



Corporate Communications

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Battery recycling: Audi and Umicore start closed loop for cobalt and nickel

- **More than 90 percent of the cobalt and nickel in Audi e-tron* high-voltage batteries can be recycled**
- **Board of management member for Procurement Bernd Martens: “A closed loop for battery raw materials is a great technological leap on the road to a carbon-neutral balance”**

Ingolstadt/Brussels, December 17, 2019 – Sustainable battery recycling: Audi and Umicore have successfully completed the test phase of their strategic research cooperation. The result is that more than 90 percent of the cobalt and nickel in the high-voltage batteries of the Audi e-tron* can be recovered. The car manufacturer and the materials technology and recycling expert are therefore now entering the next phase. As of January, the partners will cooperate on a closed loop for cobalt and nickel. The recovered materials will be used in new battery cells.

For this closed-loop pilot project, Umicore will receive cell modules from the Audi e-tron model, which will initially be taken from development vehicles. From those cells, the materials technology expert will recover cobalt and nickel, and process them into precursor and cathode materials. From this, new battery cells containing recycled cobalt and nickel can be produced. Since the beginning of development of its first fully electric cars, Audi has worked on the recycling of the vehicle. The company aims to apply resources efficiently and purposely pursues this idea in all directions. In the future, further recycling skills are to be developed.

“A closed loop for battery raw materials is a big leap technologically. We save precious resources and reduce CO₂ emissions. In this way we come significantly closer to our goal of a sustainable supply chain and reach a milestone on the road to achieving an overall carbon-neutral balance by 2050,” says Dr. Bernd Martens, member of the board of management for Procurement and IT at Audi. “It is our aim to think sustainability holistically. This includes dealing with the remaining ‘end of life’ as well as resource-saving development of our products.” Furthermore, Marc Grynberg, CEO of Umicore added: “Umicore is committed to enabling the transition to electrified mobility. Innovative technologies, responsible sourcing and closing the materials loop will lead



the drive towards clean mobility. This project with Audi is at the forefront of the development of a sustainable value chain for electrified transport.”

– End –

***Fuel consumption of the models named**

Audi e-tron:

Combined electric energy consumption in kWh/100 km*: 24.3 - 20.6

CO₂ emissions combined in g/km (g/mi): 0

(Information on fuel/electricity consumption and CO₂ emissions in ranges depending on the equipment and accessories of the car.)

The indicated consumption and emissions values were determined according to the legally specified measuring methods. Since September 1, 2017, type approval for certain new vehicles has been performed in accordance with the Worldwide Harmonized Light Vehicles Test Procedure (WLTP), a more realistic test procedure for measuring fuel consumption and CO₂ emissions. Beginning September 1, 2018, the WLTP will gradually replace the New European Driving Cycle (NEDC). Due to the realistic test conditions, the fuel consumption and CO₂ emission values measured are in many cases higher than the values measured according to the NEDC. Vehicle taxation could change accordingly as of September 1, 2018. Additional information about the differences between WLTP and NEDC is available at www.audi.de/wltp.

At the moment, it is still mandatory to communicate the NEDC values. In the case of new vehicles for which type approval was performed using WLTP, the NEDC values are derived from the WLTP values. WLTP values can be provided voluntarily until their use becomes mandatory. If NEDC values are indicated as a range, they do not refer to one, specific vehicle and are not an integral element of the offer. They are provided only for the purpose of comparison between the various vehicle types. Additional equipment and accessories (attachment parts, tire size, etc.) can change relevant vehicle parameters, such as weight, rolling resistance and aerodynamics and, like weather and traffic conditions as well as individual driving style, influence a vehicle's electrical consumption, CO₂ emissions and performance figures. Fuel consumption and CO₂ emissions figures given in ranges depend on the tires/wheels used and chosen equipment level.

Further information on official fuel consumption figures and the official specific CO₂ emissions of new passenger cars can be found in the “Guide on the fuel economy, CO₂ emissions and power consumption of all new passenger car models,” which is available free of charge at all sales dealerships and from DAT Deutsche Automobil Treuhand GmbH, Hellmuth-Hirth-Str. 1, 73760 Ostfildern-Scharnhausen, Germany (www.dat.de).

The Audi Group, with its brands Audi, Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles in the premium segment. It is present in more than 100 markets worldwide and produces at 18 locations in 13 countries. 100 percent subsidiaries of AUDI AG include Audi Sport GmbH (Neckarsulm), Automobili Lamborghini S.p.A. (Sant'Agata Bolognese, Italy) and Ducati Motor Holding S.p.A. (Bologna, Italy).

In 2018, the Audi Group delivered to customers about 1.812 million automobiles of the Audi brand, 5,750 sports cars of the Lamborghini brand and 53,004 motorcycles of the Ducati brand. In the 2018 fiscal year, AUDI AG achieved total revenue of €59.2 billion and an operating profit before special items of €4.7 billion. At present, approximately 90,000 people work for the company all over the world, more than 60,000 of them in Germany. Audi focuses on sustainable products and technologies for the future of mobility.
