present, that remains dissolved during the precipitation of the target polymer.

A further example is given by Zhao *et al.* (Waste Management, 69, 2017, 393-399), where a method including the individual separation of polymers present in a mixture by selective dissolution and precipitation is described.

WO2005/100461 discloses the dissolution of plastic using a phase separation agent, followed by precipitation of the plastic using an anti-solvent.

Another example is disclosed in WO2015/076868, wherein a method to recover a polymer is disclosed that comprises contacting a material of a target polymer and a first and second component with a solvent medium to attain a liquid-solid phase separation. The target polymer and second component remain in the solid material. This solid material is subsequently contacted with a solvent medium to further attain liquid-solid phase separation and therefrom the polymer may be recovered.

A further example is disclosed by Chandrasekaran *et al.* (ACS Sustainable Chem. Eng. 2018, 6, 4, 4594-4602), where *i.a.* a mixture of polycarbonate and polyamide was dissolved in dichloromethane or N-methyl-2-pyrrolidone, followed by precipitation of polycarbonate using an anti-solvent.

The methods typically do not provide sufficient yield and purity for polymer blends. A method to efficiently separate polymers from plastic waste and in particular from plastic waste comprising polymer blends with high purity and yield is therefore sought after.

It is an object of the present disclosure to provide another and preferably improved method for at least partially separating polycarbonate and a first component from plastic waste that overcomes at least part of the above-mentioned drawbacks. In particular, the method according to the present disclosure may be used to efficiently separate polycarbonate and the

first component with high purity and yield. The present inventors surprisingly found that a method based on nonselective dissolution and selective precipitation allows for such high purities.

Thus, in a first aspect the disclosure is directed to a method for at least partially separating polycarbonate and a first component from plastic waste, wherein said method comprises:

- dissolving the polycarbonate and the first component in a solvent to obtain a polymer solution;
- adding a weak anti-solvent to the polymer solution to precipitate the polycarbonate and obtain a polycarbonate precipitate;
- separating the polycarbonate precipitate from the polymer solution to obtain a polycarbonate fraction and a first-component rich solution;
- adding a strong anti-solvent to the first-component rich solution to precipitate the first component and obtain a first component precipitate.

Although the method according to the present disclosure requires multiple precipitation steps, the method provides a simple technique that does not require the use of *e.g.* a separation column with solids that need to be recycled and purified.

The polycarbonate and the first component are at least partially separated from plastic waste, which is typically provided as a mono stream. The plastic waste may be subjected to a pre-treatment step before dissolving the polycarbonate and the first component in the solvent. This pre-treatment step may comprise *i.a.* further shredding and/or the removal of color impurities.

It is preferred that the plastic waste comprises e-waste and/or automotive scrap parts, preferably e-waste. E-waste is a general term used to describe all electrical or electronic waste. It includes categories such as, but not limited to, household appliances (*e.g.* microwave), consumer electronics (*e.g.* televisions) and lamps (*e.g.* LEDs). More preferably, the