

Håmsø Patentbyrå AS  
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Oslo, 2017.11.14

Your ref.: P27810NO00  
Application no.: 20170575 (please include in your reply)  
Applicant: IPR Holding AS  
**Due date: 2018.05.14**

## **Office action in patent application no. 20170575**

### **Basis of the opinion**

Description: 2017.04.06  
Claims: 2017.04.06  
Drawings: 2017.04.06

### **Summary of the assessment**

The subject-matter of the present claims meets the criteria for novelty and inventive step, and is therefore patentable.

### **Results of the novelty search**

D1: US 2013089738 A1  
D2: US 2012174936 A1  
D3: BRPI 0501030 A  
D4: FR 818175 A  
D5: GB 484197 A

### **Assessment of patentability**

The present independent claim 1 concerns a method for producing activated carbon comprising (a) mixing a carbonaceous precursor with chemically activating agents to obtain a feedstock mixture, and (b) producing activated carbon by heating the feedstock mixture under the atmosphere of a physically activating gas, wherein step (a) comprises in sequence the sub-steps of (i) addition of a first chemically activating agent to obtain an impregnated precursor, and (ii) addition of a second chemically activating agent to obtain the feedstock mixture.

Independent claims 12, 13 and 14 concerns an activated carbon obtainable by the above method, carbon electrode comprising said activated carbon, and a supercapacitor comprising said electrode.

D1 (claims; example 1; paragraph [0002]) describes preparation of activated nanocarbon from food waste material, comprising impregnation of waste material powder with an activating agent, and activating the impregnated material in the presence of an activating gas. Use thereof in electrochemical capacitors is described (paragraph [0002]).

D2 (claims; example 1, 2) concerns a method for incorporating mesopores into microporous carbon comprising impregnation of microporous carbon granules with at least one of an alkaline earth metal salt and an alkali metal salt, followed by steam activation.

D3 (abstract) describes production of activated carbon from coconut shell fibers in which  $\text{ZnCl}_2$  or NaAc activating agent is impregnated to the raw material, followed by heating under nitrogen and carbon dioxide.

D4 (claim/abstract) describes manufacture of activated carbon where carbonization and activation takes place in the same rotary kiln in the presence of a continuous stream of water vapor and seeds which may first be impregnated with bi-ammonium orthophosphate.

D5 (claims; page 2, line 15-35) describes production of active carbon where a carbonaceous material in granular form is impregnated with an activating chemical and admixed with a mixture of materials which on heating to the activating temperature, react together to give a nonoxidising gas which flows through the granules of impregnated carbonaceous material.

#### *Novelty:*

None of the cited documents D1-D5 describes the characterising features of claim 1. The subject matter of claim 1, as well as dependent claims 2-11, is therefore novel. Activated carbon produced by the method of claim 1 is considered to have different or improved characteristics over the state of the art. Therefore the subject matter of independent claims 12, 13 and 14 is also novel.

#### *Inventive step:*

The closest prior art is considered to be represented by D1. The subject matter of claim 1 differs from D1 by the sequence of sub-steps in step a), i.e. the addition of a second chemically activating agent after the impregnation by the first chemically activating agent to obtain a feedstock mixture.

The objective technical problem to be solved by the method of claim 1, in view of D1, may be regarded as how to impart improved characteristics to the activated carbon.

The prior art according to D1-D5 does not contain information that would lead a person skilled in the art to the method of claim 1. A person skilled in the art who is to solve the above problem, would therefore need inventive skill to arrive at the method of claim 1.

Therefore the subject matter of claim 1, as well as independent claim 12, fulfils the requirements of patentability, ref. Norwegian Patents Act, section 2, first paragraph.

Consequently the subject matter of claims 2-11 and 13-14, which are subordinate to claim 1 and 12 respectively, is also patentable.

#### **Certain defects and observations**

The description should include references to D1-D5 in the section describing relevant prior art, see Examination Guidelines, part C, Chapter II, 3.2.1 and Regulations to the Norwegian Patents Act (Patent Regulations), Section 9.

The statement "characterised in that" (claim 1) should be highlighted.

## **Instructions**

You are requested to file amended documents according to the above.

In order to approve the application for grant of patent, documents prepared for publication of patent must be filed.

When a patent claim is amended, the applicant shall state where in the application as filed support for the amendment is found, ref. Regulations to the Norwegian Patents Act (Patent Regulations), section 20. If an amended description is filed, the applicant shall specify which parts of the description are not in accordance with the previously filed description and specify in which way the amendments imply anything new in respect of the substantive content, ref. Patent Regulations, section 21.

## **Time limit for response**

The applicant is invited to submit a written response within the due date above. If the applicant fails to submit observations or to take steps to correct a defect which has been pointed out, the application shall be shelved. However, the processing of the application may be resumed, ref. Norwegian Patents Act, section 15, third paragraph and Regulation Relating to Payments etc. to the Norwegian Industrial Property Office and the Board of Appeal for Industrial Property Rights, section 26 (Regulation on fees). The due date may be extended, ref. Regulation on fees, section 6, fourth paragraph, see also «patentretningslinjene del A, kap. I, punkt 5.1», (guidelines for examination). For submitting of documents see Regulation on fees, sections 1 and 2.

Norwegian Patents Act, Patent Regulations, Regulations on fees and "patentretningslinjene" are available on the Norwegian Industrial Property Office's webpage, [patentstyret.no](http://patentstyret.no).

Sincerely,

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Enclosures: Cited publications; Search Report