CHEMICALS & POLYMERS
AN INDUSTRY TRANSFORMING

A JUST TRANSITION TO A NET POSITIVE WORLD
Products made from chemicals and polymers are an integral part of our modern human life, and demand for them continues to grow — along with consumer awareness and the need to ensure that they must be produced, used and reused in an environmentally and socially sustainable manner.

With widespread industry commitments to decarbonisation and sustainability, and companies around the world looking to change the way they make plastics, the chemicals and polymers industry is poised for transformation.

However, this transformation is not always simple. The complex and varied production processes of the chemicals and polymers sector require numerous individual chemical inputs, each with their own set of environmental and social impacts. This complexity can make the transition to real sustainability challenging. Claims about sustainability and decarbonisation can be confusing and subject to intense scrutiny.

A ROBUST YET FLEXIBLE SOLUTION FOR THESE IMPORTANT MATERIALS IS KEY.

The RSB Standard has been developed to support the chemicals and polymers sector with its transition to real and credible sustainability, by providing a system to trace materials and impacts through complex supply chains and processes — enabling leaders in the industry to make powerful sustainability claims about their products.
Chemicals and polymers are the building blocks of the plastics and materials we use to create the countless products that sustain and enhance our lives. These products can include — among many others — medical equipment, construction components, automotive parts, textiles, electronics, and packaging.

The consumption of finite fossil resources continues to be a concern, as virgin fossil fuels are currently used to manufacture 99% of the plastic products on the market, and around 16% of crude oil goes directly into petrochemicals.

The chemicals and polymers industry is committed to tackling sustainability challenges through the exploration of different feedstocks and production systems, with a strong focus on the use of bio-based and circular approaches.

Unfortunately, bio-based and circular material production can still be carbon-intensive, and can result in unintended consequences with environmentally and socially destructive effects — including deforestation, soil degradation, unfair human and labour practices, and increased GHG emissions. This is why the RSB Standard for Advanced Products is essential to transform the industry and ensure that a new, sustainable trajectory can be achieved.

The RSB Standard for Advanced Products is robust, offers credibility to buyers and end users, and provides powerful and practical solutions to help companies transition towards the use of sustainable materials — often in the form of novel feedstocks.

By including the full supply chain in its certification system, RSB’s approach ensures that GHG emissions and sustainability impacts are calculated and managed from the feedstock to the final product. This includes a full GHG assessment of the sustainable product — whether of bio-based or recycled origin — to compare with the virgin fossil alternative and verify if the product’s climate impact is truly positive.

Further, RSB recognises the importance of innovation in developing and scaling new sustainability solutions. To support this, it has requirements for achieving GHG performance improvement in new technologies and facilities. It is only with the robust requirements of RSB certification that consumers can be confident that the products they purchase are more sustainable than the virgin fossil alternative.

2 Source: https://www.nature.com/articles/s41558-019-0459-z
3 Source: www.iata.org/en/policy/environment/climate-change/
4 Calculated based on ICAO figure of 112317.4 KG CO2e/aircraft journey
5 Source: https://www.ciel.org/issue/fossil-fuels-plastic/
6 Source: www.iea.org/data-and-statistics
Since the start of the 21st century, companies have increasingly looked to bio-based alternative feedstocks. According to European Bioplastics, bio-based plastics accounted for 1% of the plastic produced globally in 2019, at 2.11 million tonnes, and that figure is rising to a projected 2.43 million tonnes by 2024.\(^7\)

However, without sustainability certification, bio-based plastic production can result in food security being threatened, human, labour, and land rights being infringed upon, and environmental damage such as destruction of forests and water resources.

Waste feedstock offers an exciting solution for companies looking to increase the circularity of their production systems.\(^8\)

There is no shortage of waste to recycle, due to our continued consumption of plastic products. Unfortunately, current mechanical recycling technology limits the ability to recycle such products – leading to a recycling rate as low as 9%, according to the Ellen MacArthur Foundation.\(^9\)

Because mechanical recycling requires pure sources of plastic, such as PET bottles, in order to be shredded into reusable resin pellets, the abundant impure sources are usually disposed of through incineration.

Chemical recycling overcomes this limitation by breaking products down into their monomer form, which can then be used to create entirely new or different products – thereby maximising circularity.

7. https://www.european-bioplastics.org/market/
New technologies, facilities and innovations are fast emerging. Complementary to this is extensive existing production infrastructure, which is designed to last decades and can be extremely costly to replace. In the latter case, ‘drop-in’ solutions are needed – that can work within existing infrastructure in order to drive sustainability transformation today. RSB’s standards provide the flexibility to ensure that companies can work with all types of production facilities to produce certified materials.

