

Marks
4

- The nickel(II) ion exists as the $[\text{Ni}(\text{OH}_2)_6]^{2+}$ complex ion in aqueous solution. Define the term complex.

A complex is a species that consists of a central metal ion which acts as a Lewis acid surrounded by a number of ligands that act as Lewis bases. The charge on the complex may be positive, negative or neutral depending on the charge on the cation and the number and charge of all the ligands.

What is the name of this complex ion?

hexaaquanickel(II) ion

Why is such a solution acidic?

H_2O donates a lone pair to form a coordinate bond to Ni^{2+} . The pull of the cation on these electrons weakens the O–H bonds as the oxygen has to pull electron density from these bonds.

Write a balanced equation for the corresponding reaction.

