[Supplemental material]

<Glossary>

Note 1) Double-decker silsesquioxane

Double-decker silsesquioxane was successfully synthesized for the first time in the world by JNC's research group. By attaining bifunctionality, a rigid polyhedral structure can be introduced into the main chain of the polymer, which leads to expectations for application in various engineering plastics including polyimide.

<Basic structure of double-decker silsesquioxane>



Note 2) Cage-type silsesquioxane

Cage-type silsesquioxane is a silicon compound having numerous excellent characteristics such as low dielectric properties and high heat resistance. Applied research for cage-type silsesquioxane as an inorganic component in organic-inorganic hybrid materials is actively pursued in the electronics and photonics fields.

End