

## 多孔質分子性結晶に発現する吸着特性と光物性

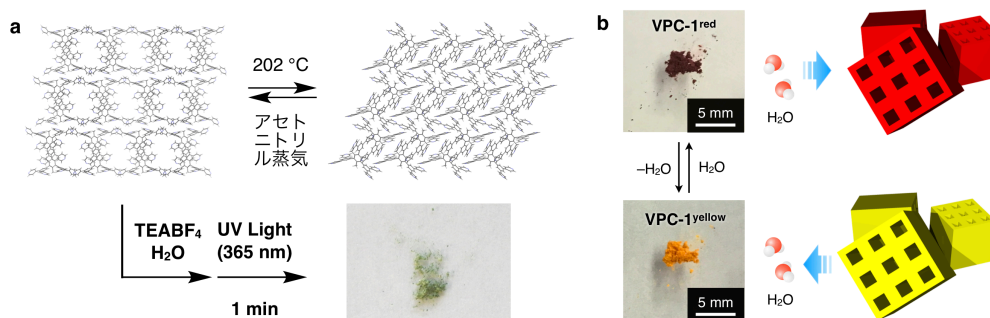
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Host-guest chemistry and optical properties of porous molecular crystals (<sup>1</sup> *Division of Materials Science, Faculty of Pure and Applied Sciences, University of Tsukuba*) ○Hiroshi Yamagishi<sup>1</sup>

Porous molecular crystals, whose constituent organic molecules are bound together via weak intermolecular interactions such as van der Waals forces, exhibit distinct structural flexibility and stimuli responsivity. However, the study about the porous crystals has yet to be established due to the difficulty in designing and synthesizing a thermally stable porous framework. Here, I introduce a series of novel porous molecular crystals that feature excellent thermal stability as well as unique chemical and physical functionalities. These crystals consist of aromatic dendrimers that spontaneously assemble into porous framework just upon simple re-crystallization in an appropriate organic solvent. Resultant porous crystals not only work as typical microporous adsorbate but exhibit self-healing ability, photo-chemical activity, and humidity-dependent chromism.

**Keywords :** Porous crystals; Molecular crystals; Self-healing; Photo-chemical reaction; Hydrochromism

ファンデルワールス力などの極めて弱い分子間力で構成分子が結び付けられている多孔質分子性結晶 (VDW 多孔質結晶) には、堅牢な多孔質結晶とは一線を画した構造柔軟性や刺激応答性が発現する。ただし、構成有機分子間に働く引力相互作用が弱いために戦略的な設計・合成が困難であり、これまでは偶然から見いだされてきた僅かな例が知られているのみであった。本発表では発表者が見出してきた VDW 多孔質結晶をいくつか紹介するとともに、結晶化プロセスと結晶構造との相関について新たに見出した知見について紹介する。また、これらの VDW 多孔質結晶に発現する特徴的な吸着能や光反応特性、湿度依存的なクロミズム特性などを紹介する。



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