

# CHEMICAL SAFETY DATA SHEETS

*For staff & subscribers of:*



**EMPIRIBOX**  
Primary School Science

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**Name:** Ethanoic Acid

**Other names:** Acetic acid, Vinegar

**Formula:** CH<sub>3</sub>COOH **Quantity**

**Provided:** 1000mls **Storage:**

Store in a dry place.

**Use:** Ethanoic acid is reacted with Sodium bicarbonate to produce carbon dioxide gas.

**Hazards:** Ethanoic acid can irritate the eyes, skin, and respiratory tract.

**Mitigation:** Gloves must be worn as well as safety goggles/glasses.

**Unit:** Matter

**Lesson:** Lesson 8: Gaseous Chemistry

**Unit:** Materials

**Lesson:** Lesson 9: Sodium bicarbonate and Acid

**Unit:** Animals

**Lesson:** Lesson 2: Bones

**Lesson:** Lesson 6: Teeth

**Unit:** Changes

**Lesson:** Lesson 9: Indicators

**Unit:** Mixtures & Potions KS1

**Lesson:** Lesson 8: Separating and Mixing

**Lesson:** Lesson 12: Making new materials

**Spill process:** If spilled, the liquid can be mopped up with dry paper towels and disposed of in the wastepaper basket.

**Disposal:** Any unused ethanoic acid can be disposed of into the waste stream.

**In the event of contact with:**

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Alum

**Other names:** Potassium Aluminium Sulphate

**Formula:**  $KAl(SO_4)$

**Quantity Provided:** 400g of white powder

**Storage:** Store in a dry place.

**Use:** Various amounts added to water then heated slightly, then cooled at different rates to produce different crystal sizes.

**Hazards:** Not classed as hazardous but would irritate the eyes on contact.

**Unit:** Rocks

**Lesson:** Lesson 3: Igneous Rocks

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the eyes on contact.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Ammonium Carbonate

**Other names:** Bakers Soda

**Formula:**  $(\text{NH}_4)_2\text{CO}_3$

**Quantity Provided:** 0.25g of white powder

**Storage:** Store in a dry place.

**Use:** Approx. 0.25g to 500mls of water (along with other substances)

**Hazards:** Acute toxicity if ingested, powerful ammonia smell.

**Unit:** Changes

**Lesson:** Lesson 7: Reactions that produce light

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Calcium Carbonate

**Other names:** Chalk, Marble

**Formula:** CaCO<sub>3</sub>

**Quantity Provided:** 40g of white powder and 500g of tooth sized chips

**Storage:** Store in a dry place.

**Use:** Different small amounts are added to acid.

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**Unit:** Matter **Lesson:** Lesson 8: Producing Gases

**Unit:** Changes **Lesson:** Lesson 4: Rates of chemical reactions 2

**Lesson:** Lesson 8: Mass changes and chemical reactions

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:** N/A

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**Name:** Iron Sulphate

**Other names:** Iron(II) sulfate heptahydrate

**Formula:** FeSO<sub>4</sub>

**Quantity Provided:** 16g of pale blue-green crystals

**Storage:** Store in a dry place.

**Use:** Approx. 4g of iron sulphate is added to copper sulphate solution.

**Hazards:** Harmful if swallowed. Causes eye and skin irritation. May cause respiratory tract irritation.

**Unit:** Matter

**Lesson:** Lesson 2: Solids, liquids, and gases

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Luminol

**Other names:** Luminol; 5-Amino-2,3-dihydro-1,4-phthalazinedione; 3-Aminophthalic acid hydrazide; 3-Aminophthalhydrazide.

