



European
Regional
Development
Fund



International Olympiad "5R – Green Technolympics"
8-9th JANUARY, 2020, Klaipeda, Lithuania



COMPANY ANSWER

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.

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:

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.

Answer:

3. **To mix recycled PET with water at 7 bar(g) pressure and use microwave as polymers destructive energy**

Short explanation to the jury members:

*DEMETO project name is an acronym for the technology: **DE**polymerization by **MicrowavE** Technol**O**gy.*