Montello S.p.A is an Italian company that operates in several environmental sectors, and it is a leader in sorting, recovery and recycling of post-consumer plastic packaging as well as the treatment, recovery and recycling of organic waste coming from differentiated urban collection, with production of biogas from anaerobic process intended for the production of electric and thermal energy and final production of high-quality organic fertilizer.

The sorting plant separates and prepares the plastic packaging for the subsequent recycling process. The sorting, which is carried out by means of high-resolution NIR (Near InfraRed) detectors, is done by polymer and, in the case of PET containers for liquids, also by color. Afterwards, the material is packaged and stored in the warehouse, ready to be sent to the recycling plants. The PET bottles divided by color (clear, light blue, mixed colors) are converted into flakes through grinding, washing, floatation to eliminate foreign materials and centrifugation. The high quality of these PET flakes allows them to be used even in the most innovative applications (heat-formed blisters, plates, triple-layer containers, products for the building industry, automotive industry, textile industry, etc.).

Montello S.p.A.’s plant can receive and process 210,000 tons/year of waste of organic origin, including the organic fraction of solid urban waste (FORSU) coming from separate urban waste collection.

The adopted plant solution consists in an initial waste pre-treatment phase, followed by anaerobic digestion (aimed at the production of biogas used for the generation of electrical and thermal energy), and a subsequent aerobic composting phase of the sludge coming from the dehydration of the digested waste, aimed at the production of quality organic fertilizer.

Retsch Equipment
In their quality control laboratory they need to prepare a great number of samples each day. The major part are plastic samples, but the polymers, especially if coming from recycling processes, have different properties. For this reason they were looking for a very flexible sample preparation system able to cover different types of plastic samples with a maximum feed size up to 7-8 cm, and providing a high final fineness. The solution was RETSCH’s Cutting Mill SM 300 which is very much appreciated for its variable speed and excellent grinding performance.
Montello uses the mill with a parallel section rotor and a cyclone. One objective of their sample preparation was to achieve very fine grind sizes (< 500 micron) and a high degree of homogenization which guarantee a low standard deviation on the following analytical results. The high final fineness achieved with the SM 300 provided very good and representative results especially in the elemental analysis of chlorine. To achieve such fine results, the mill needs to be operated at high speed, i.e. more than 2500 rpm.

Dr Cattoi, responsible of the Montello QC lab says: “With the new SM 300 we have strongly reduced the time required for sample preparation time and the mill’s performance, even with very tough samples, is excellent!”