**Formula:**  $\text{KAl}(\text{SO}_4)$

**Quantity Provided:** 0.5g of light brown powder

**Storage:** Store in a dry place.

**Use:** 0.1g is added to 500ml of water (along with other substances).

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**Unit:** Changes

**Lesson:** Lesson 7: Reactions that produce light

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:** N/A



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**Name:** Magnesium Carbonate

**Other names:** No other names

**Formula:** MgCO<sub>3</sub>

**Quantity Provided:** 50g of white powder

**Storage:** Store in a dry place.

**Use:** Various small amounts.

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**Unit:** Matter

**Lesson:** Lesson 8: Gaseous Chemistry

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:** N/A

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**Name:** Manganese Dioxide

**Other names:** Manganese (IV) Oxide

**Formula:** MnO<sub>2</sub>

**Quantity Provided:** 20g of black powder

**Storage:** Store in a dry place.

**Use:** Approx. 5g of manganese dioxide is added to 50mls of hydrogen peroxide.

**Hazards:** Toxic in the case of inhalation.

**Unit:** Changes

**Lesson:** Lesson 4: Rates of Chemical Reaction 2

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Sodium Carbonate

**Other names:**

**Formula:** Na<sub>2</sub>CO<sub>3</sub>

**Quantity Provided:** 50g of white powder

**Storage:** Store in a dry place.

**Use:** Approx. 5g of sodium bicarbonate is added to about 150mls of vinegar to produce carbon dioxide gas

**Hazards:** Irritant on contact with the eyes.

**Unit:** Changes

**Lesson:** Lesson 7: Reactions that produce Light

**Unit:** Matter

**Lesson:** Lesson 8: Gaseous chemistry

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Sodium Bicarbonate

**Other names:** Bicarbonate of Soda, Sodium Hydrogen Carbonate

**Formula:** NaHCO<sub>3</sub>

**Quantity Provided:** 500g of white powder

**Storage:** Store in a dry place.

**Use:** Sodium bicarbonate is added to vinegar to produce carbon dioxide gas.

**Hazards:** Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Unit:** Changes

**Lesson:** Lesson 2: Temperature and chemical reactions

**Lesson:** Lesson 7: Reactions that produce light

**Lesson:** Lesson 9: Indicators

**Unit:** Plants

**Lesson:** Lesson 4: Photosynthesis

**Unit:** Materials

**Lesson:** Lesson 5: Solubility

**Lesson:** Lesson 9: Sodium bicarbonate and Acid

**Unit:** Matter

**Lesson:** Lesson 8: Gaseous chemistry

**Unit:** Mixtures & Potions KS1

**Lesson:** Lesson 8: Separating and mixing

**Spill process:** Simply brush the powder directly into the waste bin. Ensure the area is completely clean as the powder can slightly irritate the skin.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Universal Indicator

**Other names:** Ethyl alcohol

**Formula:** C<sub>2</sub>H<sub>6</sub>O

**Quantity Provided:** 320mls of dark liquid

**Storage:** Store in a dry place.

**Use:** A few drops is added to liquids

**Hazards:** Causes serious eye irritation and is flammable.

**Unit:** Changes

**Lesson:** Lesson 6: Chemistry with electricity

**Lesson:** Lesson 9: Indicators

**Unit:** Rocks

**Lesson:** Lesson 7: Chemical weathering and erosion

**Spill process:** Mop up with dry tissue then wash with water and dry. Do not use cleaning products.

**Disposal:** Can be disposed either directly into the waste bin or into the waste stream.

**In the event of contact with:**

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear.

**Hazard Symbols:**



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**Name:** Copper Sulphate (0.01M concentration)

**Other names:** Copper Sulfate, Copper (II) Sulphate

**Formula:**  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

**Quantity Provided:** 20g

**Storage:** Keep in a dry place. Children should only have access under adult supervision

**Use:** A small portion of iron wool is added to 20mls of copper sulphate solution, and the temperature of the resultant reaction is taken. 80mls is used in electroplating and various small amounts in some chemical reactions.

**Hazards:** Harmful if swallowed. Irritating to eyes and skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Unit:** Matter

**Lesson:** Lesson 2: Solids, liquids, and gases

**Unit:** Changes

**Lesson:** Lesson 2: Temperature and chemical reactions

**Lesson:** Lesson 6: Chemistry with electricity

**Lesson:** Lesson 7: Reactions that produce light

**Spill process:** Use a dry tissue to wipe the area until completely dry. The tissue can be disposed of in the wastepaper bin.