While consumers demand sustainability, there is a lack of clarity around what different approaches mean. For example: what is the meaning of ‘bio-based’, and is it interchangeable with ‘sustainable’? The industry requires simple and clear messaging to help its customers know that they are choosing the most sustainable option. RSB’s unique positive impacts approach provides such a framework – enabling three key claims about sustainable production, positive climate impact, and fossil displacement.

Having a robust traceability system within the complex chemical production setting, along with both the direct and indirect environmental and social impacts of its production, is a concern addressed by RSB’s comprehensive traceability requirements, to ensure that sustainable volumes are correctly accounted for.

"The RSB standard has shattered the glass ceiling, accelerating development in the bioeconomy space."

Jason Leadbitter, Sustainability and Corporate Social Responsibility Manager, INOVYN
RSB’s unique approach to Advanced Products enables companies to demonstrate clearly that their products are produced more sustainably, with fewer fossil resources and reduced greenhouse gas emissions.

RSB’s approach for Advanced Products, including chemicals and polymers, enables the certification of three product categories – bio-based, recycled carbon and products from systems that mix these with virgin fossil inputs.

Jennifer Holmgren, CEO, LanzaTech

“LanzaTech and our partners rely on RSB’s global standards to ensure the sustainability of carbon smart solutions that can help create a cleaner planet for all. The new Standard for Advanced Products for the chemicals sector includes carbon recycling, which will build trust in the new, more circular supply chains that we see consumers increasingly asking for.”

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**CATEGORY I**

**BIO-BASED PRODUCTS**

Feedstocks in this category include agricultural, forestry, marine, and aquatic products, by-products, end-of-life products, or residues.

**CATEGORY II**

**RECYCLED-CONTENT PRODUCTS**

Category II products have recycled content, and feedstocks can include non-biogenic end-of-life products, by-products, or residues, as well as recycled biogenic materials.

**CATEGORY III**

**BIO-BASED OR RECYCLED FOSSIL CARBON MIXED WITH FOSSIL CARBON PRODUCTS**

Products in this category include those from a production system that processes bio-based feedstock or non-bio-based end-of-life products or residues, in combination with virgin fossil feedstock.

The RSB Advanced Products Standard allows the mixing of RSB-certified material with virgin fossil material at the manufacturing site and enables the manufacturer to attribute the RSB-certified sustainability label to their output material based on production data and yields — creating greater flexibility for manufacturers in how they bring their products to market.
**KEY BENEFITS OF THIS APPROACH ARE:**

1. **It allows the production of sustainable materials within existing infrastructure –** supporting the transition to a circular and bio-based economy, and providing a drop-in solution that requires little, if any, investment.

2. **It can be applied to both bio-based and recycled fossil inputs, or a combination of both.**

3. **It provides unparalleled credibility through the RSB's comprehensive traceability requirements based on production data and yields that are verified by third-party auditors.**
Benefits Of RSB’s Certification Solutions

- Suitable for any feedstock, material, or supply chain — on a global level.
- Work with existing infrastructure as well as new and innovative processes and facilities, thereby building on highly efficient supply chains.
- One uniform standard for bio-based, recycled content, and attributed systems.
- Approved through a multi-stakeholder, consensus-based process which is compliant with ISEAL.
- Contain robust sustainability criteria recognised and trusted by WWF, IUCN and NRDC.
- The global Bioplastics Feedstock Alliance (BFA) recommends RSB for credible supply chain certification of biomaterials and its multi-feedstock approach.
- Utilise GHG calculation and tracking along the whole supply chain, for an accurate GHG claim on the final product.
- Enable calculation of a clear metric to communicate the replacement of fossil materials.
- Sustainability requirements apply to industrial operators, ensuring high levels of confidence in social and environmental claims along the entire supply chain.

We are very proud to have achieved RSB certification of Olefins and Polyolefins from our Cologne site. Being able to offer Bio-Attributed Olefins and Polymers represents another concrete step for INEOS along the path towards a more circular and sustainable economy.

Liz Rittweger, Business Director for INEOS Olefins and Polymers.

RSB’S POSITIVE IMPACTS APPROACH

Products that achieve the RSB’s Advanced Products Standard certification are supported by three powerful claims about their positive impacts.

RSB CERTIFIED ADVANCED PRODUCTS:

1. ARE PRODUCED SUSTAINABLY
2. MITIGATE CLIMATE CHANGE
3. REDUCE THE RISK OF FOSSIL DEPLETION
RSB’s Positive Impacts Approach

1. Sustainable Production

- Principle 1: Legality
- Principle 2: Planning, Monitoring & Continuous improvement
- Principle 3: Greenhouse Gas Emissions
- Principle 4: Human and Labour Rights
- Principle 5: Rural and Social Development
- Principle 6: Local Food Security
- Principle 7: Conservation
- Principle 8: Soil
- Principle 9: Water
- Principle 10: Air Quality
- Principle 11: Use of Technology, Inputs & Management of Waste
- Principle 12: Land Rights

The RSB’s 12 Principles & Criteria are used to evaluate production sustainability for certification along the entire supply chain.

