

## PRESENTATION OF A TWO STAGE PROCESS FOR ODOR-OPTIMIZED POST CONSUMER RECYCLED MATERIALS

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Post-consumer materials are already very common in various products of daily life and are used most of the time without any knowledge of the end consumer. But for some applications, e.g. products for house hold, car interior, the odor of recycling materials is an obstacle to the use of post-consumer materials.

For these applications EREMA offers a two stage process of a specially designed Intarema TVEplus in combination with a newly developed ReFresher for the production of an odor optimized Recyclat made of post-consumer materials. In the extrusion stage (first stage) volatile substances are evaporated in the EREMA Preconditioning Unit (PCU) and in the plasticization unit. This, already odor optimized, pretreated and preheated material is then transported directly to a thermo-physical cleaning stage (second stage), the so called ReFresher. In the ReFresher the Regranulat is flushed under temperature and time. Combining the patented Intarema TVEplus technology with the newly developed ReFresher a new market for post-consumer materials without any odor limitations can be reached.

In Figure 1 the VOC content of the material at different positions in the production process are shown. Within the contribution also the influence of process and product parameters (e.g. residence time, temperature, wall thickness, etc.) on the VOC content of the produced granulate, as well as on the final product (injection molding) are presented.

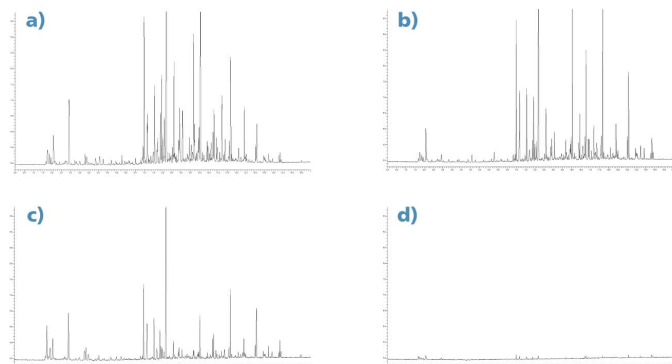


Figure 1: Gas chromatographic analysis of the VOC (volatile organic compounds) for evaluating the odors of products ((a.) Inputmaterial before the extrusion process; b.) material after the preconditioning unit (before entering the plasticization unit); c.) after the extrusion process with the Intarema® TVEplus Regrind Pro; d.) after further 7 hours of residence time in the ReFresher) [1]