

Supplementary material

Effects and impacts of different oxidative digestion treatments on virgin and aged Microplastic particles

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Virgin MPs Treatment: 30 °C, 60 mL H₂O₂

Before treatment

After treatment

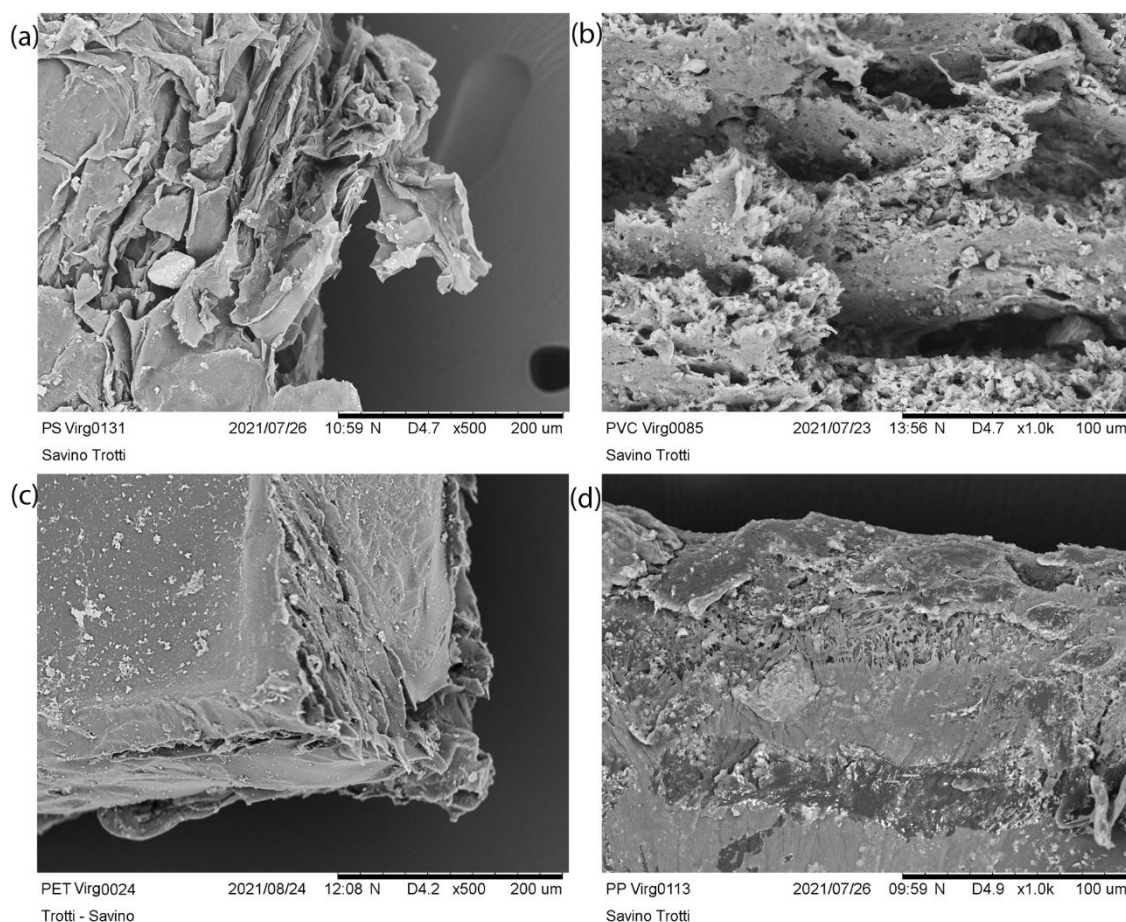


Figure S1. Detail on the effects of treatment at 30°C on polymers: a) slight damage to the PS; b) formation of small holes on the surface of the PVC; c) corrosion of PET margins; d) abrasion and corrosion of PP margins.

