

EPR and DRS Based Municipal Solid Waste Analysis Seasonal Campaigns in Hungary

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Abstract

The side effect of current modern lifestyle is the generation of significant quantity municipal solid wastes (MSW). The recycling of this waste stream is way easier if selectively collected materials containing only less material components are processed and recycled. For this reason Hungary has decided to introduce Deposit Refund Systems (DRS) for some plastic, metal and glass consumer packaging under the umbrella of existing Extended Producer Responsibility (EPR) systems. Key part of this work is to determine the fees for given packaging. This work made it necessary to carry out seasonal MSW analysis campaigns with which the EPR and future DRS composition of the generated waste can be measured at national level. For this reason a new MSW sampling and analytical methodology had to be developed and validated on the basis of the existing MSZ 21420-28 and 29 MSW sampling standards. Three MSW campaigns (2022 autumn and winter, 2023 spring) have been carried out when 360 averaged samples (about 160 tonnes) were analysed. Stratified sampling was done. Wet and dry compositions were measured. Selectively collected (SMSW) and residual (RMSW) wastes were sampled separately. Different sources of RMSWs, such as wastes from normal public waste management, from illegal deposition and from public cleaning, such as street sweeping, public area waste bins and park care were sampled separately. The source types of wastes such as family house area, block of flats area and business organization origin were separately investigated. Composition estimates have been done for the eight NUTS2 EU regions of Hungary by weighted averaging. Weighing was done on the basis of the number of habitants of different magnitude settlement classes.

Keywords: *Extended Producer Responsibility (EPR), Deposit Return Systems (DRS), waste sampling, municipal solid wastes (MSW).*