

## NEW APPROACH FOR CALCULATION OF RECYCLING RATES OF MUNICIPAL WASTE IN THE CIRCULAR ECONOMY (CE)

Aneta DOROSZ <sup>a</sup>, Agnieszka GENEROWICZ <sup>b</sup>, Henryk KULTYS <sup>c</sup>

<sup>a</sup> MSc Eng.; Miejskie Przedsiębiorstwo Oczyszczania Sp. z o.o. w Krakowie, ul. Nowohucka 1, 31-580 Kraków, Szkoła Doktorska Politechniki Krakowskiej, Wydział Inżynierii, Kraków

\*E-mail address: [aneta.dorosz@mpo.krakow.pl](mailto:aneta.dorosz@mpo.krakow.pl)

<sup>b</sup> PhD Eng.; Assoc. Prof.; Cracow University of Technology, Warszawska 24, 31-155 Cracow, Poland

\*E-mail address: [agenerowicz@pk.edu.pl](mailto:agenerowicz@pk.edu.pl)

<sup>c</sup> MSc Eng.; Miejskie Przedsiębiorstwo Oczyszczania Sp. z o.o. w Krakowie, ul. Nowohucka 1, 31-580 Kraków

Received: 13.11.2021; Revised: 24.11.2021; Accepted: 24.11.2021

### Abstract

In December 2020, new waste recycling targets were adopted for the functioning of municipal waste management systems, which are the result of the transformation of the Polish waste management system from a linear model into circular economy. Municipal waste management systems are very diverse, undergoing a constant evolution since 2013, i.e. since municipalities took over the management of the system, related to the collection, processing and disposal of waste, they must be effective, i.e. achieve the objectives of environmental policy. The assumptions of the European Union (EU) environmental policy, in particular new waste recycling rates set until 2035, determine the direction of development of waste management and at the same time the implementation of circular economy. The aim of the paper is to analyse the methods of calculating new recycling rates permitted by European law and to try to implement the methodology into national regulations. In addition, based on the available statistical data on the Polish municipal waste management system, the analysis was supplemented by simulation of solution enabling the achievement of high recycling levels in 2035.

Keywords: Municipal waste; Recovery; Recycling; Circular economy.