Virgin MPs Treatment: 50 °C, 60 mL H₂O₂

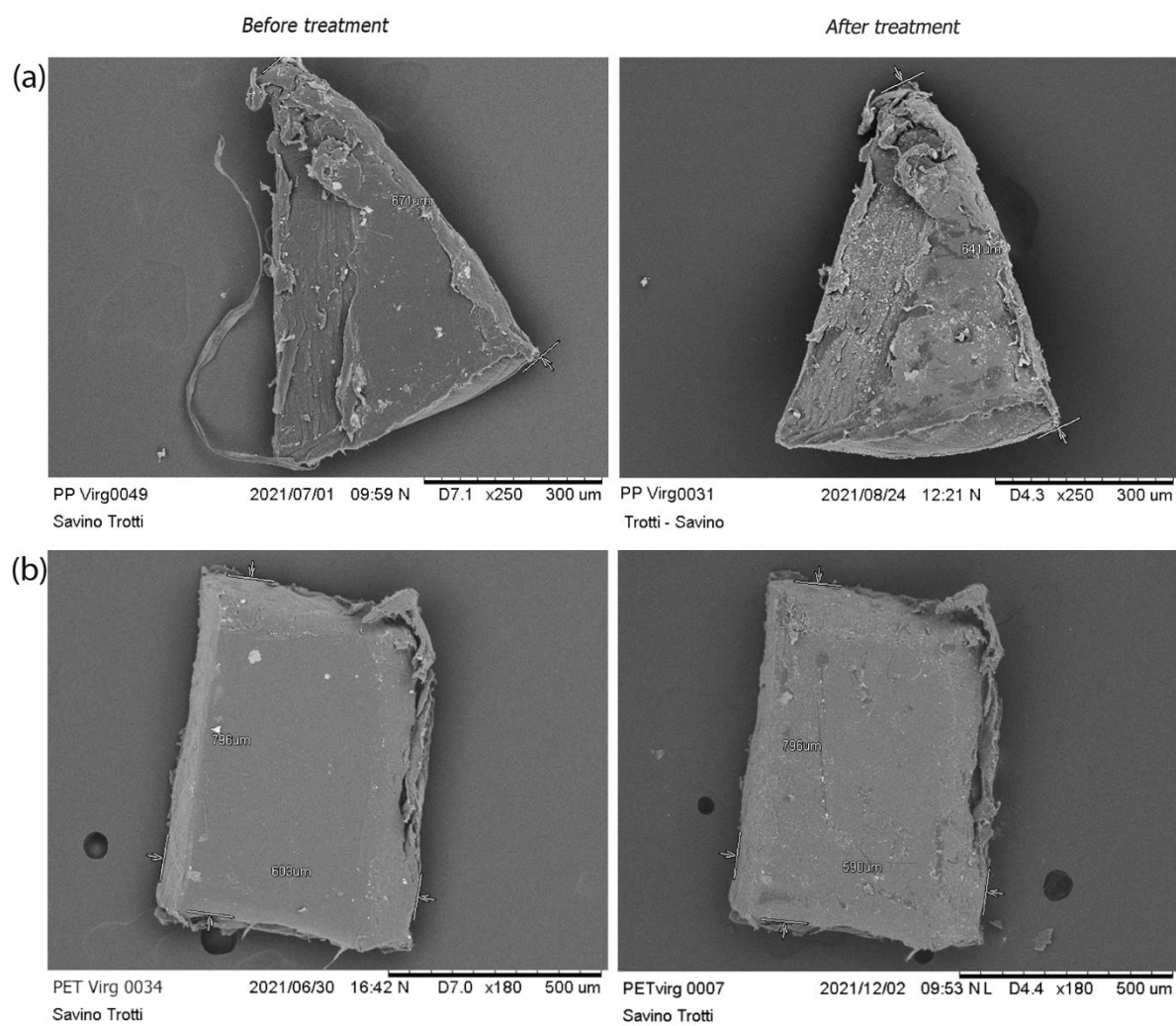


Figure S2. Slight size alteration caused by treatment at 50°C on virgin PP (a) and PET (b).

