



## TECHNOLOGY

# Non-Aqueous Photorheological Fluids with Light-Tunable Viscosity

## OVERVIEW

Recently, interest has grown in developing fluids whose rheological properties are tunable by light. These photorheological fluids are desired to be single-phase solutions that are structured at the nanoscale, such as in microfluidics.

Researchers have developed a non-aqueous fluid formation that displays significant light-sensitivity in its rheological properties. Certain compositions undergo photogelling, being transformed from low-viscosity solutions to viscoelastic, gel-like fluids upon UV radiation. As a result of the UV irradiation, the zero-shear viscosities of these fluids increase by as much as four orders of magnitude, or in other words, a factor of 10,000. It does so while being a single-phase solution not requiring the suspension of particles while utilizing the light stimulus to allow for the rheology to be tuned at precise locations.

Thus, the invention designs a class of non-aqueous photoresponsive fluids whereby zero-shear viscosity can be increased by a factor of 10,000, and is based upon inexpensive, readily available molecules.

For further information, please contact the Office of Technology Commercialization, (301) 405-3947, E-mail: [otc@umd.edu](mailto:otc@umd.edu).

## CONTACT INFO

UM Ventures  
0134 Lee Building  
7809 Regents Drive  
College Park, MD 20742  
Email: [umdtechtransfer@umd.edu](mailto:umdtechtransfer@umd.edu)  
Phone: (301) 405-3947 | Fax: (301) 314-9502

## Additional Information

### INSTITUTION

University of Maryland, College Park

### PATENT STATUS

Patent(s) pending

### LICENSE STATUS

Contact OTC for licensing information

### CATEGORIES

- Materials
- Chemical

## **EXTERNAL RESOURCES**

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