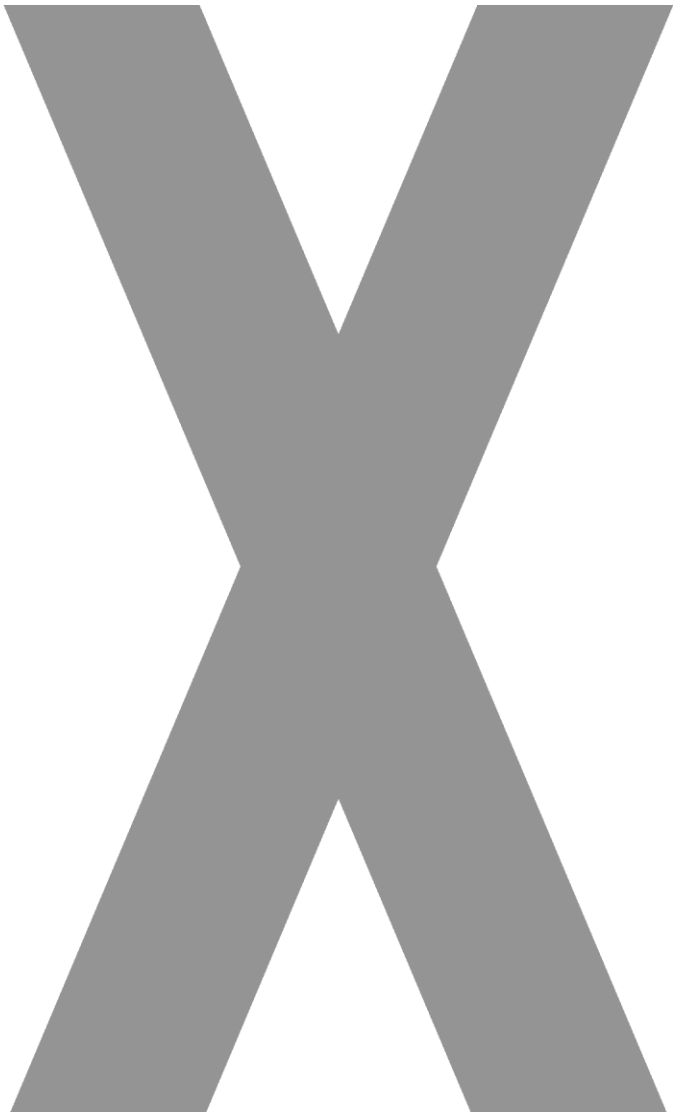
LANXESS
Energizing Chemistry

Sustainable Raw Materials at LANXESS



1 Introduction

LANXESS is a leading specialty chemicals company with a global presence. We offer solutions for consumer protection, specialty additives and advanced intermediates. With our activities, we make important societal contributions in areas such as addressing climate change, development of sustainable cities and securing the supply of food and clean water for a steadily growing population.

LANXESS supports the transformation of the chemical industry towards a resource efficient and climate-neutral value creation – which must be fair and safe. This includes our procurement activities. The emissions of our purchased goods often contribute to more than 50% of our product carbon footprint. We therefore are committed and have the ambition to continuously increase our portion of sustainable raw materials (bio-based, technically recycled, sustainable inorganics) with a reduced carbon footprint. This move from conventional, often fossil-based raw materials towards bio-based and circular resources not only leads to a reduction in greenhouse gas emissions but also makes our value chains less dependent on limited resources.

With this position paper, based on leading EHS standards, we want to reflect on what is crucial for our understanding of sustainable procurement standards especially with a focus on bio-based and circular raw materials.

2 Our understanding of sustainable raw materials

At LANXESS, we are using organic as well as inorganic raw materials in our production processes.

Organic raw materials today are primarily based on fossil sources such as crude oil, natural gas and coal. However, they can also be derived from bio-based sources or result from technical recycling processes.