Virgin MPs Treatment: 75 °C, 100 mL H₂O₂

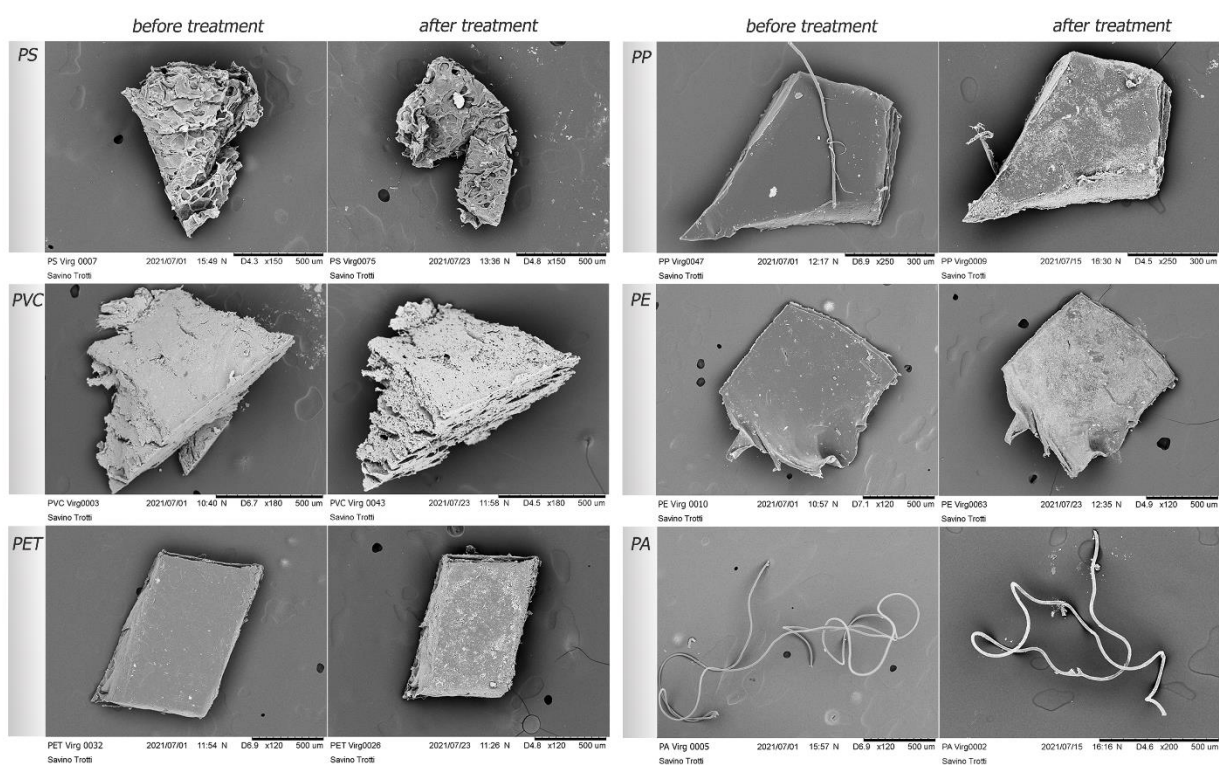


Figure S3. Overview of virgin polymer morphology before and after treatment at 75°C: loss of polymer material in PS; formation of large holes in the inside of PVC; corrosion of PP and PET margins, high resistance to PE and PA treatment.

