ADVERTISER FEATURE

SACMI sanitaryware GREEN focus

Total recovery of scrap, dust filtration (for a healthier workplace), water retrieval, energy efficiency and low emissions. SACMI Sanitaryware plants are the result of close teamwork by group companies and come with comprehensive solutions developed by SACMI Forni & Filter's Energy and Technologies for the Environment Division.

Completely circular use of fired waste, optimal recovery of raw materials, water and energy, and less consumption. These are the hallmarks of the **rECOvery solutions** provided by SACMI Sanitaryware. Developed in synergy with SACMI Forni & Filter's Energy and Environment Division, they provide sustainability-focused systems as part of the **We ARE Environment** range.

Fine-tuned in the laboratory based on real-life scenarios – an 'average' factory making a diversified mix of 750,000 pieces of sanitaryware a year – rECOvery solutions involve in-depth analysis to identify the type/quantity of recoverable material, and the relative technologies needed to provide immediate, measurable economic and environmental benefits for the customer.

Scrap recovery

Firstly, there's the recovery of fired scrap during production. Usually treated as waste, unlike unfired or dried scrap, which is reprocessed as a raw material, fired scrap can now be considered as a 'secondary raw material', suitable for replacing the 'hard' body elements (**quartz and feldspar**) or the chamotte used in Fine Fire Clay.

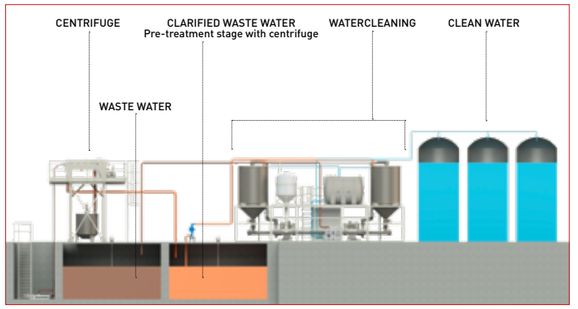
Indeed, SACMI points out that the machines are designed with scrap recovery in mind. This applies, for example, to **grinding lines**, an area in which SACMI has been the world leader for 40 years; these can be equipped with multiple stages to obtain a product of the required particle size. The result is zero waste and **near-total recyclability of fired scrap**, resulting in a **reduction in virgin raw materials consumption of over 10%.**

Dust recovery/treatment

A dust-free environment ensures machines and workers perform better. With the former, dust deposits can cause mechanical parts to malfunction or become unreliable. The latter, of course, needs to be able to count on a **healthy workplace**. Europe has a strict legislative-regulatory framework, and dust abatement in sanitaryware factories necessitates special **dust removal systems**.

Through Forni & Filter's Energy and Environment Division, SACMI provides a new generation of **dry bag filters**. Already a tried-and-tested solution in **raw material batching and preparation departments,** they are now used for treatment and recovery purposes during f**inishing and glazing.**

Again, the result is twofold: a healthier workplace and waste reduction, with the ability, in glazing for example, to recover **100% of overspray.**



Water savings/treatment of solids

Consuming as little water as possible and reducing reliance on water taken from wells and aquifers lies at the heart of the smart manufacturing approach. This water then needs to be treated to recover the **solid particles** it contains (i.e. the precipitate of suspended solids in wastewater).

Here, two processes are used: chemical-physical treatment of the **Euroblock** type, a proven application that has been in use for years and ensures water can be retrieved and reused elsewhere in the factory for specific purposes. The second **SACMI-patented process** maximises fluid and raw material recovery, thus minimising the water to be sent to for disposal. In this case, the adopted system is tangential flow filtration, a process that requires no chemical additives; this ensures the outgoing water has no particular impurities and can therefore be reused for 'higher-grade' purposes such as the **preparation of bodies, glazes and plaster moulds** or the washing of resin moulds. Even recovered solids can be converted from waste to resource by feeding them back into the mixture preparation system.

Note also the next-generation membrane ultrafiltration system. This lets manufacturers recover 100% of the raw materials dispersed in the mould wash water and in the glazing lines, **reducing water consumption and wastewater outflow by up to 80%.**

Energy recovery/reduction of emissions

The energy-saving and emissions reduction solutions used on **kilns** are co-developed by SACMI and **Riedhammer**, the network company that specialises in sanitaryware, tableware and special ceramics firing. Such solutions are defined together with the customer, starting with an analysis of the factory energy balance.

The first boost comes from the new EMS (energy management system) for partial or total heat recovery, which is incorporated into the **tunnel kiln** range. The second comes from **self-recovery burners** used in shuttle kilns. It is also possible to make full use of chimney fumes via **heat exchangers;** these allow fumes to be used as an energy source in other areas of the plant.

"THE RESULT IS ZERO WASTE AND NEAR-TOTAL RECYCLABILITY OF FIRED SCRAP, RESULTING IN A REDUCTION IN VIRGIN RAW MATERIALS CONSUMPTION OF OVER 10%.

For example, manufacturers can, thanks to effective use of energy waste from the kiln, set up drying systems with minimal energy consumption. Heat drawn from the chimneys can also be used in the **maturation rooms**, in **slip heating** systems or to warm the water used in the body preparation department.

An optimised Riedhammer kiln equipped with recovery systems can improve a factory's energy balance by up to **25%**, and that is without considering the higher **self-produced energy** quota provided by SACMI's integrated **cogeneration**, trigeneration and **photovoltaic panel** solutions.
All solutions can be evaluated and customised case-by-case. This involves assessment of the specific manufacturing context and customers' needs, with accurate estimates of **achievable savings** and **ROI time**.

***We ARE Environment** is the SACMI Sanitaryware solutions range for sustainability. Contact the SACMI team to learn more about the **rECOvery** solutions package that's best for you.*