Bio-based chemicals refer to products or raw materials that are based on biomass. Biomass is defined as material of biological origin, excluding material embedded in geological formations or transformed into fossilized material. According to ISO14067, biomass includes organic material such as trees, crops, grasses, tree litter, algae, manure, or waste of biological origin. Bio-based feedstocks are commonly categorized into three generations: First generation feedstocks include plant oil, starch and sugar, which in principle can also be used in the food chain. Second generation feedstocks consist of non-edible plant material and residues from forestry, agriculture and industry (including municipal waste), as well as energy crops that do not directly compete with food production. Third generation feedstocks are e.g. derived from algae which do not require agricultural land.

Technically recycled raw materials include products or raw materials obtained through recovery operations, in which products at the end of their life are reprocessed into new products, materials or substances - either for their original purpose or for other uses. Energy recovery and the reprocessing into materials used as fuels or for backfilling operations are excluded in our definition. Raw materials may be derived from mechanical or chemical recycling. Mechanical recycling refers to the processing of end-of-life products into products or secondary raw materials without changing the chemical structure of the material. In contrast, chemical recycling refers to the conversion of end-of-life products into substances or basic chemicals (e.g. monomers of plastic polymers) based on chemical processes. Chemical recycling includes processes like depolymerization, pyrolysis and gasification, amongst others. At LANXESS, we support all methods of recycling.

Inorganic raw materials today are primarily mined as ores, extracted from the air or sea (e.g. nitrogen and sodium chloride), or produced as by-products during the extraction of fossil fuels (e.g. sulfur). Their assessment should focus first and foremost on availability and accessibility, with particular consideration of their interaction with biological cycles. Inorganic raw materials vary in availability—some are considered unlimited because they regenerate naturally faster than they are used, while others are limited and unevenly distributed across regions. Raw materials such as nitrogen,

oxygen, and sodium chloride are examples of raw materials derived from natural sources and are generally considered to be abundantly available. However, even if inorganic raw materials are unlimited, they are not necessarily sustainable, since a high energy input (electricity) is required for their extraction. To reduce their carbon footprint, it is necessary to increasingly use renewable energy sources for the extraction and production of these raw materials. Additionally, inorganic raw materials can be technically recycled by applying recycling solutions as described above.

3 Our responsibility

At LANXESS, we are committed to a successful transition towards a sustainable, low-carbon economy and to contributing to the achievement of the Paris Agreement and the UN Sustainable Development Goals. We are convinced that the chemical industry needs to fully leverage the potential of bio-based and recycled products, as well as renewable energy to transform into a climate neutral and resource-efficient economy. This requires a clear framework to manage this transformation process in a responsible way.

LANXESS aims to reduce greenhouse gas emissions and the use of fossil-based materials by incorporating sustainably sourced bio-based chemicals in our production processes. When procuring biomass for our own use, we work with our suppliers to emphasize the importance of biomass production in a sustainable manner - ensuring it does not compete with food production or contribute to biodiversity loss and deforestation.

LANXESS is convinced of the need for - and benefits of - using bio-based chemicals. We believe that challenges such as food security, land use, biodiversity loss, and deforestation can be mitigated through responsible procurement practices. In the long run, we expect chemicals to be manufactured primarily from second and third generation feedstock. However, to support the transition from fossil-based to bio-based chemical pathways today the use of first-generation feedstock remains necessary.

Forests are essential to life on Earth. They hold the majority of the world's terrestrial biodiversity, regulate the water cycle, prevent soil erosion, provide clean air, and serve as habitats for endangered species and indigenous communities. As forests are also a major global carbon sink, protecting and restoring forests plays a crucial role in reducing climate change. LANXESS recognizes the importance of protecting the world's forests - for both the environment and society. We acknowledge our responsibility as an actor across various value chains and seek to obtain comfort that our suppliers are avoiding deforestation. This is pursued in alignment with SDG 15 (life on land), through certifications, assessments, or audits.

LANXESS purchases bio-based raw materials like oils and fats for the use as feedstocks for a few products. Palm oil plantations can contribute significantly to deforestation. Therefore, we do not use palm oil or its derivates as feedstock for high-volume chemicals (cracker products) or for energy production but only as a direct raw material from sustainable sources. We actively support the use of palm and palm kernel oil from sources certified by the Roundtable on Sustainable Palm Oil (RSPO) or other forms of sustainable palm oil. For these commodities, we support globally recognized sustainability certifications.

The four most commonly mined conflict minerals are cassiterite, wolframite, coltan, and gold ore. Countries or areas considered to be conflict-affected or high-risk are typically those that (1) possess natural resources - particularly minerals - that are in high demand, either locally, regionally or globally, and (2) are experiencing armed-conflict, such as civil war, are in a fragile post-conflict state, or witness weak or non-existent governance and systematic violations of international law, including human rights abuses. LANXESS is generally committed to using and procuring raw materials from conflict-free sources only. Currently, LANXESS does not use conflict minerals in its production.

At LANXESS, we support the use of circular raw materials derived from all different recycling options. We are open to partnering with companies that implement both

open-loop and closed-loop recycling. Hereby, we support both mechanical and chemical recycling. For the chemical industry, especially chemical recycling – the conversion of waste into raw materials – is an essential lever to achieve resource efficiency and to avoid greenhouse gas emissions. This process breaks down, for example, mixed plastic waste into basic chemicals that can be used as virgin raw material in the production of new products.

4 Transparency and collaboration along the value chain

LANXESS aims to offer a product portfolio consisting entirely of sustainable, net zero products by 2050. To transform our raw material portfolio and support this goal, we have launched our “Net Zero Sourcing Program”.

This program aims to initiate dedicated projects to actively procure raw materials with a reduced carbon footprint and to increase transparency regarding emission performance along the value chain by engaging with suppliers and shaping industrial standards. We have developed a data model to automate our emission reporting for raw materials, based on data from LCA databases (LCA = life cycle assessment) and supplier-specific data. We engage with our suppliers to enhance their involvement and knowledge regarding life cycle assessment and product carbon footprint methodologies along the value chain. We recognize that fostering the transition toward sustainability and managing our raw material portfolio requires a highly reliable data basis and a transparent view on related emissions. Therefore, we are eager to increase the respective data quality by using supplier-specific data and demand for highest standards of data validity.

To procure raw materials with a reduced carbon footprint, our strategic focus is on bio-based and circular raw materials, as well as raw materials produced using renewable energy, as outlined above. In doing so, we must take into account not only the availability of these materials, but also their cost-effectiveness. At the same time, we acknowledge the importance of improving process efficiency and leveraging technologies such as carbon capture to achieve short-term emission reductions. We consider transparency and close collaboration along the value chain as key to a

successful transformation. Therefore, we engage our supply chain partners to provide sustainability-related information - such as product carbon footprint data - in order to get a more transparent view on our upstream impacts and emissions.

We are also participating, together with other members of the “Together for Sustainability” (TfS) initiative, in building a robust solution for PCF calculation and sharing. This will ensure the transparency and accountability in the chemical industry and support effective emission management along the value chain.

We have established a digital infrastructure that enables a high level of transparency regarding total emissions, emission allocation, emission intensity, and data validity. In doing so, we are committed to several recognized standards and ensure that our data meets our quality requirements (including but not limited to e.g. ISO 14067, ISO 14026, ISO 14040, ISO 14044, and the Greenhouse Gas (GHG) protocol).

To ensure the validity of information regarding sustainable raw materials and their bio-based content, we are a member of the International Sustainability and Carbon Certification (ISCC) initiative. ISCC is a multi-stakeholder initiative, and ISCC+ is a well-accepted certification system that supports sustainable, fully traceable, deforestation-free, and climate-friendly supply chains. With our ISCC+ certified sites we contribute to sustainable, climate neutral and circular production.