



European  
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Fund



**International Olympiad “5R – Green Technolympics”  
8-9<sup>th</sup> JANUARY, 2020, Klaipeda, Lithuania**

Participant name, surname:



## COMPANY QUESTION

### Short company description:

NEO GROUP, located in Klaipėda FEZ (Lithuania), was established in 2004. Our product – PET (Polyethylene terephthalate) is used for food and beverage packaging. Today, with the capacity over 500.000 tonnes per year, we are the largest PET manufacturer within EU.

As you may know, the PET, dedicated to plastic packaging, can be named as most environmentally friendly material in terms of CO<sub>2</sub> footprint than other substances: manufacturing and recycling requires much less energy, PET's exceptional capacity-to-weight ratio is key to its energy efficiency and climate change mitigation. With PET packaging being so light weighted and resistant, it significantly reduces the carbon emissions generated during transportation and product losses (no breakages).

PET is also the most widely recycled plastic in the world.

### Question:

NEO GROUP is actively contributing to the development of the circular economy through participation in EC-supported project DEMETO under the Horizon 2020 program, which objective is to foster plastic waste collection and recycling. Our research and technology team already testing the technology, which will allow us to convert post-consumer polyester waste to initial materials/starting substances: Ethylene glycol (EG) and Pure terephthalic acid (PTA).

Please identify, which technology named below will ensure effective circularization of post-consumer polyester - to decompose the collected PET waste (bottles, textile, etc.) into the raw materials from which virgin PET is produced and to re-use these raw materials by putting them back into PET production process:

### Please select the correct answer from the list below:

1. To granulate recycled PET to the nanoparticle (less than 65 nm) in closed type shredder
2. To melt (extrusion) and filtrate recycled PET through micro (50 -100 μm) filters
3. To mix recycled PET with water at 7 bar(g) pressure and use microwave as polymers destructive energy
4. To dissolve recycled PET in alkali and filter through a membrane filter at 55 ÷ 60 bar(g) pressure
5. To heat recycled PET in anoxic environment (pyrolysis) at 420 °C temperature.