

Mechanochromic Luminescent Materials

METAL COMPLEXES MECHANOCROMIC LUMINESCENT MATERIALS

Day light



UV light



TECHNOLOGY

Mecanochromic luminescent materials are smart materials which change their emission colors when a mechanical force such as grinding is applied, while they can recover their initial emission by fuming or heating processes.

A class of mecanochromic luminescent materials are metal complexes. Most of such complexes are based on expensive metals such Pt(II), Ir(III) or Au(I),

This technology offer presents a new type of complex based on cheaper metals such bismuth or lead. These mecanochromic luminescent materials are coordination polymers based on simple ditopic ligand such N-oxide-4,4'-bipyridine.

Pictures on the left represent a patterned mecanochromic luminescent material under day light and UV-light. (the "A and M" letters have been preliminarily written using a heating pen)

APPLICATIONS

- Anti counterfeiting applications
- Coating additive for constraints monitoring
- Humidity sensor
- Solvent or temperature sensor

KEY BENEFITS

- Cheap metals and ligands
- High quantum yield
- Wavelengths range :
-un-grinded material : between 450 and 600 nm
-grinded material : between 500 and 650 nm

STAGE OF DEVELOPEMENT

Several mecanochromic luminescent materials based on bismuth and lead have been synthetized.

INTELLECTUAL PROPERTY

French patent application filed in 2016

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