Supporting Deforestation-free Supply Chains and CO₂ Reduction for Bio-based Plastics

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ISCC is a sustainability certification scheme applied on a global scale. ISCC system users are located in more than 100 countries worldwide.
More than 20,000 certificates have been issued since 2010

- System users in 100+ countries
- 20,000+ certificates
- 3,000+ system users
- 32 certification bodies
- 360+ ISCC trained auditors
- Training Program
  (70 Trainings so far for auditors and system users)
- Innovative tools and procedures to facilitate audits
- Use remote sensing to verify land use change
- 8 Voluntary add-ons to address specific customer requirements
- Stakeholder dialogue: 115 ISCC Association members
- Discussion platform with 4 Regional and 2 Technical Committees
- Integrity Program
  3 auditors

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ISCC is a multi-stakeholder initiative organized in an association with currently 115 members.
ISCC is leader in the certification of all kinds of agricultural and forestry feedstocks …
… as well as wastes and residues to support the circular economy and renewable non-bio materials

<table>
<thead>
<tr>
<th>Waste and processing residues</th>
<th>Renewable non-bio feedstocks</th>
<th>Forestry / agricultural crop residue</th>
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<tbody>
<tr>
<td>UCO</td>
<td>Power-to-Gas, Power-to-Liquid</td>
<td>Forestry residue</td>
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<tr>
<td>Landfill gas</td>
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<td>Tall oil</td>
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<tr>
<td>End-of-life tires</td>
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<td>Municipal solid waste</td>
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<td>Crude glycerine</td>
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<td>CO2</td>
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<tr>
<td>Husks</td>
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<tr>
<td>Straw</td>
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Each element of the supply chain becomes individually ISCC certified. Certificates are site specific and valid for one year.
ISCC ensures deforestation free supply chains and the protection of valuable ecosystems – land use change of those areas after 2007 is forbidden

- Primary forests and other wooded land
- Highly biodiverse grassland
- Forested areas
- Wetland
- Designated nature protection areas
- Peatland
ISCC core principles for agricultural production areas – a balanced set of ecological and social criteria

**Principle 1:** Protection of biodiverse and carbon rich areas

**Principle 2:** Good Agricultural Practice

**Principle 3:** Safe Working Conditions

**Principle 4:** Compliance with Human, Labour and Land rights

**Principle 5:** Compliance with Laws and International Treaties

**Principle 6:** Good Management Practices and Continuous Improvement

Traceability, Chain of Custody and GHG emission calculation along the supply chain
How does the external auditor check compliance with ISCC principles?

- Assessment of internal documents
- Interview of personnel, managing directors and stakeholders
- Visual inspection of areas, company facilities, storage, etc
ISCC uses innovative tools such as GRAS, a remote sensing tool to facilitate the risk assessment and the identification of deforestation

www.gras-system.org
The use of remote sensing data also supports the verification process providing additional information (e.g. LUC).
In addition, low GHG emission values for bio-based products will also play a more prominent role in the future. ISCC ensures credible and verified GHG calculation.
Using ISCC PLUS, system users can calculate GHG emissions covering the whole life cycle (cradle-to-gate) or only emission up to the factory gate (cradle-to-gate).

- GHG calculation based on RED methodology or LCA possible
- Use of relevant databases or literature possible
- Allocation of emissions using different options (e.g., energetically, based on mass)
- On product claims referring to GHG savings possible under ISCC PLUS
Voluntary and mandatory sustainability requirements in different markets can be addressed via ISCC.
ISCC is a one stop shop for all crops and markets, and is compliant with many important platforms and industry standards.

Fragmented landscape of sustainability standards

Compliance with industry standards

Potential System User

Food

Energy

Feed

Industrial application

Australia

Colombia

Japan

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Substantial risks could be linked to the use of renewable resources due to deforestation, grassland conversion and biodiversity loss.
Many supply chains of agricultural commodities for bioplastics origin in regions with high deforestation rates.
Many companies publicly claim their sustainability efforts. However, there is a risk of greenwashing allegations.
Companies from the chemical industry make commitments to increase the use of bio-based materials

“Danone and Nestlé Waters have joined forces (...) to form the Natur’ALL Bottle Alliance. Their aim is to be the first to commercialize 100% bio-based and recyclable PET bottles. (...) First bottles are expected to hit the shelves by 2020.”

“The ultimate goal for Elopak is that both our company and our products shall become carbon neutral, meaning that we have a zero net impact on the drivers of climate change.”

