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(54) Title: METHOD FOR PURIFICATION OF CALSIUM NITRATE AND PRODUCTS MADE THEREOF

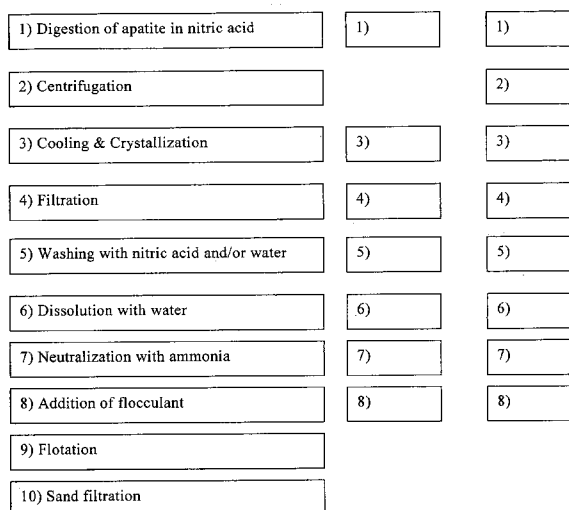


Fig. 1

(57) Abstract: The present invention relates to a method to produce purified calcium nitrate. Due to introduction of a centrifugation stage at an early stage in the process, sedimentation of water insoluble particles is prevented on a later stage of the process such that flotation can effectively be performed. Sand filtration finalizes the purification process of the present invention and thereby the amount of impurities in the liquor is surprisingly decreased. By this continuous method it is possible to achieve clearly purified calcium nitrate wherein the content of water insoluble particles is well below 150 ppm in solid calcium nitrate.

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AMENDED CLAIMS

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1. Method for production of purified calcium nitrate from a calcium nitrate melt comprising digesting apatite in acid (1), cooling and crystallizing the digested calcium nitrate liquor (3), filtrating calcium nitrate crystals (4),
5 washing the filtrate with nitric acid and/or water (5), dissolving with water (6), neutralizing with ammonia (7) and adding flocculant (8), characterized in that it also comprises centrifugation of the digestion liquor (2) before crystallization and flotation (9).
2. Method according to claim 1,
10 characterized in that it comprises sand filtration (10) after addition of the flocculant.
3. Method according to claim 1 or 2,
characterized in that it is a continuous method.
4. Method according to any of the preceding claims,
15 characterized in that centrifugation (2) is done with a decanter centrifuge.
5. Method according to any of the preceding claims,
characterized in that the flocculant is an anionic flocculant.
6. Method according to any of the preceding claims,
20 characterized in that addition of the flocculant (8) is done in an flocculation tank.
7. Method according to claim 6,
characterized in that the velocity gradient in the flocculation tank is 100 - 150 and the residence time is from 8 to 12 minutes.
- 25 8. Method according to claims 6 or 7,
characterized in that the flocculant is added in 2 portions, before and after the flocculation tank.
9. Method according to any of the preceding claims,
characterized in that flotation (9) comprises as dispersion liquid.
- 30 10. Method according to claim 9,
characterized in that the dispersion liquid is cold water saturated with air at 5 - 6.5 bar.
11. Method according to claim 9,
35 characterized in that the dispersion liquid is recycled purified CN melt saturated with air at 5 - 6.5 bar.

12. Method according to any of claim 2 to 11,
c h a r a c t e r i z e d in that the sand used for sand filtration (10) has a
particle size of 1.2 to 2.0 mm.