

(19) DANMARK

(10) DK 2002 00907 L



(12) PATENTANSØGNING

Patent- og
Varemærkestyrelsen

(51) Int.Cl⁷: B 01 D 39/04 B 01 D 39/06

(21) Patentansøgning nr: PA 2002 00907

(22) Indleveringsdag: 2002-06-14

(24) Løbedag: 2002-06-14

(41) Alm. tilgængelig: 2002-08-20

(71) Ansøger: Oilcare ApS, Islevdalvej 187, 2610 Rødovre, Danmark

(72) Opfinder: Kim Brogaard Wiese, Havfruevej 16, 2730 Herlev, Danmark

(74) Fuldmægtig: Hofman-Bang Zacco A/S, Hans Bekkevolds Allé 7, 2900 Hellerup, Danmark

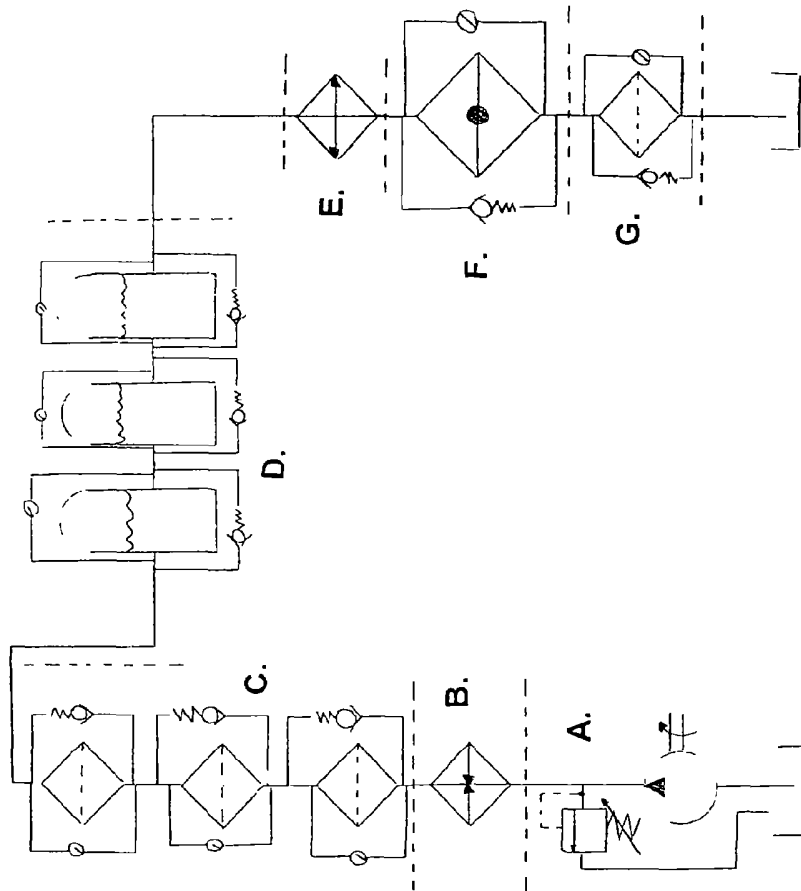
(54) Benævnelse: Fremgangsmåde og apparat til rensning af mineralisk olie

(57) Sammendrag:

The present invention concerns a process and an apparatus for the purification of mineral oil. The process comprises the steps of prefiltration of the oil followed by passing the prefiltrated oil through a filtering unit in which the filtermedia comprises organic fibres and carbon particles, said organic fibres and carbon particles being adhered to each other by a binder. By performing the process mineral oil is purified and hydrogen sulfide and residues from carbonization are effectively removed. Problems concerning blocking of the filters are reduced and the process is carried out in a continuous way resulting in a continuous flow.

fortsættes

Fig. 1



Patent Claims

- 1 A process for purification of mineral oil comprising the steps of
- 5 - prefiltrating the oil followed by
 - passing the prefiltrated oil through a filtering unit in which the
 filtermedia comprises organic fibres and carbon particles,
 said organic fibres and carbon particles being adhered to
 each other by a binder
- 10 2 A process according to claim 1 in which the oil is prefiltrated by passing
 through one or more prefiltration units
- 3 A process according to claim 2 in which the oil is prefiltrated by passing it
15 through more prefiltration units
- 4 A process according to claim 3 in which the prefiltration units remove
 particles with decreasing sizes in the direction of the flow
- 20 5 A process according to any of claims 3-4 in which the oil is prefiltrated by
 passing it through three prefiltration units
- 6 A process according to claim 5 in which the first prefiltration unit is trapping
 particles bigger than the order of magnitude of 12 μm , the second prefiltration
25 unit trapping particles bigger than 6 μm and the third prefiltration unit trapping
 particles bigger than 1 μm
- 7 A process according to any of claims 1- 6 in which the prefiltration is
 performed by using a filtering media made of glass fibres
- 30 8 A process according to any of claims 1-7 in which the filtering media in the
 filtering unit contains 5-95% carbon based on the weight of carbon particles
 and fibres