“PlantBottle packaging (...) is the first ever fully recyclable PET plastic beverage bottle made partially from plants. The material looks and functions just like traditional PET plastic, but has a lighter footprint on the planet and its scarce resources.”

As a member of the Consumer Goods Forum (CGF), we share their commitment to net-zero deforestation by 2020 through the sustainable sourcing of pulp, paper, packaging and palm oil.
ISCC supports companies and initiatives from the chemical industry striving for sustainable renewable feedstock.

Examples:

- Dow
- NatureWorks
- Neste
- Total
- Trocap
- Braskem
- UPM
- Novamont
- DuPont
- 3M
- Sabic
- Elopak
- Paccor
- SIG
- Cargill
- PML
- Perstorp
- United Caps
- Papier-Mettler

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System users can choose using physical segregation ......

- Physical segregation of certified and non-certified products
- Deliveries physically contain 100% certified product
- Possible claim: 100% based on sustainable sources
... as well as mass balancing approaches for their chain-of-custody

- Products with different sustainability characteristics mixed, but segregated in book-keeping
- No entity sells more certified products than sourced (conversion factors applied)
- Possible claim: Linked to 100% recycled sources
NatureWorks has a segregated supply chain. It was the first ISCC PLUS certified company, and has been continuously certified since February 2012.

Impressions from the first ISCC audit of the Ingeo production chain in October 2011

• Audit in October 2011 was the pilot audit for the first ISCC PLUS certification
• NatureWorks ISCC PLUS certification covers the Ingeo production site in Blair, NE
• Feedstock for NatureWorks input materials is corn
Baskem is producing green PE processed from sugar cane. The company is ISCC PLUS certified since 2012.
Elopak is using ISCC PLUS certified bio-based PE aiming to reduce the use of fossil-based materials and minimize CO₂ emissions.
SIG is also using ISCC certification to proof compliance with its customers’ requirements for renewable materials

“...That drives the replacement of conventional plastics from fossil fuels plastics with certified and sustainable plant-based polymer materials...”

Source: www.sig.biz/responsibility/packaging/beverage-packaging/signature-pack-details

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Perstorp uses ISCC PLUS certification for its *Pro-Environment* polyols. One of the polyols achieve a carbon footprint reduced by 80%*

*compared on fossil alternative; according to Perstorp

Source: Perstorp website and brochure
More and more companies are producing bio-based materials for industrial applications.
Another focus of companies are solutions to tackle plastic waste – in the last ten years plastic production has grown by 40 %

- 450 mill. tons of plastic produced in 2015
- > 1/3 of plastic used for packaging
- > 90% of plastic not recycled
- Packaging waste ½ of plastic waste
- 80% of plastic waste to landfill/environment
- Each year 9 mill. tons of plastic waste to oceans

Source: Geyer (2017); Jambeck et al.,(2015); National Geographic (2018)
Brand owners are committed to bio- and circular economy

"Unilever has committed to ensure all of its plastic packaging is designed to be reusable, recyclable or compostable by 2025."
"Coca-Cola: To increase the amount of recycled content in plastic bottles from "a paltry 7%" to 50% by 2030."
"Nestlé has pledged to phase out all plastics that are not recyclable or are hard to recycle for all its products worldwide between 2020 and 2025."
"Evian pledged to make all of its plastic bottles from only recycled plastic by 2025."
"2030 goal: Ensure 90% of product packaging is recyclable."

ISCC provides solutions for credible certification for a sustainable bioeconomy and circular economy

Source: European Bioplastics, Nijhuis Industries
ISCC certified circular polymers are available in the market - the recycling of plastics minimizes the use of fossil-based materials and CO$_2$ emissions.
With ISCC PLUS system users of all non-regulated markets meet their voluntary market requirements

- No deforestation
- No development in high carbon stock areas
- No development on peatlands
- Good agricultural practices
- Safe working conditions
- Respect the right of all affected communities / land rights
- Legal compliance
• Safeguarding brand values requires sustainable and deforestation-free supply chains for renewable feedstock

• The use of certification schemes contributes to risk mitigation in supply chains for bioplastics

• Sustainability certification of bio-based products is operational and already reality. Several large scale players already certified by ISCC

• Traceability along supply chains ensured. Mass balance and segregation possible

• GHG emissions can be forwarded along the supply chain to derive at a carbon footprint of the final product if required

• ISCC offers solutions for bio-polymer producers and processor, aiming to proof compliance with sustainability requirements in all relevant markets

• ISCC is a multi-stakeholder organization. The ISCC association is open to new members. Become member of the ISCC family!
Many thanks for your attention!

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