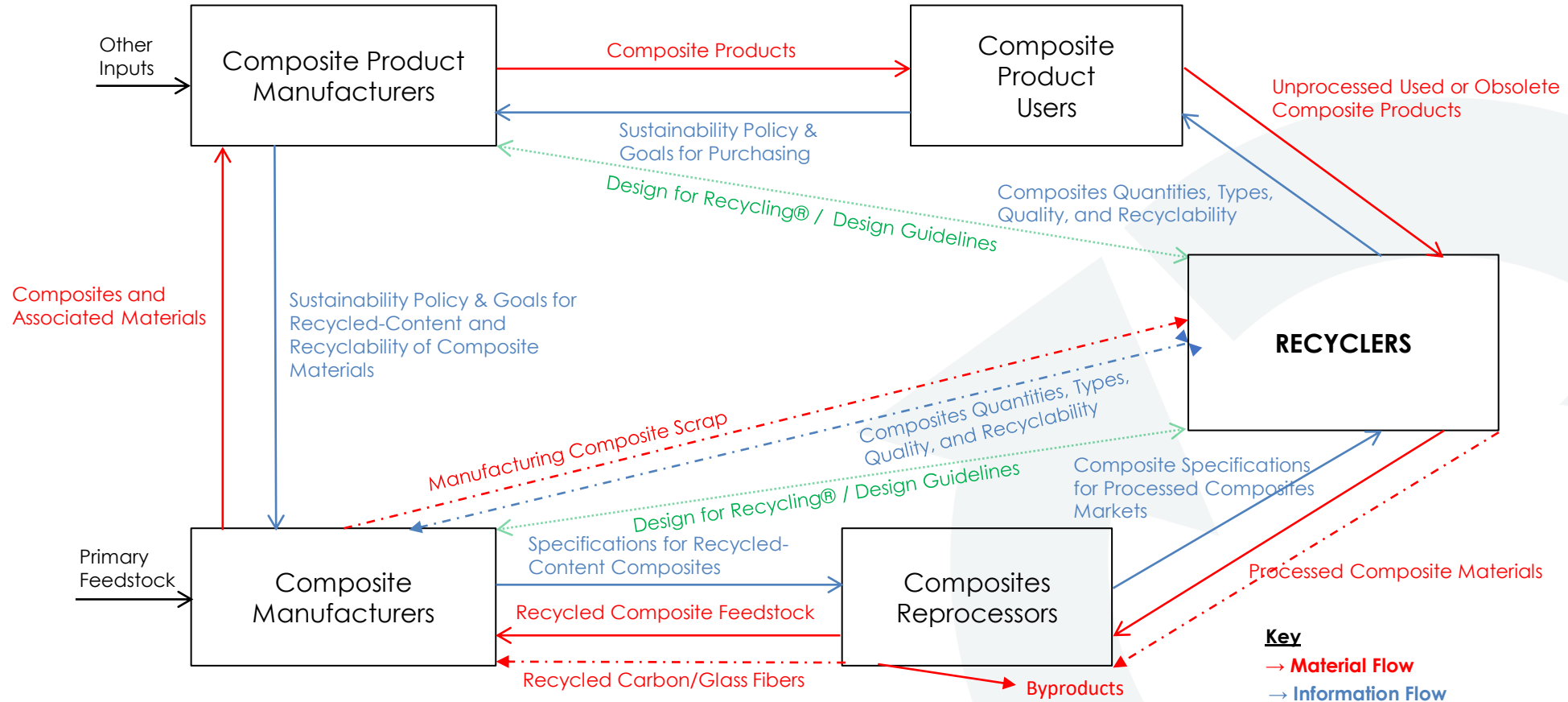
Anatomy of an ISRI Scrap Spec: LDPE Colored Film

