

## Precipitation reactions of lead nitrate – student sheet

Many lead compounds are insoluble and some of them are brightly coloured. In this experiment you will be observing some precipitation reactions of lead ions.

Follow the instructions in both parts of the experiment, record your observations and try to give explanations.

### Part 1: adding different anions to lead nitrate solution

#### Instructions

1. Cover the worksheet with a clear plastic sheet.
2. Put one drop of lead nitrate solution in each box of table 1.
3. Add one drop of each of the solutions containing the anions indicated to the appropriate box.

Table 1

	Hydroxide ions	Chloride ions	Bromide ions	Iodide ions	Carbonate ions	Sulfate ions	Chromate ions
Lead ions							

#### Questions

1. Which of the lead compounds observed appear to be good pigments?
2. What is the main disadvantage of using these compounds as pigments?

### Part 2: adding deionised water and tap water to lead nitrate solution

#### Instructions

1. With the worksheet still covered, put one drop of lead nitrate solution into each box of table 2.
2. Add one drop of deionised water and one drop of tap water to the appropriate boxes.

Table 2

	Deionised water	Tap water
Lead ions		

## Question

1. What explanations can you give for your observations?

## Health, safety and technical notes

- Wear eye protection throughout (splash-resistant goggles to BS EN166 3).
- Sodium hydroxide solution, NaOH(aq), 1 mol dm<sup>-3</sup> is CORROSIVE.
- Lead nitrate, Pb(NO<sub>3</sub>)<sub>2</sub>(aq), 0.5 mol dm<sup>-3</sup> is a reproductive toxin and a specific target organ toxin. It also causes eye damage and is a probable carcinogen.
- Potassium chromate, K<sub>2</sub>CrO<sub>4</sub>, 0.2 mol dm<sup>-3</sup> is a carcinogen, mutagen and skin sensitiser. It is also toxic to aquatic life. Wear splash-proof eye-protection if transferring large amounts. Avoid skin contact.
- The following chemicals are low hazard:
  - Potassium bromide, KBr(aq), 0.2 mol dm<sup>-3</sup>
  - Sodium sulfate, Na<sub>2</sub>SO<sub>3</sub> (aq), 0.5 mol dm<sup>-3</sup>
  - Sodium carbonate, 0.5 mol dm<sup>-3</sup>
  - Potassium iodide, KI(aq), 0.2 mol dm<sup>-3</sup>