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## Effect of porogen type and cationic, anionic and nonionic surfactant ratio on the properties of porous polymer supports

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PolyHIPE is a porous polymer produced by polymerization of the continuous phase in a two phase system. The cell size and surface area of polyHIPE materials are strongly affected by the amount of surfactant and type of inert porogen. Our previous studies has shown that porous polyHIPE can be used as a support material for the design of metathesis catalyst. The work presented here describes some of our recent results as part of our programme of work aimed at preparing polyHIPES having high-surface area synthesized from divinylbenzene to be used as support for the preparation of new generation metathesis catalyst. Effects of triple surfactants ratio and porogen type on the properties of the polyHIPE were studied to select a suitable condition for preparation. Stable w/o HIPES were prepared using mixtures of different amounts of cationic surfactant cetyltrimethylammonium bromide, anionic surfactant sodium dodecylbenzenesulfonate and nonionic surfactant sorbitan monolaurate (SPAN 20) for investigating the effect of surfactant type. PolyHIPE samples were synthesized by the polymerization of the continuous phase of w/o high internal phase emulsions. The effect of surfactant concentration on the morphologies of polyHIPES was investigated by scanning electron microscopy and BET. Increasing the amount of cationic surfactant from 0.3% to 0.9% led to an increase in surface area while increasing the amount of anionic surfactant from 0.3% to 0.9% led to a decrease in surface area in the resulting porous materials. The presence of 1,2-dichlorobenzene instead of toluene or chlorobenzene as a porogenic solvent in the oil phase was found to increase the cell size and surface area remarkably. This work has been supported by Kirikkale University Scientific Research Projects Coordination Unit (Turkey) (Project No. 2015/70).

### Biography

Vesile Şima Ünnü is currently a MSc student in the Department of Chemistry at Kirikkale University (Turkey). In 2015, she graduated from the Kirikkale University with first-rank honours in chemistry. She is working on a research project as a scholar. Her research interest focuses on the design of porous polymers and new metathesis catalysts.

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