Creating a truly climate-neutral car by 2030. Polestar aims to be transparent about sustainability, and information about the sustainability aspects of the vehicle from cradle to gate – from the sourcing of the raw materials to the time the finished product is extracted to the manufacture of components, that has its own identity and characteristics.

Material innovation: WeaveTech

The mining and production of EV lithium-ion batteries result in a number of environmental and human rights violations, so-called risk materials. In our traceability program we target materials that can be traced. A digital twin of the material is created that can be tracked. By tracing the Mica in Polestar 2’s batteries through blockchain technology, we gain visibility into the supply chain and can promote responsible sourcing.

Traceable risk materials include cobalt and mica. While some cobalt is produced using renewable electricity, this is not the case for all. Cobalt is an element used to boost battery life and energy density. Minerals, including cobalt, are also mined from the earth, and there are risks associated with mining. Our aim is to ensure that cobalt is mined responsibly and with associated risk of child and forced labour as well as safety and health risks.

Mica is a group of silicate minerals used for thermal isolation within the vehicle. The jump to cleaner cars. Mica has unique physical properties than can help material innovation. The Polestar manufacturing facility in Taizhou has been instrumental in helping Polestar materials are going into the factory from which they originated.

Our leather is also fully traced in a process controlling and monitoring the farms and production processes. All leather used in Polestar products must meet the strictest standards on animal welfare and production processes.

Facial recognition is used to ensure that only the right material is going into the car. The system works by recognizing the unique properties of each material and comparing them against a database of known materials. This helps to ensure that the correct materials are used in the assembly process.

The mass balance of the material is calculated using a variety of methods, including mass balances, life-cycle analysis (LCA), and cradle to gate analyses. These methods allow us to quantify the amount of material that is used in the manufacturing process and to determine the amount of material that is lost through waste or other anomalies in the logistics.

The Polestar manufacturing facility in Taizhou has been instrumental in helping Polestar to gain visibility into the supply chain and to promote responsible sourcing. We are working to change how materials are traced, monitored, and traced materials are going into the factory from which they originate.

Over 25% of the mass balance of the materials was assessed, read the original LCA report here.

The carbon footprint of Polestar 2 includes greenhouse gas emissions generated from cradle to gate – from the sourcing of the raw materials to the time the finished product is extracted to the manufacture of components.