2. Climate Change Mitigation

Certified products demonstrate at least 10% lower lifecycle GHG emissions — calculated on a cradle-to-grave basis relative to the lifecycle greenhouse gas emissions of a comparable fossil product — whenever they are intended to replace fossil-derived products.

3. Fossil Depletion Reduction

Certified products demonstrate a minimum of 25% fossil replacement.

As a company, our long-term vision is to use 100% renewable or recycled materials for our products and packaging. As we move to replace petroleum-based materials with renewable ones, sustainable sourcing will be key to ensuring our products are truly renewable for generations to come. Our new partnership with the RSB will help us to maintain the highest standards of sustainable sourcing as we embark on this journey.

Virginie Helias, Vice President, Sustainability, P&G
RSB’s Standard In Action

POSITIVE IMPACTS ACROSS THE SUPPLY CHAIN

RSB-certified bio-naphtha is mixed with virgin fossil naphtha from UPM when it enters the INEOS O&P supply chain in Germany. The RSB-certified output material from their cracker is attributed (meaning the RSB sustainability characteristic is given to a selected batch of material) to the correct volume of ethylene ready to be sold to INOVYN for conversion to bio-attributed PVC – which is supplied to Tarkett for the production of PVC floor rolls and tiles which carry an RSB certification.

POWERFUL CLAIMS BUILT ON POSITIVE IMPACTS

This RSB compliant product leads to a x% substitution of fossil resources through waste recycling in the production system.

Delivering socially and environmentally ethical products, certified by the Roundtable on Sustainable Biomaterials (RSB)

Over its production lifecycle, this material provides [x] % greenhouse gas savings compared to a fossil fuel equivalent.
RSB’s Standard for Advanced Products is a truly groundbreaking piece of work. By focusing on the Positive Impacts of different types of advanced products, the Standard supports companies on the cutting edge of sustainability and the circular economy to make clearer, more credible claims that will help consumers make better choices.

Panu Routasalo, Vice President, UPM Biofuels

RSB’s Standard is the strongest and most trusted of its kind, recognised as such by the World Wildlife Fund (WWF), International Union for Conservation of Nature (IUCN) and Natural Resources Defense Council (NRDC).

Why Work With RSB?

With credible solutions, global expertise, partners across the spectrum from government to industry and NGOs, and an extremely robust approach to sustainability, RSB is the partner of choice for the chemicals and polymers industry as it seeks to fulfil its global commitments to greenhouse gas reduction while also ensuring social development and environmental protection.

RSB is a member-led organisation which represents a worldwide movement of businesses, NGOs, academics, government, and UN organisations that have demonstrated their commitment to the development of the sustainable bioeconomy by working together to create our most-trusted Standard.

The RSB Standard is the strongest and most trusted of its kind, recognised as such by the World Wildlife Fund (WWF), International Union for Conservation of Nature (IUCN) and Natural Resources Defense Council (NRDC).
RSB offers trusted, credible tools and solutions for sustainability and biomaterials certification that mitigate business risk, fuel the bioeconomy, and contribute to the UN Sustainable Development Goals — in order to enable the protection of ecosystems and the promotion of food security.

Through its most trusted certification scheme, RSB enables companies across the bio-based, advanced products, and circular economy to demonstrate real and credible sustainability.

RSB provides expert consultancy through its advisory services, which are grounded in the highest levels of social and environmental sustainability, and are designed to support our clients’ most crucial needs throughout their supply chains — as they seek to transition to a positive impact and circular economy. We bring our deep and multifunctional expertise, which helps to unlock opportunity and overcome the challenges of transforming a business for operation and growth within our planetary boundaries.

By building partnerships across sectors, RSB is using the power of its sustainability standard through driving collective action to address the systems changes required to enable people and the planet to thrive. In bringing together business, civil society, and government in regional and global coalitions, RSB maximises the impact of its network.

RSB engages in targeted advocacy to support policy makers around the world in embedding meaningful and trusted sustainability — as outlined in the RSB Standard — into legislation, policy, and regulations. By providing expertise and guidance at the national and global levels, as well as for specific sectors, RSB uses its resources to support awareness, knowledge sharing, and action with multiple stakeholders.

RSB is leveraging its community, resources, and best-in-class sustainability standard as part of a global movement to create a world of positive impacts and a thriving planet with:

- Maximum circularity
- Assured global nutrition and water access
- Fossil fuels left in the ground
- 1.5°C warming cap achieved
- Guaranteed human and labour rights
- Productive and healthy ecosystems

This transition to a new, climate resilient society is done with the voices of all people — particularly the marginalised and workers in affected industries — at its core.
ARE YOU READY TO TRANSFORM THE CHEMICALS & POLYMERS INDUSTRY?

REACH OUT TODAY

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