












Summary

Pyrotechnics lab experiences with critical raw materials



	<p>Target age</p> <p>Age 14 and over</p> <p>Level of difficulty</p> <p><input checked="" type="checkbox"/> Easy <input type="checkbox"/> Medium <input type="checkbox"/> High</p>	
	<p>Key words:</p> <p><i>Combustion, incandescence, luminescence, pyrotechnics.</i></p>	
	<p>Abstract of the activity:</p> <p>This toolkit will give the students the opportunity to study pyrotechnics reactions, as well as the exploration of the colour production in every chemical reaction dedicated to visual spectacles such as fireworks or magic shows.</p> <p>Particularly, students will learn how to apply basic chemicals knowledge to produce visual effects with specific salts (some of them critical raw materials) through a combustion. Essentially, a specific amount of salt is solved in methanol and ignited, producing different colours such as blue, green, magenta, orange or pink.</p>	
	<p>Learning Goals:</p> <ul style="list-style-type: none"> • Know the history of pyrotechnics. • Know the main agents involved in any combustion reaction. • Understand the two ways of colour emission: luminescence and incandescence. 	

Summary

	<p>Specific Abilities</p> <ul style="list-style-type: none"> • Prepare solutions mixing salts in methanol to produce different colours in the flame during its combustion.
	<p>Cross-curricula Links</p> <ul style="list-style-type: none"> • Physical Chemistry: combustion reactions, atomic structure, spectroscopy.
	<p>Prerequisites</p> <ul style="list-style-type: none"> • Basic redox reactions concepts. • Basic lab knowledge.
	<p>Time requirement</p> <p><input type="checkbox"/> 1 h <input type="checkbox"/> 30 min</p> <p>Instruments: Latex and fire-resistant gloves, Safety glasses, Lab Coat, Weighing scale, Spatula, Test tube, Beaker, Aluminum container, Matches, Boric acid (H_3BO_3), Potassium hydroxide (KOH), Copper chloride ($CuCl_2$), Lithium chloride (LiCl), Sodium bicarbonate ($NaHCO_3$), Methanol (CH_3-OH)</p>
	<p>Learning and Teaching Support Materials - What you can find in the toolkit</p> <ol style="list-style-type: none"> 1. Teachers' Card 2. Lab Procedure/s 3. Students' Card 4. Tutorial Video 5. Access to a prepared Kahoot!
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