Description	Contamination	Prohibited (0% allowed)
<p>Any mixture of natural translucent Low Density Polyethylene (LDPE, #4) film and mixed color translucent Low Density Polyethylene (LDPE, #4) film with limited label contamination is acceptable. Films may be coded with ASTM D7611 resin identification code #4, LDPE. All film bundles should be free of free-flowing liquids.</p> <p>Product: LDPE Colored Film</p> <p>Source: Post-Consumer material</p>	<p>Total contaminants should not exceed 2% by weight. No more than 2% by weight of any of following individual contaminants will be allowed:</p> <ul style="list-style-type: none">• Non-polyethylene other plastics;• Labels;• Water.	<ul style="list-style-type: none">• Medical and hazardous waste• Wood• Glass• Oils and Grease• Rocks, stones, mud, dirt• Metallized labels or films• Multi-material pouches• Silicone coated film• Film with oxo or bio-degradable additives• PVDC layers

ISRI's Perspectives on Recycling and Markets

- Recycling should be driven by market forces.
- Recyclable and recycled materials should move freely in the marketplace (Specifications are key).
- Recycling fees and mandates (e.g., producer responsibility) should not be imposed by government on manufacturers, except in special circumstances.
- Any fees and mandates should be temporary and sunset as soon as possible.
- Manufacturers should consider end of use and recycling when designing and manufacturing products, consistent with ISRI's Design for Recycling® principles.

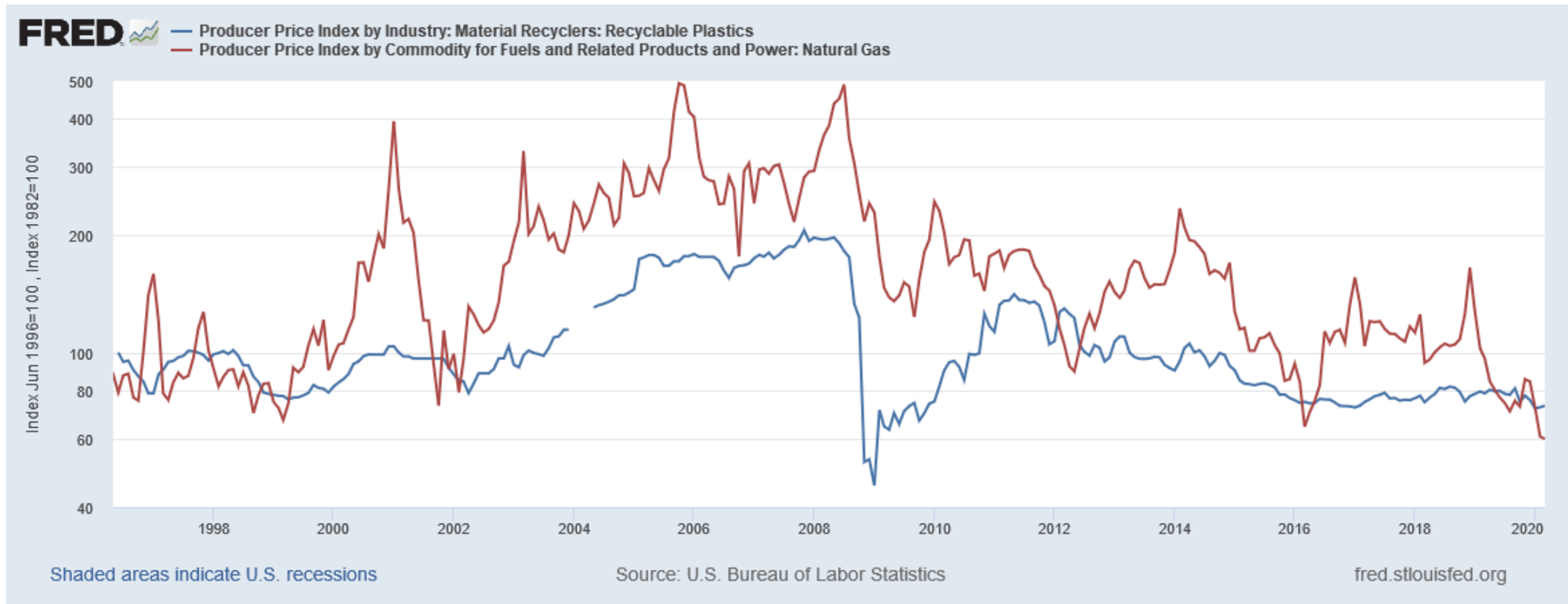
Conceptual Composites Recycling Ecosystem