**Disposal:** Unused or 'reacted' copper sulphate solute can be poured into the waste stream.

**In the event of:**

**INHALATION:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. Get medical attention if any discomfort continues.

**INGESTION:** Immediately rinse mouth and drink plenty of water. Get medical attention immediately!

**SKIN CONTACT:** Immediately remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if irritation persists after washing.

**EYE CONTACT:** Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention if any discomfort continues.

**Hazard Symbols:**



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**Name:** Methylated Spirit

**Other names:** Alcohol, Ethanol

**Formula:** CH<sub>3</sub>CH<sub>2</sub>OH

**Quantity Provided:** 500mls

**Storage:** Store in a cool dry place. Should not be placed in direct sunlight or near a source of heat or naked flames.

**Use:** Small quantities are used to illustrate burning and used to separate fruit DNA. Small quantity used to demonstrate evaporation and in a reversible chemical reaction.

**Hazards:** Alcohol is extremely flammable and should be kept away from naked flames except in recommended use.

**Unit:** Matter

**Lesson:** Lesson 3: Changes of state

**Lesson:** Lesson 5: Evaporation and diffusion

**Unit:** Changes

**Lesson:** Lesson 3: Rates of chemical reactions 1

**Lesson:** Lesson 8: Reversible chemical reactions

**Unit:** Materials

**Lesson:** Lesson 8: Fire

**Unit:** Habitats

**Lesson:** Lesson 2: Classification of living things

**Spill process:** Dry area with a dry tissue until completely dry. Place the tissue into a sealable bag. This can then be disposed of in the wastepaper basket.

**Disposal:** Unused alcohol can be poured back into the bottle.

**In the event of contact with:**

**Inhalation:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. Get medical attention if any discomfort continues.

**Ingestion:** Do not induce vomiting. Rinse mouth thoroughly with water Get medical attention.

**Skin contact:** Remove contaminated clothing and wash before re - use. Flush skin thoroughly with water. If irritation or discomfort occurs obtain medical attention

**Eye contact:** Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention if any discomfort continues.

**Hazard Symbols:**



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**Name:** Hydrochloric Acid (0.1M, 0.5M and 1.0M concentrations)

**Other names:** Hydrogen Chloride solution

**Formula:** HCl

**Quantity Provided:** 1 litres and 50mls

**Storage:** Keep away from children except under adult supervision.

**Use:** 50mls of HCl is reacted with small pieces of calcium carbonate chips or chalk and the reactions observed. 50mls of HCl is reacted with iron filings to produce hydrogen gas. 2.5mls is used in the rainbow tube.

**Hazards:** Corrosive and an irritant to the skin and eyes.

**Unit:** Changes

**Lesson:** Lesson 4: Rates of Chemical reactions 2

**Lesson:** Lesson 5: Mass changes and chemical reactions

**Lesson:** Lesson 9: Indicators

**Unit:** Matter

**Lesson:** Lesson 8: Gaseous chemistry

**Spill process:** The area must be dried completely with dry tissue and disposed in the wastepaper basket.

**Disposal:** Can be poured into the waste stream.

**In the event of:**

**Inhalation:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. Get medical attention if any discomfort continues.

**Ingestion:** Do not induce vomiting. Rinse mouth thoroughly with water in case of ingestion of large amounts or if any discomfort continues obtain medical attention.

**Skin contact:** As a general precaution remove contaminated clothing and wash the skin with plenty of water. If irritation or discomfort occurs obtain medical attention

**Eye contact:** Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention if any discomfort continues.

**Hazard Symbols:**





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**Name:** Hydrogen Peroxide

**Other names:** none

**Formula:** H<sub>2</sub>O<sub>2</sub>

**Quantity Provided:** 100mls & 25mls

**Storage:** Should be stored in a refrigerator. Children should not have access at any time. Ensure the lid is screwed on tightly after use.

