



Press release
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MPI für Kohlenforschung develops new class of stable, easy-to-handle nickel complexes for practical application in nickel catalysis

Licensing of Ni(0)-stilbene complexes discovered by Dr. Josep Cornellà has started



The new Ni(0)-stilbene complex,
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The use of nickel as a catalyst for the formation of chemical bonds is of great importance to the chemical industry - applications range from the production of fine chemicals to the synthesis of pharmaceuticals, insecticides and pesticides. For the production of nickel complexes, industry has relied for many decades on nickel cyclooctadiene $\text{Ni}(\text{COD})_2$, a component discovered some 60 years ago at the MPI für Kohlenforschung by its Director at that time, Günther Wilke. $\text{Ni}(\text{COD})_2$ has since then proven to be a useful source, but requires extremely complex handling. As it decomposes immediately in air and is very temperature sensitive, it requires gloveboxes with inert gas atmospheres or "Schlenk" techniques that make it laborious to use and store.

Group leader Dr. Josep Cornellà of the MPI für Kohlenforschung has now succeeded in developing a novel series of Ni(0)-stilbene complexes that are stable in air and at higher temperature than $\text{Ni}(\text{COD})_2$. The new complexes open up a wealth of catalytic transformations and are a simple, practical and versatile replacement for $\text{Ni}(\text{COD})_2$. [Studiengesellschaft Kohle mbH \(SGK\)](#), which is associated with the MPI für Kohlenforschung and manages the institute's patent portfolio, and Max Planck Innovation, which is responsible for technology transfer of patents from Max Planck institutes worldwide, are experiencing a very high demand for the new catalyst compound.

"In my 13 years at Max Planck Innovation, I have never managed a technology where so many companies have proactively contacted us about a license, and the interest in the new nickel complex reported by Dr. Cornella from end users in industry and academia also seems unusually high," says licensing manager Dr. Lars Cuyper of Max Planck Innovation. The technology transfer organization was able to agree an initial licensing of the novel catalysts with the U.S. fine chemicals manufacturer [STREM Chemicals](#), which is now marketing the component to customers in science and research.

Patent attorney Dr. Matthias Nobbe of SGK in Mülheim an der Ruhr is also pleased that the institute's useful invention is now available to users: "After Dr. Cornellà's first publication on the novel catalysts, we immediately recognized a very strong interest from the scientific community worldwide. We are delighted to have found an established and strong partner in STREM Chemicals, who will make the new catalysts readily available for scientific and industrial research. And we look forward to receiving further inquiries for future large-scale technical applications, for which we can offer field-exclusive licenses."

The new family of binary 16-electron Ni(0)-stilbene complexes, developed under the leadership of Dr. Josep Cornellà of the MPI für Kohlenforschung, is stable at room temperature and in air for about one month. The properties are similar to the previously used - but unstable - nickel cyclooctadiene Ni(COD)₂ in terms of ligand exchange, catalytic reactivity and kinetic profile. Handling in inert atmosphere and the use of Schlenk techniques are not required. More information on the scientific background can be found in the publications [„An Air-Stable Binary Ni\(0\)-Olefin Catalyst“](#) in the journal Nature Catalysis and [„A Robust 16-Electron Ni\(0\)-Olefin Complex for Catalysis“](#) in Organometallics.

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