Virgin MPs

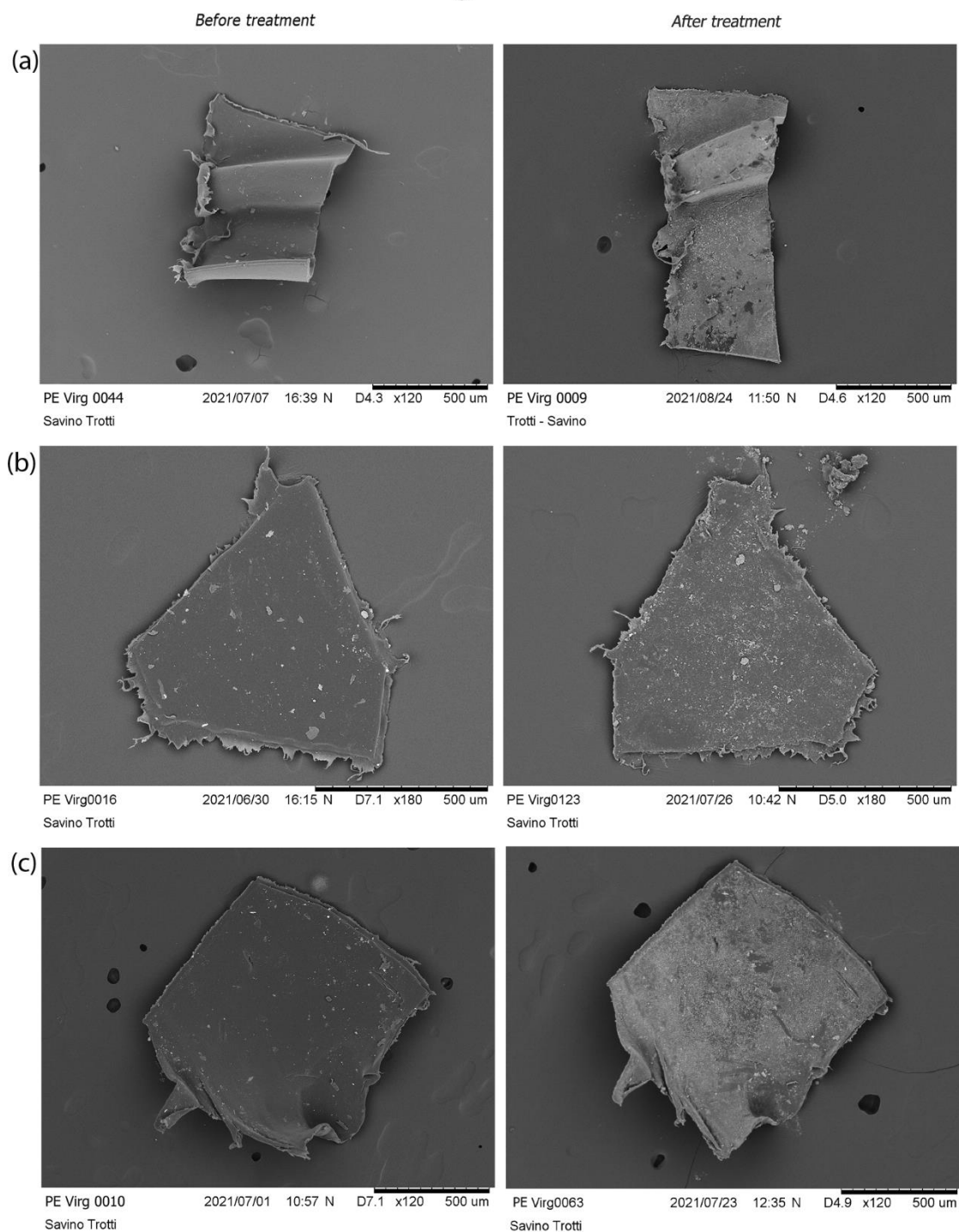


Figure S4. Visual demonstration of the high resistance of virgin PE after treatment at 30°C (a); treatment at 50°C (b), and 75°C (c).