**Use:** 100mls of hydrogen peroxide is reacted with potassium iodide and detergent to produce a foam. 100mls of hydrogen peroxide is reacted with 2g of manganese dioxide to produce steam. 1ml is used to produce a chemiluminescent reaction. 25mls is used with potassium iodide to produce oxygen.

**Hazards:** Harmful if swallowed. Can cause severe irritation to the skin and damage the eyes.

**Unit:** Matter                      **Lesson:** Lesson 3: Changes of state

**Lesson:** Lesson 8: Gaseous chemistry

**Unit:** Changes                      **Lesson:** Lesson 4: Rates of chemical reactions 2

**Lesson:** Lesson 7: Reactions that produce light

**Spill process:** Gloves should always be used. The area must be dried with dry tissue. If possible, put the tissue in a sealable bag and then can be disposed of in the wastepaper basket.

**Disposal:** Can be poured into the normal waste stream

**In the event of contact with:**

**Inhalation:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. In case of severe exposure or if any discomfort continues get medical attention.

**Ingestion:** Do not induce vomiting. Rinse mouth thoroughly with plenty of water. Get medical attention immediately!

**Skin contact:** Remove footwear if contaminated. Immediately remove contaminated clothing and wash before re-use. Rinse the skin immediately with lots of water. After contact with small amounts get medical attention if any discomfort continues. For large amounts, obtain medical attention.

**Eye contact:** Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention immediately.

**Hazard Symbols:**



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**Name:** Potassium Iodide

**Other names:** none

**Formula:** KI

**Quantity Provided:** 100g

**Storage:** Store in the black tray provided by Empiribox. Should be dry.

**Use:** Approx. 5g of potassium iodide is added to 100mls of hydrogen peroxide and detergent to produce a foam. 1g of potassium iodide is added to 10mls of hydrogen peroxide to produce oxygen.

**Hazards:** Can irritate the skin and eyes and slight hazard in the case of ingestion or inhalation.

**Unit:** Matter

**Lesson:** Lesson 3: Changes of state

**Lesson:** Lesson 8: Gaseous chemistry

**Spill process:** Area can be cleared with wet tissue which can then be thrown into the wastepaper basket.

**Disposal:** Can be thrown into the wastepaper basket.

**In the event of:**

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt, or waistband.

**Hazard Symbols:**



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**Name:** Potassium Permanganate

**Other names:** none

**Formula:**  $\text{KMnO}_4$

**Quantity Provided:** 200mls

**Storage:** Store away from direct sunlight in the black tray provided by Empiribox. Children should not have access without adult supervision.

**Use:** 50mls of potassium permanganate is reacted with pieces of rhubarb to produce a 'dirty green' solution

**Hazards:** Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Unit:** Changes

**Lesson:** Lesson3: Rate of chemical reactions 1

**Spill process:** Wipe the area with a dry tissue until completely dry. There should be no 'purple' remaining.

**Disposal:** The reacted solution can be poured down the drain. Unreacted permanganate should not be poured down the drain.

**In the event of contact with:**

**INHALATION:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. In case of severe exposure or if any discomfort continues get medical attention.

**INGESTION:** Do not induce vomiting. Immediately rinse mouth and drink plenty of water. Get medical attention.

**SKIN CONTACT:** Remove contaminated clothing and wash before re - use. Wash the skin immediately with soap and water. In serious cases or if discomfort continues obtain medical attention.

**EYE CONTACT:** Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

**Hazard Symbols:**



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**Name:** Acetone

**Other names:** Propanone

**Formula:**  $(\text{CH}_3)_2\text{CO}$

**Quantity Provided:** 100mls

**Storage:** Store away from heat, direct sunlight, or naked flame. Children should have access at no time.

**Use:** Approx. 100mls of acetone is placed in a drinking mug and then expanded polystyrene is introduced. Also, a 100mls is placed in a measuring cylinder to look at the rate of evaporation.

