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Polyoxometalate-based ionic liquid catalyst with unprecedented activity and selectivity for oxidative desulfurization of diesel in [Omim]BF₄

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Abbreviations

POM polyoxometalate

ILs ionic liquids

[Omim]BF₄ 1-Octyl-3-methylimidazolium tetrafluoroborate

[PyPS]₃(NH₄)₃Mo₇O₂₄ [3-(pyridine-1-ium-1-yl)propane-1-sulfonate]₃(NH₄)₃Mo₇O₂₄·4H₂O

ODS oxidative desulfurization system

DBT dibenzothiophene

BT benzothiophene

4,6-DMDBT 4, 6-dimethyldibenzothiophene

DBTO₂ dibenzothiophene sulfone

HDS hydrodesulfurization system

ECODS extraction and catalytic oxidative desulfurization

O/S $n(\text{H}_2\text{O}_2)/n(\text{sulfur})$

**Polyoxometalate-based ionic liquid catalyst with unprecedented activity and selectivity
for oxidative desulfurization of diesel in [Omim]BF₄**

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Abstract

In this study, a novel Polyoxometalate (POM)-based ionic liquid (IL), [3-(pyridine-1-ium-1-yl)propane-1-sulfonate]₃(NH₄)₃Mo₇O₂₄·4H₂O, abbreviated [PyPS]₃(NH₄)₃Mo₇O₂₄, was prepared and employed as a

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