CLAIMS:

~~2. The method of claim 1 wherein the abrasive grains are silicon carbide.~~

1. A method for separating and recovering silicon particles from silicon particles from silicon saw kerf resulting from slicing silicon wafers from a silicon ingot, the saw kerf comprising a lubricating fluid and a mixture of solid particulate comprising abrasive grains, silicon particles, metal particles and oxide particles, the method comprising:

separating at least a portion of the lubricating fluid from the solid particulate mixture;

washing the solid particulate mixture with an acidic solution in which (i) the silicon particles are substantially insoluble, and (ii) the metal particles and oxide particles are soluble, metal particles and oxide particles being dissolved from the solid particulate mixture,

wherein washing the solid particulate mixture comprises contacting the solid particulate mixture with an acidic solution capable of creating a flotation froth with the solid particulate mixture to thereby form an acidic flotation froth, the froth comprising the silicon particles and the abrasive grains;

collecting the washed solid particulate mixture, the washed mixture comprising silicon particles and abrasive grains; and,

separating the silicon particles from the abrasive grains in the washed solid particulate mixture, wherein the separated silicon particles have a carbon content of less than about 50 ppma and have a content of metal contaminants of less than about 150 ppma.

2. The method of claim 1 wherein the abrasive grains are silicon carbide.

3. The method of claim 1 wherein the acidic flotation froth solution comprises hydrogen fluoride and hydrochloric acid.

4. The method of claim 1 wherein the silicon particles are recovered from the froth by subjecting the froth to a density-dependent separation technique.

5. The method of claim 4 wherein the density-dependent separation technique is selected from sedimentation centrifugation, filtration centrifugation, and hydro-cyclone separation.

6. The method of claim 5 wherein, prior to the density-dependent separation, the silicon particles are contacted with a source of iodine, in order to convert at least a portion of the silicon present therein to SiI_4.

7. The method of claim 5 wherein, prior to the density-dependent separation, the silicon particles are contacted with a liquid having a density