

(12) International Application Status Report

Received at International Bureau: 18 December 2019 (18.12.2019)

Information valid as of: 15 May 2020 (15.05.2020)

Report generated on: 21 September 2020 (21.09.2020)

(10) Publication number:

WO2020/116469

(43) Publication date:

11 June 2020 (11.06.2020)

(26) Publication language:

Japanese (JA)

(21) Application Number:

PCT/JP2019/047292

(22) Filing Date:

03 December 2019 (03.12.2019)

(25) Filing language:

Japanese (JA)

(31) Priority number(s):

2018-226918 (JP)

(31) Priority date(s):

03 December 2018 (03.12.2018)

(31) Priority status:

Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:

B01J 35/04 (2006.01); **B01J 29/46** (2006.01)

(71) Applicant(s):

NATIONAL UNIVERSITY CORPORATION HOKKAIDO UNIVERSITY [JP/JP]; Kita 8-jyo Nishi 5-chome, Kita-ku, Sapporo-shi, Hokkaido 0600808 (JP) (*for all designated states*)

FURUKAWA ELECTRIC CO., LTD. [JP/JP]; 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP) (*for all designated states*)

(72) Inventor(s):

NISHII Mai; c/o FURUKAWA ELECTRIC CO., LTD., 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP)

BANBA Yuichiro; c/o FURUKAWA ELECTRIC CO., LTD., 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP)

SEKINE Kaori; c/o FURUKAWA ELECTRIC CO., LTD., 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP)

NAKAI Yukako; c/o FURUKAWA ELECTRIC CO., LTD., 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP)

FUKUSHIMA Masayuki; c/o FURUKAWA ELECTRIC CO., LTD., 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP)

KATO Sadahiro; c/o FURUKAWA ELECTRIC CO., LTD., 2-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 1008322 (JP)

MASUDA Takao; c/o NATIONAL UNIVERSITY CORPORATION HOKKAIDO UNIVERSITY, Kita 8-jyo Nishi 5-chome, Kita-ku, Sapporo-shi, Hokkaido 0600808 (JP)

NAKASAKA Yuta; c/o NATIONAL UNIVERSITY CORPORATION HOKKAIDO UNIVERSITY, Kita 8-jyo Nishi 5-chome, Kita-ku, Sapporo-shi, Hokkaido 0600808 (JP)

YOSHIKAWA Takuya; c/o NATIONAL UNIVERSITY CORPORATION HOKKAIDO UNIVERSITY, Kita 8-jyo Nishi 5-chome, Kita-ku, Sapporo-shi, Hokkaido 0600808 (JP)

(74) Agent(s):

SAITO Takuya; Sapia Tower, 1-7-12, Marunouchi, Chiyoda-ku, Tokyo 1000005 (JP)

(54) Title (EN): FUNCTIONAL STRUCTURE

(54) Title (FR): STRUCTURE FONCTIONNELLE

(54) Title (JA): 機能性構造体

(57) Abstract:

(EN): Provided is a functional structure that suppresses functional degradation of a functional substance, thereby increasing the life of the functional substance, that does not require complicated replacement work, that saves resources, and that demonstrates excellent catalyst activity when used as a catalyst, for example. The functional structure comprises a carrier having a porous structure composed of a zeolite compound, and at least one functional substance that is present within the carrier. The carrier has passages that are linked with each other, and the functional substance is present in at least the passages of the carrier. The mean outer dimension of the carrier is 20 μm or less.

(FR): L'invention concerne une structure fonctionnelle qui supprime la dégradation fonctionnelle d'une substance fonctionnelle, augmentant ainsi la durée de vie de la substance fonctionnelle, qui ne nécessite pas de travail de remplacement compliqué, qui économise des ressources, et qui démontre une excellente activité catalytique lorsqu'elle est utilisée en tant que catalyseur, par

exemple. La structure fonctionnelle comprend un support ayant une structure poreuse composée d'un composé à zéolite, et au moins une substance fonctionnelle qui est présente à l'intérieur du support. Le support comporte des passages qui sont reliés entre eux, et la substance fonctionnelle est présente dans au moins les passages du support. La dimension externe moyenne du support est inférieure ou égale à 20 µm.

(JA): 機能性物質の機能低下を抑制して長寿命化を実現することができ、煩雑な交換作業を要せず、省資源化を図ることができ、例えば触媒として使用した場合には、優れた触媒活性を示す機能性構造体を提供する。機能性構造体は、ゼオライト型化合物で構成される多孔質構造の担体と、前記担体に内在する少なくとも1つの機能性物質と、を備え、前記担体が、互いに連通する通路を有し、前記機能性物質が、前記担体の少なくとも前記通路に存在し、前記担体の平均外形寸法が20 µm以下である。

International search report:

Received at International Bureau: 16 March 2020 (16.03.2020) [JP]

International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

(81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM