

CLAIMS

1. A process for recovering oxalic acid from ferrous oxalate obtained in ferrous metal pickling industrial procedures, comprising
 - i) providing a water based slurry of said ferrous oxalate in an acid resistant, stirred, and temperature controlled reactor;
 - ii) admixing concentrated sulfuric acid in a predetermined amount to said slurry of step i, under stirring, and allowing to react the reaction mixture for a sufficient reaction time, thereby obtaining a suspension of oxalic acid solution and solid ferrous sulfate monohydrate, whereas the temperature of the reaction mixture increases due to the reaction heat;
 - iii) filtering said suspension of step ii, thereby separating ferrous sulfate monohydrate from the filtrate of said oxalic acid solution;
 - iv) cooling and stirring said filtrate, thereby crystallizing oxalic acid from said solution and precipitating it; and
 - v) separating, washing, and drying the precipitated oxalic acid.
2. The process of claim 1, comprising calculating the amount of sulfuric acid to be admixed in said step ii, so that said predetermined amount provides a weight ratio between sulfuric acid and ferrous oxalate dihydrate in said reaction mixture of between 3.5 and 5.
3. The process of claim 1, wherein the total amount of the added sulfuric acid corresponds to between 40 and 55 wt%.
4. The process of claim 2, wherein said ratio is between 3.6 and 4.8.
5. The process of claim 1, wherein said temperature is between 50 and 90°C.

6. The process of claim 1, wherein said temperature is between 60 and 70°C.
7. The process of claim 1, wherein said reaction time is between 20 and 60 minutes.
8. The process of claim 1, wherein said reaction time is between 35 and 45 minutes.
9. The process of claim 1, wherein said steps iv and v comprise
 - a) cooling said filtrate to a temperature between 5 and 15°C, preferably between 8 and 10°C;
 - b) separating the precipitated oxalic acid by filtration and washing it on filter with water saturated by oxalic acid; and
 - c) drying the washed oxalic acid at a temperature between 50 and 80°C, preferably between 55 and 70°C.
10. The process of claim 9, wherein the filtrates obtained during separating and washing oxalic acid in step b) are employed in preparing a reaction mixture for another batch according to the process of claim 1, thereby utilizing non-reacted sulfuric acid and non-filtered oxalic acid for increasing the overall yield.
11. The process of claim 1, wherein the purity of the recovered oxalic acid is at least 99.7%, and the recovery yield is at least 70%.
12. The process of claim 1, wherein the purity of the recovered oxalic acid is at least 99.9%, and the recovery yield is at least 90%.