- 9 A process according to any of claims 1-8 in which the fibres in the filtering unit are natural fibres
- 5 10 A process according to claim 9 in which the fibres are cellulosic fibres
- 11 A process according to any of claims 1-10 in which the binder is a positively charged resin
- 10 12 A process according to any of claims 1-11 in which the fibres, the carbon particles and the binder is in the form of a filtering plate
- 13 A process according to claim 12 in which the filtering plate is supported by a net
- 15 14 A process according to claim 13 in which the filtering plate is supported by a net of plastic
- 15 A process according to claim 13 in which the filtering plate is supported by a net of steel
- 20 16 A process according to any of claims 1-15 in which the oil after being passed through the prefiltration units and before being passed through the filtering unit is passed through one or more vacuum units
- 25 17 A process according to any of claims 1-16 in which the oil before being passed through the prefiltration units is heated to a temperature of 50-90 °C
- 18 A process according to any of claims 1-17 in which the oil is cooled immediately before passing through the filtering unit
- 30 19 A process according to claim 18 in which the oil is cooled to a temperature of 10-30 °C

- 20 A process according to any of claims 1-19 in which the oil after being passed through the filtering unit is passed through an additional filtration step
- 5
- 21 A process according to any of claims 1-20 in which the oil is forced through the treatment steps by the use of a pump
- 22 An apparatus for the purification of mineral oil comprising
- 10
- means for prefiltrating the oil and
 - a filtering unit in which the filtering media comprises organic fibres and carbon particles said organic fibres and carbon particles being adhered to each other by a binder
- 15
- 23 An apparatus according to claim 22 in which the filtering media in the filtering unit contains 5-95% carbon based on the weight of carbon particles and fibres
- 20
- 24 An apparatus according to any of claims 22-23 in which the fibres in the filtering unit are natural fibres
- 25 An apparatus according to claim 24 in which the fibres are cellulosic fibres
- 25
- 26 An apparatus according to any of claims 22-25 in which the binder is a positively charged resin
- 27 An apparatus according to any of claims 22-26 in which the fibres, the carbon particles and the binder are in the form of a filtering plate
- 30
- 28 An apparatus according to claim 27 in which the filtering plate is supported by a net

- 29 An apparatus according to claim 28 in which the net is made of plastic
- 30 An apparatus according to claim 28 in which the net is made of steel
- 5 31 An apparatus according to any of claims 22-30 in which the prefiltration means comprise one or more prefiltration units
- 32 An apparatus according to claim 31 in which the prefiltration means
- 10 comprise more prefiltration means
- 33 An apparatus according to claim 32 in which the prefiltration units remove particles with decreasing size in the direction of the flow
- 15 34 An apparatus according to any of claims 32-33 in which the prefiltration means comprise three prefiltration units
- 35 An apparatus according to claim 34 in which the first unit is trapping particles bigger than approximately 12 μm , the second prefiltration unit is
- 20 trapping particles bigger than approximately 6 μm and the third prefiltration unit is trapping particles bigger than approximately 1 μm
- 36 An apparatus according to any of claims 22-35 in which the prefiltrating means comprise filters with a filtermedia made of glass fibres
- 25 37 An apparatus according to any of claims 22-36 said apparatus comprising one or more vacuum units said vacuum units being placed in the direction of the flow immediately after the prefiltrating means
- 30 38 An apparatus according to any of claims 22-37 in which a heater is placed in the direction of the flow immediately before the prefiltrating means

- 39 An apparatus according to any of claims 22-38 in which a cooler is placed in the direction of the flow immediately before the filtering unit
- 40 An apparatus according to any of claims 22-39 comprising an additional filter said filter being placed in the direction of flow after the filtering unit
- 5
- 41 An apparatus according to any of claims 22-40 comprising a pump

Fig. 1