Factors Influencing Recycling Success

Promoting	Inhibiting
<ul style="list-style-type: none">• Sufficient material / Scale• Sufficient material value• Cost-effective technologies• Efficient logistics• Specifications• Markets for recycled material• Favorable policies/regulations	<p>Material/Quality</p> <ul style="list-style-type: none">• Constituents of concern• Special handling/management requirements• Difficult to process/separate/identify materials• Greater number of material components <p>Other</p> <ul style="list-style-type: none">• Material regulated as “waste”• “Patchwork” of regulations• Lack of information• Lack of (accessible) markets

Challenges for Material Value



Challenges for Markets



Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

Subjects hazardous wastes or other wastes with hazardous constituents / exhibiting hazardous characteristics to a “prior informed consent” (PIC) procedure before the material can be shipped across national borders, giving the receiving country the right of refusal if proper recycling or disposal operations do not exist.

To be implemented Jan. 1, 2021

1. Established a listing specific to hazardous plastics subject to BC controls.
2. Established a more defined listing for non-hazardous plastics not to be controlled (i.e., single polymers).
3. Established a new listing for non-hazardous plastics to be controlled (i.e., highly contaminated, mixtures, other than a PET bottle with a PP cap).

But because the United States is not a party to the Basel Convention...

Non-OECD countries are prohibited from importing hazardous materials from U.S., but non-hazardous plastics would be under Convention controls (e.g., prior informed consent).

Challenges for Markets



OECD

The **OECD Council Decision** is an agreement allowed under the Basel Convention to facilitate trade within the block of higher-income economies, especially with Basel-nonparty United States. But negotiations on incorporating the new Basel Convention plastics categories failed, and the “no consensus” result (still under discussion) could lead to many importing regimes and more uncertainty in the marketplace.

OECD Members: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

Basel Convention: New Annex IX Entry B3011 (eff. 01/01/21)

Plastic waste (note the related entries Y48 in Annex II and on [Annex VIII] list A A3210):

- Plastic waste listed below, provided it is destined for recycling in an environmentally sound manner and **almost free from contamination and other types of wastes**:
 - Plastic waste **almost exclusively** consisting of one non-halogenated polymer, including but not limited to the following polymers:
 - [PE, PP, PS, ABS, PET, PC, Polyethers]
 - Plastic waste **almost exclusively** consisting of one cured resin or condensation product, including but not limited to the following resins:
 - [Urea FA, Phenol FA, Melamine FA, Epoxy, Alkyd]
 - Plastic waste **almost exclusively** consisting of one of the following fluorinated polymers:
 - [FEP, PFA/MFA, PVF, PVDF]
- Mixtures of plastic waste, consisting of PE, PP and/or PET, provided they are destined for separate recycling of each material and in an environmentally sound manner, and **almost free from contamination and other types of wastes**.

In relation to **“almost exclusively / almost free from contamination and other types of wastes”**, **international and national specifications** may offer a point of reference.

Connection between OECD and US Regulations

- The federal Resource Conservation and Recovery Act (RCRA) hazardous waste regulations refer to the [Organization for Economic Cooperation and Development \(OECD\)](#) in 40 CFR Part 262, Subpart H—Transboundary Movements of Hazardous Waste for Recovery or Disposal.
 - “(a) Scope. The level of control for exports and imports of waste is indicated by assignment of the waste to either a list of wastes subject to the Green control procedures or a list of wastes subject to the Amber control procedures and **whether the waste is or is not hazardous waste**. The [OECD Green and Amber lists](#) are incorporated by reference in 40 CFR 260.11.” (262.82)
- The federal RCRA hazardous waste regulations do not currently include any hazardous waste characteristics specific to plastics, only the existing generic characteristics of ignitability, corrosivity, reactivity, and toxicity.
- The outcome of the OECD’s discussion of Basel may affect trade with OECD countries.

Summary

- Recycling is a market-based commodities business.
- Specifications are key for successful recycling, but reflect the recycling ecosystem.
- Cost-effective recycling technologies, logistics, and markets are also important.
- Economic and market challenges currently exist or may be emerging.
- Development of composite-material specifications will help to address market challenges, but will depend on recycling technologies and related factors for composite materials.

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Questions

Thank you for your attention!

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