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PRESS RELEASE

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Cromodora Wheels starts operation of a chip melting furnace supplied by Hertwich Engineering

High metal yield and low energy costs through modernized recycling of aluminium chips

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High metal yield and low energy costs in aluminium chip recycling at Cromodora Wheels thanks to the new chip melting furnace supplied by Hertwich Engineering.

Cromodora Wheels SPA has installed a chip recycling furnace for wheel production in Ghedi, Italy. The furnace, with a capacity of 10,000 tons per year, was successfully supplied and commissioned by Hertwich Engineering, a company of SMS group.

Since 1962 Cromodora Wheels has produced cast magnesium wheels used for competition and aluminium wheels. Currently the wheels are manufactured in the low-pressure casting process and using flow forming technology. As one of the leading wheel producers, Cromodora Wheels is today an official supplier of the most renowned automotive manufacturers in the world, such as BMW, Jaguar Land Rover, Daimler (including AMG and Smart), Porsche, Audi, Volkswagen, Skoda, Fiat, Maserati and Alfa Romeo. With the now commissioned Ecomelt melting furnace from Hertwich, the company is modernizing the recycling of its processing scrap.

In wheel production, machining chips regularly arise in large quantities in addition to a relatively low portion of piece scrap. Chip recycling is challenging, since the extremely unfavorable ratio of surface area and volume causes a significant material loss through burn-off. The traditional method of recycling chips is to compact the chips before melting, which reduces the metal loss, however, it requires an additional work step with considerable consumption of energy. In addition, the chips are frequently contaminated with adhering cooling lubricant.

The recycling system developed by Hertwich Engineering therefore offers a more economical solution, provided there is a sufficiently large volume of chips. With the combination of the Ecomelt concept and a special tailor-made plant technology, very low metal loss values are achieved during operation. This guarantees by far the most economical solution of this special recycling task, as the previously installed units around the world clearly prove.

In addition to the melting furnace, the scope of supply includes a chip pre-treatment facility with a bypass system for conveying the chips into separate transport containers. During pre-treatment the chips are centrifuged. Chips of unfavorable shapes are processed in a chip crusher to ensure stable further processing. In the process, undesirable elements are removed by a separator.

The chips prepared in this manner are then fed into the melting furnace. In the first step the charged chips are heated in a dryer to approx. 400 degrees Celsius within a few seconds using an intensive hot gas flow. Thereby moisture and organic contaminants are removed. The energy required is provided by hot gas from the melting furnace and the flue gases from the dryer support the heating of the furnace.

The preheated and cleaned chips are continually fed into the downward directed melting flow and immediately drawn under the bath surface towards the furnace bottom. The fast melting almost completely avoids metal loss due to oxidation – as a result, dross formation is also extremely low. The heat is removed to a very large extent from the flue gases in a regenerative combustion system and used to preheat the combustion air to approximately 900 degrees Celsius.

As a result, the process is characterized by a series of notable advantages:

The chip recycling process is integrated into the automated in-house material transport, ensuring continuous operation.

Metal loss values below 1.0 percent are achieved during operation. That even exceeds the value of conventional furnace units melting ingots. This means maximum metal recovery.

The Ecomelt technology developed by Hertwich results in low energy costs. The furnace achieves values of less than 600 kWh/t / (930 Btu/lb) (taking into account chip drying and combustion).

The plant provides a significant ecological benefit as it reliably meets the strict emission regulations valid in central Europe.

The excellent metal quality was attested by an objective and neutral inspection carried out during the development process, which showed that already in the untreated state the melt from the chip recycling furnace is not inferior to a melt ready for casting with regards to the content of non-metallic inclusions.

As a result of the high degree of automation, the complete plant, with a capacity of 10,000 tons per year, can be operated by just one operator per shift – another benefit in terms of economic efficiency.

SMS group is a group of companies internationally active in plant construction and mechanical engineering for the steel and nonferrous metals industry. It has some 14,000 employees who generate worldwide sales of more than EUR 2.8 billion. The sole owner of the holding company SMS GmbH is the Familie Weiss Foundation.