

Indena at the forefront for the challenges of sustainability, starting from its product design. MIRTOSELECT® bilberry extract incorporates a true vision of circular economy

Global sustainability challenges are related to specific areas, such as climate change, biodiversity loss, food waste, poverty and health.

In the last ten years, companies and people have become more and more conscious and engaged in those challenges, also thanks to the United Nations 2030 Agenda which defined, in 2015, the 17 Sustainable Development Goals. Important actions are being taken by many companies and governments worldwide to achieve those goals.

But, as the world faces cascading and interlinked global crises and conflicts, the aspirations set out in the 2030 Agenda for Sustainable Development are in jeopardy. With the COVID-19 pandemic in its third year, the war in Ukraine is exacerbating food, energy, humanitarian and refugee crises – all against the background of a full-fledged climate emergency¹.

For this reason, being committed to sustainability is even more important today.

Indena keeps relentlessly working to generate sustainable impact on its stakeholders, cultivating with care its own precious circle: Nature, Technology, People. From Indena's point of view, only when we reconcile Nature, Technology and People – and start to see ourselves as part of an evolutionary journey, and of processes meant to sustain life – can we begin to work regeneratively.

One of the pillar of Indena's sustainability policy is a responsible care of supply chain and of production management. Its sustainability strategy in 2022 is based on 2 principles:

- implement circular economy in product design to reduce our environmental footprint up and down the value chain (e.g. climate change,

biodiversity) & increase our efforts to upcycle food waste;

- guarantee the CSR performance of botanical material & support suppliers reaching the required environmental and social performances.

Circular economy in product design: the innovative approach from Indena

Indena believes that the application of circularity in the economy creates vital ecosystems. And the company does its part applying the principles of circular economy in product design.

What does it mean actually? It's about transforming what is usually considered "waste"

into raw material or energy. Through business models such as reuse, companies can reduce greenhouse gas emissions, pollution and biodiversity impacts. Indena considers waste and pollution as design flaws, rather than inevitable by-products of the products it makes.

The design model is based on 3 principles:

1. upcycle or reuse product waste;
2. upcycle or reuse all the materials;
3. regenerate Nature.

Overall, Indena embraces circularity as an innovative paradigm that can create full wealth by bringing together Nature, Technology and People.



MIRTOSELECT®, Indena's bilberry extract: a fully circular product

MIRTOSELECT® is Indena's innovative bilberry extract. It incorporates a true vision of circular economy, with the upcycling of typically discarded – yet highly valuable – waste materials.

MIRTOSELECT® has indeed a positive impact on the 5 major global sustainability challenges: biodiversity conservation, zero waste, climate change, poverty and health.

Biodiversity conservation and fighting poverty are challenges addressed mainly through a responsible management of fruit picking. Currently, wild bilberries come from various forests across Northern and Eastern Europe. In those territories, bilberry picking is a cultural activity with crucial economic, social and environmental impact. Bilberry picking is now also encouraged by some governments as a way to face biodiversity issues caused by the over-exploitation of forests' natural resources, and timber trade in particular.

Indena's bilberry supply chain starts in Latvia, where Indena has chosen Pharmeko as its Sustainability Partner. Together, the two organizations are leading a Biodiversity Action Plan due to start in 2022, to ensure that wild bilberry collection practices contribute to biodiversity regeneration in Latvia.

The Biodiversity Action Plan covers an area of 719,419 hectares, where around 2,000 tons of fruit are collected. Indena will participate in the monitoring and evaluation of key indicators.

Moreover, in the mentioned countries bilberry harvest represents a possibility for rural families to make some extra income, while safeguarding at the same time the natural heritage threatened by excessive forest cutting. Pharmeko works to pick wild bilberries in the Madona-Novads region, across approximately 1,200 hectares of forest. Pickers deliver the bilberries daily to 180 collection points managed directly by Pharmeko, which goes on to condition, select and market the fruit. For the families involved, this means bringing home almost double the average monthly salary for a job that lasts about 40 days, by hand-picking approximately 20 kg of bilberries a day from the end of July to the beginning of September. Indena's choice of local bilberry supply chain also encourages integration within the whole community: for example, during the berry season, pickers circulate around harvest areas exchanging news and meeting other pickers. In addition, global legal companies secure more jobs and offer their employees more opportunities.

Zero waste is another goal achieved by Indena in producing MIRTOSELECT®.

Bilberries are made of approximately 85% water, 1.3% extract and 13.7% sugars, fibers and seeds. Processing about 3,000 tons/year thus would normally translate into 411 tons of waste to be discarded (13.7% of the total). But Indena's production process is able to use all material, leading to zero waste: all fruit waste, water and ethanol used in the production process are upcycled by Indena, and the process itself is optimized to minimize waste production. This leads to 400 tons of recycled vegetal material every year.

The zero waste process includes some specific actions: separate bilberry extract from sugar; reuse part of the sugar to standardize the extract, and the rest for the food industry; separate bilberry and ethanol, which is reused in the production process; fiber and seeds remaining after the first extraction and ethanol separation are reused twice to produce other products; seeds and fibers are first reused to produce Omega-3 oil for the



cosmetics and/or food industries (specifically for products that cannot contain fish); remainders are then sold to the animal food industry.

The **zero waste approach** includes a waste-water reuse as well. Indena processes its bilberry extract in a dedicated plant where the use of cooling water is minimized thanks to cooling towers, where water is put in contact with the air to reduce temperatures so that it can be reused. The only additional water used is the amount needed to compensate for evaporation. Thanks to this process, water could be potentially reused indefinitely. After the production process, waste-water derived from the production process is first treated internally and then sent to the municipality filtration system.

Moreover, ethanol used during the extraction process (which is a biodegradable, eco-compatible and low-toxicity option that eliminates the use and generation of hazardous substances) is entirely recycled throughout the production process starting from the vegetal biomass, and is reused for further extraction. This way, ethanol can potentially be reused indefinitely, reintegrating only the physiological losses due to processing.

To face **climate change challenge**, Indena has been working since years to manage energy consumption in the most sustainable way. Thanks to continuous investments in efficient production systems, Indena has reduced its energy consumption and currently 75% of the energy for Indena's main plant in Italy is auto-produced by Indena itself thanks to cogeneration, steam turbines and solar panels.

Last but actually not least, MIRTOSELECT® may be effectively helpful for human health, being a nutraceutical product with positive proven benefits in vascular health and ophthalmology.

In a few words, it can be said that from the plant origin to the finished product, MIRTOSELECT® represents a safe and sustainable choice for people and nature.

Reference:

¹ The Sustainable Development Goals Report 2022, <https://unstats.un.org/sdgs/report/2022/The-Sustainable-Development-Goals-Report-2022.pdf>.

Please contact:

Laura Bo

External Communication and Sustainability

Email: laura.bo@indena.com



SCIENCE IS OUR NATURE. SINCE 1921

www.indena.com

