SUSTAINABLE MANUFACTURING OF MEDICINES

POSITION PAPER

CENTRIENT™ Pharmaceuticals

LIVING OUR PURPOSE THROUGH SUSTAINABLE MANUFACTURING OF MEDICINES

At Centrient, our purpose is to improve lives through innovative and sustainable manufacturing of medicines.

We take our role as a supplier of medicines seriously. That is why we broadly define **"sustainable manufacturing of medicines,"** considering "sustainability" from multiple viewpoints. We strive for sustainability by:

- Partnering with nature to grow foundational medicines
- Growing our sustainable business
- Safeguarding continuous and responsible supply
- Preserving antibiotic efficacy
- Continuing to innovate products and processes
- Striving for positive impact in the communities where we operate
- Ensuring compliance with global standards and changing regulations

We have maintained a Gold Sustainability Rating from EcoVadis for several years, underlining our position as a leading sustainable supplier in the generic pharmaceuticals space.

PARTNERING WITH NATURE TO GROW FOUNDATIONAL MEDICINES

Our portfolio focuses on foundational medicines, which provide the cornerstone for healthcare systems. We are a leading global provider of antimicrobial medicines. Antimicrobial medicines, including antibiotics, are the basis of modern medicine[1] and these make up more than 75% of our product portfolio. [2,3] We also manufacture cholesterol-lowering statins, critical to help patients avoid heart attacks and strokes, some of the leading causes of death globally.

We use proprietary biosynthetic processes in manufacturing. Centrient developed enzymatic production in 2000, replacing the traditional 13-step, solvent-based production process for antibiotics and radically changing how penicillin is manufactured. Compared with traditional manufacturing for antibiotics, fermentation-based enzymatic production requires less energy, minimises the use of harmful solvents and chemicals, including substances of very high concern,[4] and can reduce greenhouse gas emissions by up to 50%.[5]

Water is essential to enzymatic production. We seek opportunities for water reuse and recycling wherever possible. We achieved our water consumption reduction target of 5% by 2025 ahead of schedule, with a 9.4% reduction in water consumption by 2023.[6] We treat wastewater according

to local regulations and best practice for antimicrobial resistance (AMR) avoidance, achieving compliance with the AMR Industry Alliance's predicted no effect concentration (PNEC) target across all of our sites and our suppliers' sites in 2022.[7]

As our manufacturing operations generate waste, we minimise impact on the environment through minimal waste generation and best practices for responsible waste management – including repurposing, energy recovery and recycling – that align with local regulations. We maximise repurposing of waste and strive to avoid landfill disposal, with 97% of waste repurposed in 2023.[8]

We regularly review any potential negative impacts in the ecosystems around our sites, assessing the resource consumption and impacts of our manufacturing operations. Water impacts are assessed annually and biodiversity impacts are assessed every five years.

GROWING OUR SUSTAINABLE BUSINESS

Our scaled platform, diversified portfolio and growing pipeline will continue to drive growth. Centrient manufactures a diverse portfolio of intermediaries, active pharmaceutical ingredients (APIs) and finished dosage forms (FDFs) covering beta-lactam antibiotics, next generation statins and anti-fungals. As we further diversify our product portfolio and broaden our pipeline, we expect to grow approvals of our FDFs as well as expand the geographies where our APIs are sold.

We have established an Innovation Lab in Barcelona, Spain, as a central hub for our dedicated Innovation and Technology Development team to grow our product pipeline and improve our processes in line with our ESG Ambition: reducing water and raw material use, lowering carbon emissions and limiting production waste.

Our ultimate measure of growth is increasing the number of patients reached with foundational medicines. Our goal is to facilitate access through a sustainable supply chain to reach 2 billion patients with our FDFs and products made from our APIs by 2030.

SAFEGUARDING CONTINUOUS AND RESPONSIBLE SUPPLY

Our backward-integrated global manufacturing footprint with a multi-country presence ensures high quality products and high reliability of supply for our customers, healthcare systems and patients. At Centrient, we have also proactively invested in diversifying our supply chain – including key suppliers, contract manufacturing organizations (CMOs) and our own production network – ultimately helping to secure reliable supply by protecting against supply and demand shocks as well as events that disrupt global logistics.

