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(71) Applicant: **NIPPON KETJEN CO., LTD.** [JP/JP]; Seavans North, 2-1, 1-chome, Shibaura, Minato-ku, Tokyo, 1056791 (JP).

(72) Inventors: **NONAKA Kenji**; c/o Nippon Ketjen Co., Ltd. Research & Development Center, 17-4, Isoura-cho, Niihama-shi, Ehime, 7920002 (JP). **MORIMOTO Hirotaka**; c/o Nippon Ketjen Co., Ltd. Research & Development Center, 17-4, Isoura-cho, Niihama-shi, Ehime, 7920002 (JP). **OSHITA Ryuichi**; c/o Nippon Ketjen Co., Ltd. Research & Development Center, 17-4, Isoura-cho, Niihama-shi, Ehime, 7920002 (JP).

(74) Agent: **YUITA Junji** et al.; Subaru Patent Office, Kojimachi Koyo Bldg., 10, Kojimachi 1-chome, Chiyoda-ku, Tokyo, 1020083 (JP).

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(54) Title: A catalyst for hydrotreating hydrocarbon oil and a method of hydrotreating hydrocarbon oil using the catalyst

(57) Abstract: [Problem to be Solved] To provide a catalyst having hydrotreatment (hydrogenation, desulfurization and denitrogenation) performance that is equal to or superior to the prior art, as a hydrotreating catalyst for hydrocarbon oils, and a hydrotreating process for hydrocarbon oils using the catalyst. [Means to Solve the Problem] A hydrotreating catalyst for hydrocarbon oils comprising, at least one metal selected from the group 6 of the periodic table, at least one metal selected from the groups 8 to 10 of the periodic table, and optionally further phosphorus and/or boron as catalytic active components supported on an inorganic porous support based on alumina, wherein the inorganic porous support comprises, as constituent components thereof, silica in an amount of less than 1% by mass with respect to the mass of the oxide and a metal of the group 4 of the periodic table in an amount of less than 13% by mass as an oxide; wherein the metal of the group 4 of the periodic table is highly dispersed in the inorganic porous support, a degree of dispersion thereof is shown by that no peak is substantially observed in the wave number range of 100 to 200 cm⁻¹ by Raman spectroscopy and that no crystal is substantially observed by X-ray diffraction analysis; wherein the hydrotreating catalyst has a specific surface area of 100 to 300 m²/g, a pore volume of 0.2 to 0.5 ml/g, an average pore diameter of 6 to 10 nm, and a NO adsorption amount of 4.5 cm³/ml or more as catalytic characteristics; and wherein no crystals derived from the metal oxide salts of the group 6 of the periodic table are not substantially observed by X-ray diffraction analysis. [Selected Drawings] None



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