**Solubility constant, Ks**

**i)** Write the equation for the equilibrium present in a saturated solution of the following substances

**ii) Write the expression for Ks for each of the following**

**iii)** Calculate the solubility (or concentration) of the following substances in a saturated solution, in mol L–1

|  |  |
| --- | --- |
| 2018 | CaF2  *K*s (CaF2) = 3.20 × 10–11 |
| 2017 | Cu(OH)2  *K*s (Cu(OH)2) = 4.80 × 10–20 |
| 2016 | Ag2CO3  *K*s (Ag2CO3) = 8.10 × 10–12 |
| 2014 | PbC12  *K*s (PbC12) = 1.70 × 10–5 |
| 2012 | Fe(OH)2  *K*s 4.10 × 10–15 |
| **2011** | **Zn(OH)2**  *K*s 3.00 × 10–17 |
| **2010** | **Ag2CrO4**  *K*s (Ag2CrO4) = 3.00 × 10–12 |
| **2009** | **AgCl**  *K*s (AgCl) = 1.56 × 10–10 |
| **2008** | **PbCl2**  *K*s (PbCl2) = 1.60 × 10–5 |

**Additional questions**

**2016**

Calculate the mass of Ag2CO3 that will dissolve in 50 mL of water to make a saturated solution at 25ºC.

**2015**

Calculate the solubility product of CaCO3, *K*s(CaCO3).

The solubility of CaCO3 is 5.74 × 10–5 mol L–1.

**2013**

In an experiment, a saturated solution was made by dissolving 1.44 × 10–3 g of Ag2CrO4 in water, and making it up to a volume of 50.0 mL. *M* (Ag2CrO4) = 332 g mol–1.

Calculate the solubility of Ag2CrO4(*s*), and hence give the [Ag+] and [CrO42–] in the solution.

Determine the *K*s(Ag2CrO4).

**2009**

Solid sodium chloride is added to 5.00 L of 0.100 mol L–1 silver nitrate solution.

Calculate the minimum mass of sodium chloride that would be needed to produce a saturated solution of

AgCl. Assume that there is no change in volume when the sodium chloride is added.

*M*(NaCl) = 58.5 g mol-1

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