We are one of the few providers of antimicrobial APIs and FDFs with manufacturing capabilities in Europe, as pricing pressures and supplier consolidation have driven most antimicrobial manufacturing to Asia.[9] Our facilities in Europe and the Americas make key ingredients for antibiotics, and we are working to establish a system of mirror sites, where all products are supplied from at least two sites to ensure continuity.[10]

We further contribute to a responsible supply chain by carefully choosing partners whose ESG engagement aligns with ours, based on our sustainable sourcing model. We monitor ongoing compliance by engaging and collaborating directly with key suppliers through regular assessments on core ESG topics, audits and feedback sessions.[11]

PRESERVING ANTIBIOTIC EFFICACY

AMR is a top global health threat, according to the WHO, and threatens medical progress.[1] AMR occurs when bacteria no longer respond to antibiotics, making medicines ineffective and infections difficult or impossible to treat.[1]

We lead on manufacturing-focused AMR avoidance activities, with a supply chain that is fully compliant with strict PNEC[12] targets set by the AMR Industry Alliance. We worked with the British Standards Institute to set independent, global, industry-wide standards for sustainable antibiotic manufacturing, and achieved certification at our Santa Perpetua site in Spain.[13] We also engage communities and healthcare providers on education about antibiotic use.

CONTINUING TO INNOVATE PRODUCTS AND PROCESSES

We invest in the development of new products, manufacturing methods and processes. Building on our legacy of sustainable production, our dedicated Innovation Lab in Spain focuses on both product and process innovation. Centrient has set a goal to accelerate the development of new products and production practices, taking further steps to strengthen our biotechnology capabilities and our market-leading position in biosythetic production.

STRIVING FOR POSITIVE IMPACT IN THE COMMUNITIES WHERE WE OPERATE

Connecting and collaborating with our communities supports our license to operate. We are an active part of the communities where we operate, from hiring to making a positive impact through corporate social responsibility (CSR) programs. CSR programs are connected to our main ESG goals, and cover a wide range of activities from expanding access to healthcare services, public awareness and education initiatives and local disaster relief efforts, to responsible resource use and environmental protection and restoration. Through these and other CSR initiatives, we aim to impact 50,000 lives per year by 2030.[14]

ENSURING COMPLIANCE WITH GLOBAL STANDARDS AND CHANGING REGULATIONS

The expectations of our customers and stakeholders continue to evolve, and we strive to be best prepared for the ever-changing. Having a geographically diverse footprint means we take extra care to ensure that, regardless of location, we adhere to Organisation for Economic Co-operation and Development (OECD) principles[15] and all other applicable regulations globally or locally, throughout our operations and supply chain, including all manufacturing sites. Compliance on human rights, including workers' rights, bribery and corruption, taxation and fair competition are built into our governance processes and practices.[16] We have established a baseline evaluation of current monitoring mechanisms through a Human Rights Impact Assessment, with zero incidents of human rights violations reported. Our Sustainable Sourcing Policy enables the company to closely monitor more than 2,500 global suppliers on material ESG indicators.

[1]WHO. Antimicrobial resistance fact sheet. 21 Nov 2023.

[2]Internal Centrient data. Antimicrobials make up 78% of our portfolio at product level. For more information, see Centrient website, Our Products, Active Pharmaceutical Ingredients, Finished Dosage Forms.

[3]Centrient ESG Report 2023, pp. 12-13.

[4]Substances of very high concern are defined by the European Chemicals Agency (ECHA) as "substances that may have serious and often irreversible effects on human health and the environment." Full list published on the ECHA website.

[5]Estimated GHG reductions based on internal lifecycle assessments of enzymatic production vs. chemical manufacturing for active pharmaceutical ingredients (APIs)

[6]Reduction vs. 2015 baseline, Centrient ESG Report 2023, p. 26.

[7]Centrient ESG Report 2023, p. 28.

[8]Centrient ESG Report 2023, p. 6.

[9]Centrient website, Podcast: "Leading innovation in biotech with sustainable manufacturing"

[10]Centrient website, Our Global Network.

[11]Centrient Sustainable Procurement Update.

[12]PNEC stands for Predicted No Effect Concentration

[13]Centrient ESG Report 2023, p. 28.

[14]Centrient ESG Report 2023, p. 39.

[15]OECD Guidelines for Multinational Enterprises on Responsible Business Conduct.

[16]Centrient Human Rights Position.