Selective Reversible Absorption of the Industrial Off-Gas Components CO$_2$ and NO$_x$ by Ionic Liquids

Ionic liquids are promising new materials for climate and pollution control by selective absorption of CO$_2$ and NO$_x$ in industrial off-gases. In addition practical cleaning of industrial off gasses seems to be attractive by use of ionic liquids distributed on the surface of porous, high surface area carriers in the form of so-called Supported Ionic Liquid Phase (SILP) materials. The potential of selected ionic liquids for absorption of CO$_2$ and NO$_x$ will be demonstrated and the possible mechanism of absorption will be described on the molecular level. Our vision of application of these ionic liquids in the form of SILP filters to flue gas cleaning in power plants, waste incineration plants, cement and glass factories as well as unborad ships will be adressed.

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