the two materials exist non-uniformly when viewed microscopically, and moreover, the two materials come to separate from each other over time because of the difference in particle size between the two materials. As a consequence, there is a risk that the performance of the canister or the like may deteriorate.

[0004]

A method of producing an adsorption material by mixing activated carbon, a binder, and a meltable core substance together, molding the mixture, and thereafter sintering the mixture has been disclosed (see Patent Literature 1 below).

CITATION LIST

Patent Literature

[0005]

[Patent Literature 1] Japanese Published Unexamined Patent Application No. 2011-132903

SUMMARY ~~OF INVENTION~~

TECHNICAL PROBLEM

[0006]

The adsorbent for canister disclosed in Patent Literature 1 above has such a structure that a meltable core substance is vaporized, sublimed, or decomposed by the thermal effect at time of sintering so that it substantially disappears, whereby pores of 100 nm or greater are formed. However, when the adsorbent is fabricated in such a method, activated carbon may, in some cases, not necessarily exist near the pores formed by the vaporization or the like of the meltable core substance, or even if it exists, the amount of activated carbon may be non-uniform. This means that the adsorption and desorption of a gas cannot be performed smoothly.

[0007]

Accordingly, it is an object of the present ~~invention~~ disclosure to provide an adsorbing/desorbing agent including porous carbon that can smoothly adsorb or desorb gases and liquids.

In one aspect of the present disclosure, there is provided an adsorbing/desorbing agent comprising a porous carbon having micropores and mesopores and/or macropores, wherein each of the three types of pores has an outer wall made of a carbonaceous wall and the micropores are formed so as to communicate with the mesopores and/or the macropores, the adsorbing/desorbing agent being characterized in that:

x is within the range of $1.0 \times 10^{-5} \leq x \leq 1.0 \times 10^{-4}$, and the relation between x and y satisfy the following expression (1), where x is a relative pressure (P/P_0) when measured at 77 K using nitrogen as an adsorptive gas, and y is a mass transfer coefficient (K_{sap}):

$$y \geq 1.67 \times 10^{-1}x + 2.33 \times 10^{-6}. \quad \ldots (1)$$

SOLUTION TO PROBLEM

[0008]

In order to accomplish the foregoing object, the present ~~invention~~ disclosure provides an adsorbing/desorbing agent comprising a porous carbon having micropores, and mesopores and/or macropores, wherein each of the three types of pores has an outer wall made of a carbonaceous wall and the micropores are formed so as to communicate with the mesopores and/or the macropores, the adsorbing/desorbing agent being characterized in that: x is within the range of $1.0 \times 10^{-5} \leq x \leq 1.0 \times 10^{-4}$, and the relation between x and y satisfy the following expression (1), where x is a relative pressure (P/P_0) when measured at 77 K using nitrogen as an adsorptive gas, and y is a mass transfer coefficient (K_{sap}):

$$y \geq 1.67 \times 10^{-1}x + 2.33 \times 10^{-6}. \quad \ldots (1)$$

[0009]

It is generally believed that the process that determines the rate of adsorption and desorption of a gas or a liquid to and from a porous solid (such as porous carbon) is the process of mas transfer in the pores or the laminar film. Accordingly, whether the adsorption or desorption rate is high or low can be evaluated by the mass transfer coefficient. As with the above-described configuration, when the relation between relative pressure (P/P_0, where P is adsorption equilibrium pressure and P_0 is saturation vapor pressure) and mass transfer coefficient (K_{sap}) satisfies the expression (1), it means that the adsorption and desorption of a gas or a liquid to and from the porous carbon is performed smoothly. Specifically, the details are as follows. Note that mass transfer