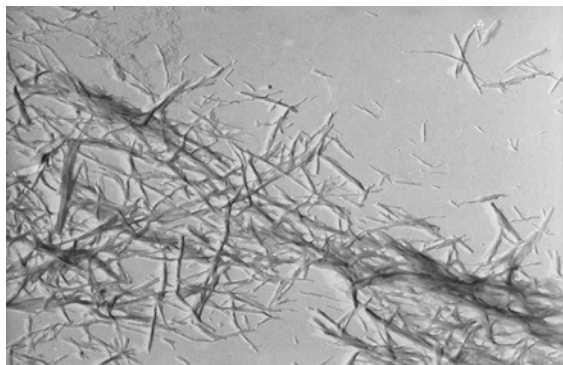


ORGANOGELEATORS FOR GELATION OF COMMERCIAL FUELS, ORGANIC SOLVENTS AND WATER

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Scientists from Rudjer Boskovic Institute have prepared compounds which are capable of forming gels with commercial fuels like petrol or diesel, various organic solvents, water and mixtures of water with DMSO and DMF.



Micrograph of oxalamide gel in petrol taken with transmission electron microscope.

MARKET OPPORTUNITY

The storage and transportation of liquid hydrocarbons, for example fuels, via roads, rail and on the waterways present a considerable potential hazard. The high flammability and explosiveness in mixtures of air has led in the past to serious accidents which have caused considerable damage. Serious ecological damage constantly results from fuels discharged from leaking storage or transportation tanks.

The costs associated with cleaning up an oil spill are strongly influenced by the circumstances surrounding the spill: the type of product spilled, location, total spill amount and cleanup strategy. For land spills average cleanup costs are 14.000 US \$ per tonne of oil spilled. For marine spills cleanup costs can reach up to 140.000 US \$ per tonne of oil spilled.

The amount of petroleum products ending up in the ocean is estimated at almost 6 million tons per year. Oil spills account for about 5 % of the amount mentioned.

INNOVATION DESCRIPTION

Organogels have great potential for industrial applications due to their diversity in the structures and physical properties.

Invention relates to the new amphiphilic oxalamide derivatives which are capable of forming gels with commercial fuels, water and organic solvents like DMSO, DMF, EtOH, CH₃CN, THF, CH₂Cl₂, acetone, toluene, *p*-xylene, tetraline, decaline or mixtures thereof. When organogelator is dissolved in tested solvent, followed by cooling to room temperature, gel that can be reversibly turned back into liquid is formed. The best results are obtained for petrol and diesel.

Gelation of commercial fuels and hazardous organic solvents and liquids can be used for the development of technologies for safety transport and storage of hazardous liquid hydrocarbons. In that way fuel spills and dangerous accidents could be avoided.

INTELLECTUAL PROPERTY STATUS

This innovation is the subject of Croatian and international patent application. Rudjer Innovations Ltd would like to offer patent application as well as related know-how and experience to companies interested in commercial exploitation.

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