**Hazards:** Extremely flammable.

**Unit:** Matter

**Lesson:** Lesson 5: Evaporation and diffusion

**Unit:** Changes

**Lesson:** Lesson 5: Mass changes and chemical reactions

**Spill process:** The area should be wiped with a dry tissue until the area is dry. Place the tissue in a sealable bag and dispose into the wastepaper basket.

**Disposal:** Can be poured into the waste stream

**In the event of:**

**Inhalation:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. In case of severe exposure or if any discomfort continues get medical attention.

**Ingestion:** Rinse mouth thoroughly with water Do not induce vomiting. Get medical attention.

**Skin contact:** Immediately remove contaminated clothing. Wash the skin immediately with soap and water. If irritation or discomfort occurs after washing obtain medical attention.

**Eye contact:** Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention.

**Hazard Symbols:**



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**Name:** Sodium Hydroxide (0.1M concentration)

**Other names:** Caustic soda

**Formula:** NaOH

**Quantity Provided:** 1 litre

**Storage:** Store in the tray provided by Empiribox. Children should not have access except under adult supervision.

**Use:** Approx. 5mls of sodium hydroxide is added to water and universal indicator in the rainbow tube. Approx. 100mls of sodium hydroxide is mixed with copper sulphate and iron sulphate to produce precipitates.

**Hazards:** Is corrosive and can cause burns to the skin.

**Unit:** Changes

**Lesson:** Lesson 9: Indicators

**Unit:** Matter

**Lesson:** Lesson 2 Solids, liquids, and gases

**Spill process:** Wipe the area with a dry tissue and then dispose into the wastepaper basket.

**Disposal:** Can be poured into the normal waste stream.

**In the event of:**

**Inhalation:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. In case of severe exposure or if casualty feels unwell, obtain medical attention.

**Ingestion:** Do not induce vomiting. Rinse mouth thoroughly with water Get medical attention immediately!

**Skin contact:** Remove contaminated clothing and wash before re - use. Wash the skin with copious amounts of water. If clothing is difficult to remove or stuck to the skin, then leave in place and flush affected area with water. Get medical attention immediately!

**Eye contact:** May cause permanent damage if eye is not immediately irrigated. Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention immediately. Continue to rinse.

**Hazard Symbols:**



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**Name:** Sulphuric Acid (0.1M concentration)

**Other names:** none

**Formula:** H<sub>2</sub>SO<sub>4</sub>

**Quantity Provided:** 1.5 litres

**Storage:** Store in the tray provided by Empiribox. Children should not have access except under adult supervision.

**Use:** Sulphuric acid is mixed with water to illustrate acid rain. Approx., 175mls of sulphuric acid is added to chalk and the reaction is observed. Approx. 25mls of sulphuric acid is mixed magnesium ribbon and the reaction is observed.

**Hazards:** Corrosive and can cause skin burns.

**Unit:** Rocks

**Lesson:** Lesson 7: Chemical weathering and erosion

**Unit:** Changes

**Lesson:** Lesson 2: Temperature and chemical reactions

**Spill process:** Wipe the area until completely dry with a dry tissue which can then be disposed in the wastepaper basket

**Disposal:** Can be poured into the normal waste stream

**In the event of:**

**Inhalation:** Remove victim immediately from source of exposure. Provide rest, warmth, and fresh air. Get medical attention if any discomfort continues.

**Ingestion:** Rinse mouth thoroughly with water DO NOT induce vomiting. Get medical attention immediately.

**Skin contact:** Immediately remove contaminated clothing and wash before re-use. Flush skin thoroughly with water. Get medical attention if any discomfort continues.

**Eye contact:** Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible, remove any contact lenses and continue to wash. Get medical attention immediately.

**Hazard Symbols:**



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**Name:** Calcium Hydroxide

**Other names:** Slaked

lime **Formula:**  $\text{Ca}(\text{OH})_2$

**Quantity Provided:** 25g

**Storage:** Keep in a dry place. Children should not have access without adult supervision.

**Use:** 5g is added to 250mls of water and left for 24 hours. The resultant solution is then filtered and used to test for carbon dioxide.

