

Abstract

Recovery of components from carbon-rich materials

- 5 The present invention relates to a method for the recovery of graphite and preferably all other metal and organic constituents from graphite-containing materials, the method comprising:
- (a) providing a powdered or granulated graphite-containing material;
 - (b) mixing a first solution with the powdered or granulated graphite-containing
 - 10 material to form a first mixture and agitating the first mixture,
 - (c) filtering the first mixture to obtain a first permeate and a first residue,
 - (d) mixing the first residue with a second solution to dissolve metal therefrom to form a second mixture,
 - (e) filtering the second mixture to form a second permeate and a second residue,
 - 15 wherein the second residue is a graphite powder;
 - (f) recovering metals from the second permeate to form a metal-depleted second permeate,
- wherein the first solution comprises:
- (i) water;
 - 20 (ii) a first organic compound; and
 - (iii) a second organic compound.
- The process does so in a safe manner, introducing no sulphates or additional metal ions and allowing for complete recovery of constituents in a closed loop process.

25 (Figure 1)