Pyrolytic Recovery as a Prospective Use of Plastic Waste Materials

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**Abstract.** Prospective use of plastic material components resulting from their pyrolytic recovery is presented in the paper. Selected plastic waste materials (PE, PP, PS) were evaluated using modern analytical method GS-MS after the low-temperature pyrolysis. The low-temperature pyrolysis and subsequent mass balance of various fractions of the selected plastic materials show that the sample of PS was well-suited to this application and this recovery is important in the case of all three samples as well. The presence of 26 substances with 1-Hexene (13.72%) was observed in the case of pyrolysis products, specifically PE. When investigating PP, 36 substances with the highest content of 2.4-Dimethyl-1-heptene (38.35%) were defined. 21 substances containing especially Styrene (79,97%) were determined as the major products of PS pyrolysis. Moreover, using the GC-MS analysis, it was found out that chemical compounds present in all samples could be further recovered. The possibility of using the pyrolysis to recover the plastic waste materials in order to protect the environment is necessary.