

# Review of: "The Effects of Polypropylene Wastes on the Compressive Strength of Grade 25 Concrete"

Iman El-Mahallawi<sup>1</sup>

<sup>1</sup> The British University in Egypt

**Potential competing interests:** No potential competing interests to declare.

The idea of using waste polymeric-based materials, known as plastics, as replacements for some components of the natural materials used for making construction materials has gained interest among the relevant community of researchers and professionals. This approach includes two sustainability impacts, mainly finding a way to get rid of the polymeric waste piles and minimising the use of natural materials. Some efforts have been made by some authors to replace cement (which is an energy-consuming material and contributes to harmful emissions during its production stages). Sand, aggregates, and Portland cement are the main constituents studied. This work suggests and investigates using waste polypropylene material to replace the natural aggregates in concrete.

The authors focus on reporting the compressive strength of the new composites.

The work may benefit from

- 1) explaining why PP is selected and describing the preparation, mix, and treatment stages of the samples.
- 2) conducting FTIR tests on the virgin PP waste and the mixed concrete to identify the resulting functional groups.
- 3) discussing why different results are obtained in this work from other reports and published work claiming a drop in the strength of the concrete between 10 and 20% replacement of AF aggregates. [