CLAIMS

1. A method for producing magnesium L-lactate salt by recycling of polylactic acid (PLA) waste, the method comprising the steps of:

   (a) hydrolyzing PLA waste with a base selected from sodium, potassium and ammonium hydroxide to obtain a PLA hydrolysis slurry comprising L-lactate monomers and a counterion selected from sodium, potassium and ammonium;
   (b) optionally performing at least one of neutralizing the PLA hydrolysis slurry with an acid and removing unhydrolyzed PLA waste; and
   (c) adding a magnesium salt to the PLA hydrolysis slurry of step (a) or (b) to thereby precipitate magnesium L-lactate salt.

2. The method of claim 1, wherein the base is sodium hydroxide.

3. The method of claim 1, wherein step (a) is performed at a temperature in the range of about 50°C to about 90°C; or wherein step (a) is performed for a period of time in the range of about 1 to about 24 hours or about 1 to about 12 hours.

4. The method of claim 1, wherein step (b) is performed and wherein the acid is selected from hydrochloric acid, hydrobromic acid, phosphoric acid, sulfuric acid, and combinations thereof; or wherein step (b) is performed and wherein removing unhydrolyzed PLA waste comprises solid-liquid separation.

5. The method of claim 1, wherein the magnesium salt in step (c) is added in solid form or as an aqueous solution.

6. The method of claim 1, wherein the magnesium salt in step (c) is magnesium sulfate.

7. The method of claim 1, wherein the obtained magnesium L-lactate salt is further subjected to subsequent purification; or wherein the magnesium L-lactate salt is combined with magnesium L-lactate salt derived from fermentation of organic waste followed by subsequent purification.