**Hazards:** Corrosive in the event of eye contact and a possible irritant of the skin,

**Unit:** Plants

**Lesson:** Lesson 4: Photosynthesis

**Spill process:** Dry wipe the affected area and then wash with clean water

**Disposal:** Can be poured down the normal waste stream

**In the event of:**

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear

**Hazard Symbols:**



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**Name:** Boric Acid

**Other names:** Hydrogen Borate

**Formula:**  $H_3BO_3$

**Quantity Provided:** 8g

**Storage:** Keep in the tray provided by Empiribox and in a dry place

**Use:** Approx. 2g of boric acid is mixed with methylated spirit, which is then ignited to produce a green flame

**Hazards:** Can be toxic if swallowed

**Unit:** Materials                      **Lesson:** Lesson 8: Fire

**Spill process:** Can be removed with a wet tissue which can then be disposed of in the wastepaper basket.

**Disposal:** Can be disposed down the normal waste stream.

**In the event of:**

**Eyes Contact:** with the solid or dust may be irritating to the eyes. Rinse with plenty of cold water and if symptoms persist, seek medical attention.

**Skin contact:** The solid and solutions may be irritating to the skin. Repeated exposure may cause dermatitis. Rinse with plenty of cold water.

**Ingestion:** Toxic if swallowed and can cause vomiting and diarrhea. Drink plenty of water and if symptoms persist, seek medical attention.

**Inhalation:** Dust may produce irritation of the eyes, nose, throat, and respiratory tract. Move to fresh air.

**Hazard Symbols:**





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**Name:** Calcium Carbide

**Other names:** Calcium Dicarbide

**Formula:**  $\text{CaC}_2$

**Quantity Provided:** 4g

**Storage:** The container should be stored in an area free of humidity and away from moisture of any kind

**Use:** Approx. 1g of calcium carbide is added to approx. 10mls of water to produce acetylene which is then ignited

**Hazards:** In contact with water releases flammable gases (acetylene) which may ignite spontaneously. Causes severe skin burns and eye damage.

**Unit:** Habitats

**Lesson:** Lesson 6: Plants lifecycle and reproduction

**Spill process:** Clear the area with a dry tissue until no calcium carbide remains. Do NOT clean up with a damp cloth.

**Disposal:** Once the reaction is complete (there will be no more bubbles produced), the liquid can be poured into the waste stream

**In the event of contact with:**

**Eyes:** Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION URGENTLY.

**Skin:** Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. OBTAIN MEDICAL ATTENTION.

**Inhalation:** Remove from exposure. Keep warm and at rest. If conscious place in a sitting position. If there is difficulty in breathing give oxygen if available. If breathing stops or shows signs of failing, apply artificial resuscitation. OBTAIN MEDICAL ATTENTION.

**Ingestion:** If conscious give plenty of water to drink. Do not induce vomiting. OBTAIN MEDICAL ATTENTION URGENTLY.

**Hazard Symbols:**



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**Name:** Calcium Chloride

**Other names:** none

**Formula:** CaCl<sub>2</sub>

**Quantity Provided:** 100g

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place.

**Use:** Approx. 5g of calcium chloride is added to 50mls of water. Sodium alginate mixture is “injected” into the calcium chloride to produce worms.

**Hazards:** Can cause serious eye irritation.

**Unit:** Changes

**Lesson:** Lesson 8: Reversible chemical reactions

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket

**Disposal:** Can be poured down the normal waste stream

**In the event of:**

Eye contact: Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION.

Skin contact: Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. If discomfort persists OBTAIN MEDICAL ATTENTION.

Inhalation: Remove from exposure.

Ingestion: Wash out the patients mouth thoroughly with water. Do not induce vomiting. In severe cases or if exposure has been great, OBTAIN MEDICAL ATTENTION.

