

SCSglobal
SERVICES

Setting the standard for sustainability™



Defining Circular Products and Supply Chains

November 19th, 2019

ISCC Regional Stakeholder Meeting
Las Vegas, Nevada

Topics

- *What is the circular economy?*
- *Advanced Technologies
(Biocontent & Chemical Recycling)*
- *Example Characteristics of Advanced
Recycling*
- *Sustainable content*
- *Credit generation and transfers*
- *Circular economy claims*
- *Verification of circular producers*
- *Key takeaways and lessons learned*

What is the circular economy?



Circular Economy refers to the shift from fossil resources to the use of renewable resources, or to the recycling of waste resources of fossil origin.



Biofuels have been an entry point to discussions about circularity of resources, but the broader Circular Economy discussions involves recycling of numerous sectors, including energy, food & feed, packaging, electronics, automotive, building materials, textiles, and more.

Advanced Technologies (Biocontent & Chemical Recycling)

- SCS' Recycled Content Standard has been an industry norm for making claims on pre and post consumer recycled content in a product since it was established in 1990.
- Traditional demand for these claims is in the Building Materials sector (65%), Plastics & Packaging (25%), Textiles (4%) and to a lesser extent Metals & Jewelry
- Recent interest in *circularity claims* have led to a reanalysis of where the CE fits vis-à-vis traditional Recycled Content claims.
- Circular Economy may expand traditional Recycled Content claims to include biocontent & advanced chemical recycling technologies (as opposed to traditional mechanical recycling).

SCS Global Services does hereby certify that an independent assessment has been conducted on behalf of:

Novolex
101 E Carolina Ave, Hartsville, SC, United States

For the following product(s):
Ultraprime Reusable Plastic Packaging

The product(s) meet(s) all of the necessary qualifications to be certified for the following claim(s):
Minimum 20% Post-Consumer Recycled Polyethylene Content

Conforms to the SCS Recycled Content Standard V7-0

Registration # SCS-RC-04147
Valid from: September 7, 2016 to March 31, 2017



Stanley Mathuram
Stanley Mathuram, PE, Vice President
2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA

Example Characteristics of Advanced Recycling (Compared to Traditional Recycled Content Claims)



Traditional recycling typically leads to a cascade of higher to lower value polymers. *Chemical recycling allows companies to break down and rebuild products into high performance plastics with equivalent performance characteristics to first use plastics.*



Mechanical recycling often is unable to deal with materials containing a complex mix of materials. *Chemical recycling can have a thermochemical front-end process capable of handling a highly heterogenous materials mixture.*



XX% PRE-CONSUMER
XX% POST-CONSUMER

Traditional Recycled Content Claims are single-attribute, primarily related to Pre / Post Consumer Recycled Content. *Circularity Claims are being designed to allow for claims of the amount of content derived from renewable carbon, hydrogen, etc.. content.*

Technical Aspects

ISCC PLUS as it applies to the Circular Economy

Brent Riffel

Manager, Low Carbon Fuels

Sustainable Content

- What does sustainable content mean?
- ISCC Plus scheme provides flexibility for producers to define the scope of sustainable inputs to a production process
- For non-carbon content, how to prove that sustainable content came from sustainable feedstock?
- Should inorganic inputs produced with renewable energy be considered renewable (e.g., chlorine for PVC production)?

Credit Generation and Transfers

- Credits for sustainable products can be generated at one site and transferred to identical products generated at another site owned by the same company
- Currently, credits for outputs at one site cannot be transferred to inputs of a process at another site even if input/output are the same material
 - ◆ How to ensure traceability of this mechanism?
 - ◆ Would this be perceived as valid by customers, the general public and other ISCC certified producers?
 - ◆ Would this flexibility expand use of ISCC certification and availability of circular products?
- What are the guidelines for transferring credits among different grades of material?

Circular Economy Claims

- Producers can make claims about percent biocontent, recycled content or renewable content
- Wording is important
- Is there a balance between maximizing claim and clarity/credibility of claim?
- Will producers find value in making GHG emission claims as ISCC standard and circular markets mature?

Verification of Circular Producers

- Verification of supply chain traceability and critical control points is key to strength of standard
- Traceability should be understandable at a high level to all stakeholders
- Auditors must understand the complex details of chemical and mechanical production processes to verify claims
- Verification is more difficult when credits (unit of currency) are based on transient or unstable intermediates (e.g., syngas)

Key Takeaways and Lessons Learned

- Circular economy supply chain and production processes are often more complex than those for biofuel production
- ISCC PLUS standard is evolving organically, largely based on stakeholder feedback and producer needs
- Producers have spent significant time and resources considering the potential sustainable attributes of their products
- Auditors must ensure that proposed credit systems is fair and verifiable
- Potential for claiming inorganic content as sustainable is unclear
- Will ISCC Plus standard and competing standards evolve in parallel or diverge?

SCSglobal
SERVICES
Setting the standard for sustainability™



Thank you!

Matt Rudolf

mrudolf@scsglobalservices.com

+1 (919) 810-2295

Brent Riffel

briffel@scsglobalservices.com

+1 (510) 928-0548