**List of Abbreviations**

| | |
|---|---|
| HPAs | Heteropolyacids |
| TPA | 12 -tungstophosphoricacid |
| TSA | 12-tungstosilicic acid |
| TPA/MCM-41 | TPA anchored to MCM-41 |
| TSA/MCM-41 | TSA anchored to MCM-41 |
| PE-MCM-41 | Pore expanded MCM-41 |
| TPA/PE-MCM-41 | TPA anchored to PE-MCM-41 |
| TPA/ SBA-15 | TPA anchored to SBA-15 |
| FFA | Free fatty acids |
| TGs | Triglycerides |
| JO | Jatropha oil |
| WCO | Waste cooking oil |
| TON | Turn over number |
| TOF | Turn over frequency |

| | |
|---|---|
| Total number of figures | 133 |
| Total number of tables | 58 |