**Hazard Symbols:**



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**Name:** Methylene Blue

**Other names:** Methylthioninium Chloride

**Formula:**  $C_{16}H_{18}N_3SCl$

**Quantity Provided:** 5g

**Storage:** Keep dry and in the tray provided by Empiribox. Children do not have access at any time

**Use:** Methylene blue is added to alkalinated glucose solution.

**Hazards:** Harmful if swallowed.

**Unit:** Changes

**Lesson:** Lesson 8: Reversible chemical reactions

**Spill process:** Brush into sealable bag and wash the area with plenty of water until no blue stain remains

**Disposal:** put in a sealable bag. Empiribox will collect any remaining Methylene Blue

**In the event of contact with:**

**Eyes:** Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. If discomfort persists OBTAIN MEDICAL ATTENTION.

**Skin:** Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use.

**Inhalation:** Remove from exposure.

**Ingestion:** Wash out the patients mouth thoroughly with water.

**Hazard Symbols:**



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**Name:** Potassium Hydroxide

**Other names:** Potash

**Formula:** KOH

**Quantity Provided:** 32g

**Storage:** Keep dry and away from children

**Use:** Approx. 8g of potassium hydroxide is added to glucose solution

**Hazards:** Is an irritant, especially to the eyes

**Unit:** Changes

**Lesson:** Lesson 8: Reversible chemical reactions

**Spill process:** Spilled pellets can simply be swept into the wastepaper basket.

**Disposal:** Any solution can be poured into the normal waste stream.

**In the event of contact with:**

**Eyes:** Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. If discomfort persists OBTAIN MEDICAL ATTENTION.

**Skin:** Wash off skin thoroughly with water.

**Inhalation:** Remove from exposure.

**Ingestion:** Wash out the patients mouth thoroughly with water.

**Hazard Symbols:**



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**Name:** Sodium Chloride

**Other names:** Table salt

**Formula:** NaCl

**Quantity Provided:** 750g

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place

**Use:** Various use of salt in experiments ranging from mixing with ice to lower the melting point to mixing with water to look at evaporation.

**Hazards:** May cause eye, skin, and respiratory tract irritation. Hygroscopic (absorbs moisture from the air).

**Unit:** Matter  
**Lesson:** Lesson 3: Changes of state  
**Lesson:** Lesson 4: Heating and cooling  
**Lesson:** Lesson 5: Evaporation and diffusion  
**Lesson:** Lesson 7: Properties of chemicals  
**Lesson:** Lesson 9: Global chemistry (The water cycle)

**Unit:** Habitats  
**Lesson:** Lesson 2: Classification of living things

**Unit:** Sound  
**Lesson:** Lesson 3: How does sound travel

**Unit:** Materials  
**Lesson:** Lesson 4: Hardness and Transparency  
**Lesson:** Lesson 5: Solubility  
**Lesson:** Lesson 6: Dissolving

**Unit:** Changes  
**Lesson:** Lesson 6: Chemistry with electricity  
**Lesson:** Lesson 8: Reversible chemical reactions

**Unit:** Mixtures & Potions KS1  
**Lesson:** Lesson 7: Separating and mixing

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket.

**Disposal:** Can be poured down the normal waste stream.

**In the event of:**

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation develops, get medical aid.

**Skin:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**Ingestion:** Do not induce vomiting. Get medical aid if irritation or symptoms occur.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

**Hazard Symbols:**



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**Name:** Citric Acid

**Other names:** Citric acid monohydrate

**Formula:**  $C_6H_8O_7 \cdot H_2O$

**Quantity Provided:** 500g

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place

**Use:** Citric acid is mixed with sodium bicarbonate and water to produce an endothermic reaction.

**Hazards:** Can cause serious eye irritation.

**Unit:** Changes

**Lesson:** Lesson 2: Temperature and chemical reactions

**Unit:** Materials

**Lesson:** Lesson 9: Sodium bicarbonate and acid

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket.

**Disposal:** Can be poured down the normal waste stream.

**In the event of:**

Eye contact: Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION.

