

Name _____

Fireworks: Looking At Compounds



A modern firework contains **black powder** (or gunpowder) – a mixture of potassium nitrate, charcoal and sulfur. This burns and shoots the firework up into the air. The shell also contains separate packages of chemicals that produce special effects, such as bursts of colour, flashes, and sound. Some of these materials are described in the table here:

Compound Name	Formula	Flame Color
sodium chloride	NaCl	Orange
copper (II) nitrate	$\text{Cu}(\text{NO}_3)_2$	Green
copper (II) sulfate	CuSO_4	Blue
iron (III) nitrate	$\text{Fe}(\text{NO}_3)_3$	Yellow
potassium chloride	KCl	Purple
strontium nitrate	$\text{Sr}(\text{NO}_3)_2$	Red

Compound Name	Chemical Formula	Salt Colour	Flame Colour

1. What makes the flames different colours?
2. What professionals or jobs would use this type of information (at least 2)?
3. If you were a firefighter and were called to a chemical plant with bright violet/purple flames, what chemical would this tell you is burning?
4. If you watched a firework that started burning yellow then turned blue, which two chemicals are used?
5. A firework employee wants to make a firework display that burns blue, red and orange, which chemicals would you recommend they use? (several possible answers)