T18-440

Tohoku University's Invention

Porous copper catalyst

High density twin microstructure porous copper with heat stability, maintaining repeated catalyst, high durability

Summary

Porous metal made from nickel or chromium is known since old time and its catalyst usage is largely expected. Copper is a metal with high expectation for catalyst. Today, a new composition of the porous metal is required as a result of industrial development.

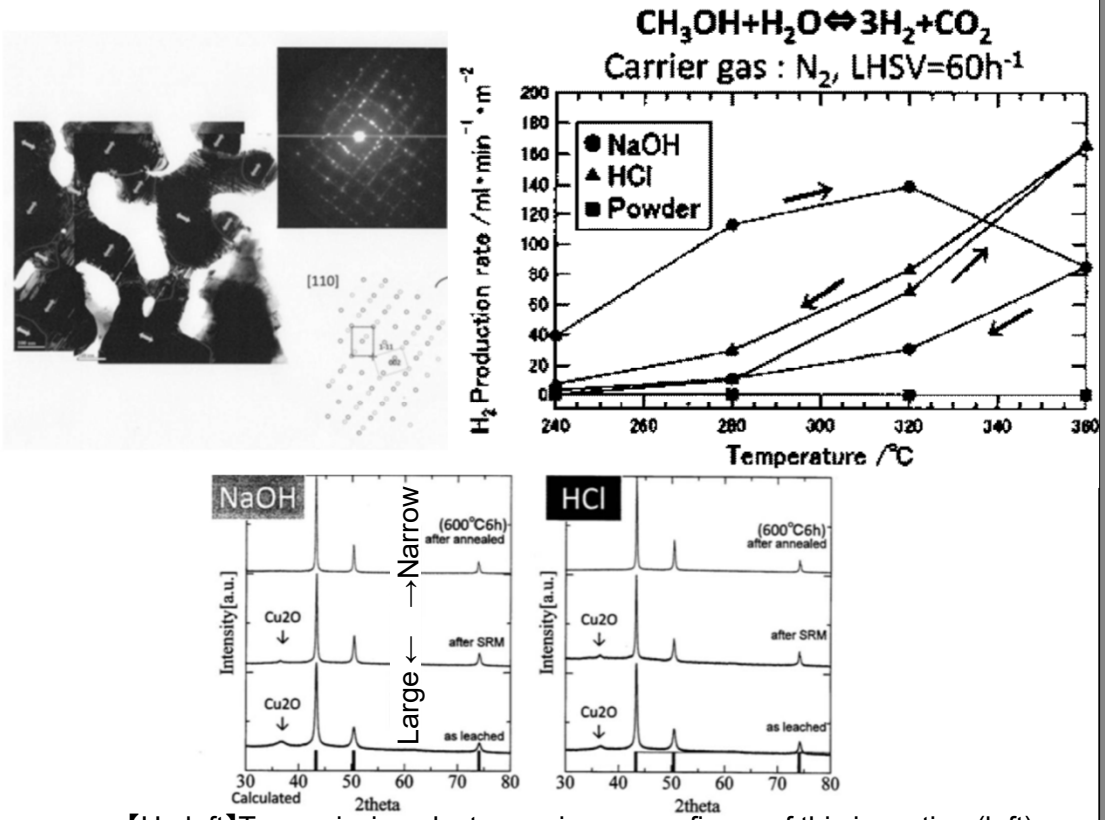
This invention can provide a new porous copper made by a brand new method. It is made by dissolving aluminium using leaching method with hydrochloric acid solution from a molten mixture of copper and aluminium. This invention has a high stability during heat treatment or reaction and the specific surface area decrease is low even after catalyst. It keeps also high catalyst activity after repeated catalyst operations or in high temperature condition and shows high durability.

Effect

- Maintain high catalyst effect in various severe conditions (repeated usage, severe heat condition, etc)
- High heat stability with low decrease of specific surface area

Application

●Catalyst in various domain such as steam reform of methanole or NO-CO reaction



【Up left】Transmission electrom microscope figure of this invention (left) and its electron beam diffraction pattern (right)
【Up right】Hydrogen-producing speed by steam reform of methanole using porous copper after HCl or NaOH leaching and copper powder as catalyst
【Down】Analysis results of X-ray diffraction of before/after catalyst and after annealing porous copper after HCl or NaOH leaching

Patent Data Sheet

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