Aged MPs Treatment: 30 °C, 60 mL H₂O₂

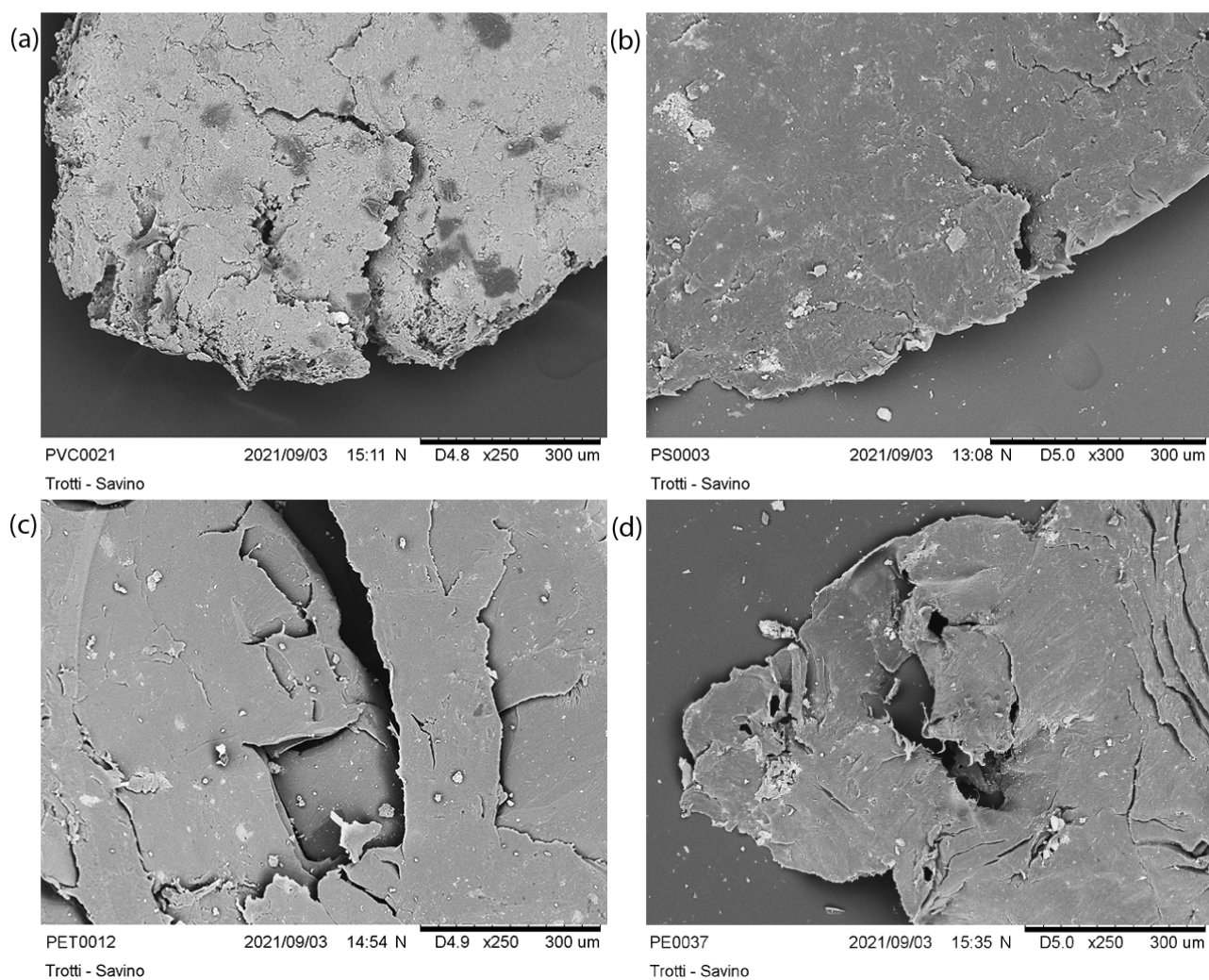


Figure S5. Focus on damage caused by treatment at 30°C on aged MPs: formation of cracks and breaks on PVC (a); PS (b); PET (c) and PE (d).

Aged MPs Treatment: 75 °C, 100 mL H₂O₂

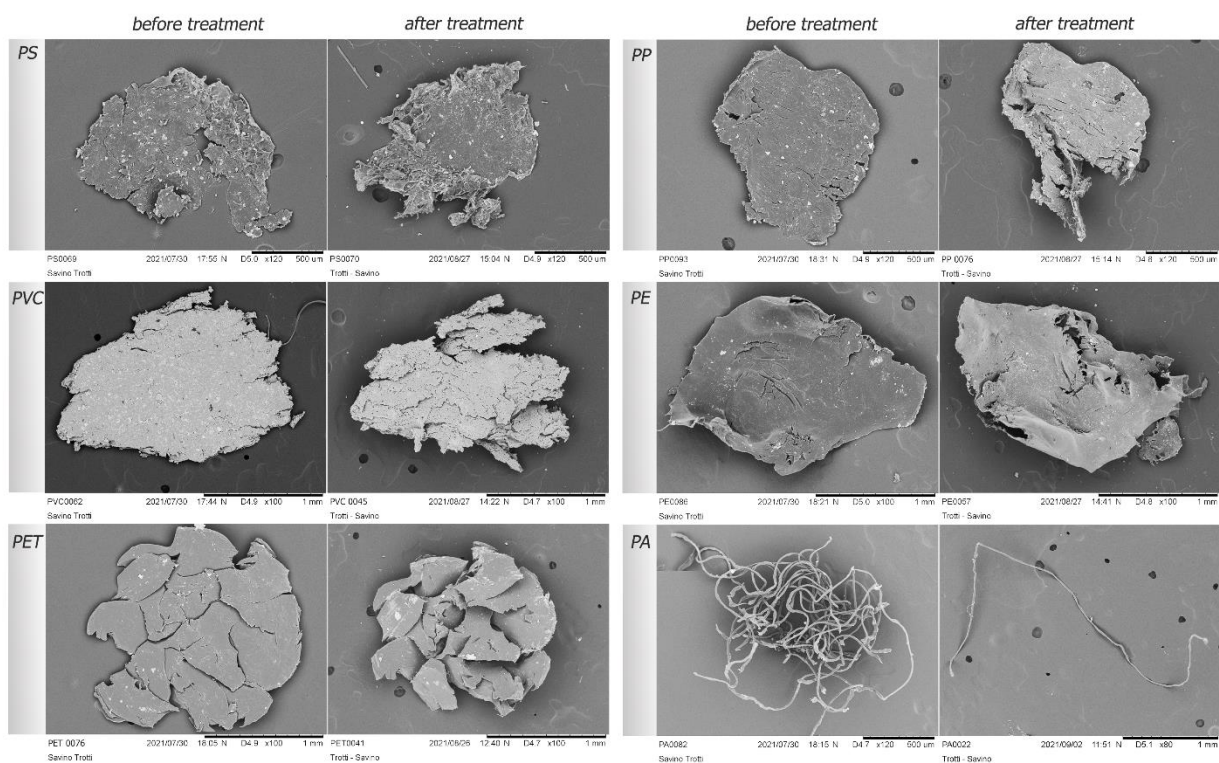


Figure S6. Overview of aged polymer morphology before and after treatment at 75°C: loss of material of PVC, PS and PP particles, cracks expansion of PET, PE corrosion and a fraying of PA.