Keynote Speaker

Selenium-contained Materials with Industrial Application Potential

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Abstract

Selenium is a scattered element with unique chemical- and bio-activity. Recently, the catalytic activities of Se compounds have attracted much attention. Compared with transition metals, Se can be metabolized by the body and is friendly to the environments. Se is much cheaper than noble metals and China has the richest Se resources of the world. Investigation of Se-catalyzed reactions also brings additional opportunities to construct the complex organic skeletons once difficult to achieve. Developing Se-contained materials may facilitate the recycle and reuse of Se catalysts to meet the requirement of industrial production. Moreover, Se-contained materials may have much more comprehensive applications owing to their bio-activities, and they may be widely used in medical materials and agriculture. The properties of Se in solid materials may be quite different to that in small molecules, affording more distinctive properties of the materials for industrial application. For example, in 2016, the stable hexavalent Se species was discovered in polystyrene-supported selenic acid, which was much more active than small molecular Se catalysts so that the activation of molecular oxygen could be achieved. All of these findings indicated that developing Se-contained materials is a meaningful subject with great industrial application potential.