Ionic liquids are an interesting alternative to classical solvents presenting several advantages. A variety of catalysts show good or even enhanced activities when applied in ionic liquids. Oxidation catalysis represents a large segment of industrial chemistry, providing both bulk chemicals and intermediates for high value added special products and pharmaceuticals. Particularly for the latter products organometallic and inorganic catalysts are being developed that can be applied in systems consisting of or containing ionic liquids. This work provides an overview on recent developments in this field. (C) 2011 Published by Elsevier B.V.