Skin contact: Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. If discomfort persists OBTAIN MEDICAL ATTENTION.

Inhalation: Remove from exposure.

Ingestion: Wash out the patients mouth thoroughly with water. Do not induce vomiting. In severe cases or if exposure has been great, OBTAIN MEDICAL ATTENTION.

**Hazard Symbols:**



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**Name:** Sodium Alginate

**Other names:** Alginic acid sodium salt, Algin

**Formula:**  $(C_6H_8O_6)_n$

**Quantity Provided:** 40g

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place

**Use:** Approx. 8g of sodium alginate is mixed with water.

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**Unit:** Changes

**Lesson:** Lesson 8: Reversible chemical reactions

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket.

**Disposal:** Can be poured down the normal waste stream.

**In the event of:**

Eye contact: Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION.

Skin contact: Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. If discomfort persists OBTAIN MEDICAL ATTENTION.

Inhalation: Remove from exposure.

Ingestion: Wash out the patients mouth thoroughly with water. Do not induce vomiting. In severe cases or if exposure has been great, OBTAIN MEDICAL ATTENTION.

**Hazard Symbols:** N/A

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**Name:** Methyl Orange

**Other names:** none

**Formula:**  $C_{14}H_{14}N_3NaO_3S$

**Quantity Provided:** 20mls

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place

**Use:** Approx. 85mls of methyl orange is added to water as an indicator.

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

This substance is not classified as dangerous according to Directive 67/548/EEC.

**Unit:** Changes

**Lesson:** Lesson6: Chemistry with electricity

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket.

**Disposal:** Can be poured down the normal waste stream.

**In the event of:**

Eye contact: Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open.  
OBTAIN MEDICAL ATTENTION.

Skin contact: Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. If discomfort persists OBTAIN MEDICAL ATTENTION.

Inhalation: Remove from exposure.

Ingestion: Wash out the patients mouth thoroughly with water. Do not induce vomiting. In severe cases or if exposure has been great, OBTAIN MEDICAL ATTENTION.

**Hazard Symbols:** N/A



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**Name:** Iodine Solution

**Other names:** none

**Formula:** I<sub>3</sub>K

**Quantity Provided:** 64mls

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place

**Use:** Approx. 1ml of iodine solution is added to 5ml of starch solution to see a colour change.

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

This substance is not classified as dangerous according to Directive 67/548/EEC.

**Unit:** Animals                                      **Lesson:** Lesson7: You are what you eat

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket.

**Disposal:** Can be poured down the normal waste stream.

**In the event of:**

**Eye contact:** Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION.

**Skin contact:** Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. If discomfort persists OBTAIN MEDICAL ATTENTION.

**Inhalation:** Remove from exposure.

**Ingestion:** Wash out the patients mouth thoroughly with water. Do not induce vomiting. In severe cases or if exposure has been great, OBTAIN MEDICAL ATTENTION.

**Hazard Symbols:** N/A

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**Name:** Starch Solution

**Other names:** none

**Formula:**  $(C_6H_{10}O_5)_n$

**Quantity Provided:** 320mls

**Storage:** Keep in tray provided by Empiribox. Keep in a cool, dry place

**Use:** Approx. 1ml of iodine solution is added to 5ml of starch solution to see a colour change.

**Hazards:** Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

This substance is not classified as dangerous according to Directive 67/548/EEC.

**Unit:** Animals

**Lesson:** Lesson7: You are what you eat

**Spill process:** Can be removed with a wet tissue and placed in the wastepaper basket.

**Disposal:** Can be poured down the normal waste stream.

**In the event of:**

Eye contact: Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION.

Skin contact: Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re- use. If discomfort persists OBTAIN MEDICAL ATTENTION.

Inhalation: Remove from exposure.

Ingestion: Wash out the patients mouth thoroughly with water. Do not induce vomiting. In severe cases or if exposure has been great, OBTAIN MEDICAL ATTENTION.

**Hazard Symbols:** N/A