Table Salt

Table salt, also know as *sodium chloride*, are crystals that are transparent, colourless, and brittle.[1]

A visual representation of salt is seen in Figure 1.

[1] The Salt Association. (2022). What is salt? https://saltassociation.co.uk/education/what-is-salt-and-its-properties/

Figure 1: An image of salt

Word Equation: Salt is made from a **synthesis reaction**, where sodium and chlorine are the reactants and sodium chloride is the product.

$$\text{sodium} + \text{chlorine} \rightarrow \text{sodium chloride}$$

Skeleton Equation: The skeleton equation for table salt is

$$Na_{(s)} + Cl_{2(g)} \rightarrow NaCl_{(s)}$$

Where $Na_{(s)}$ is sodium and $Cl_{2(g)}$ is chlorine (diatomic molecule).

Balanced Chemical Equation: The balanced chemical equation is

$$2\,Na_{(s)} + Cl_{2(g)} \rightarrow 2\,NaCl_{(s)}$$

Common Uses

Some common uses for salt are

1. Cooking; salt is most known for being a food preservative and used as a flavoring agent. It is also used for seasoning foods such as steak, soup, and chicken.
2. Road salt; is used to melt ice to prevent cars and people from slipping (see Figure 2). The salt compound decomposes into sodium and chlorine ions which disrupt bonds between water molecules.
3. Removing stains; salt has powerful dehydration properties that will eliminate stains such as blood stains.

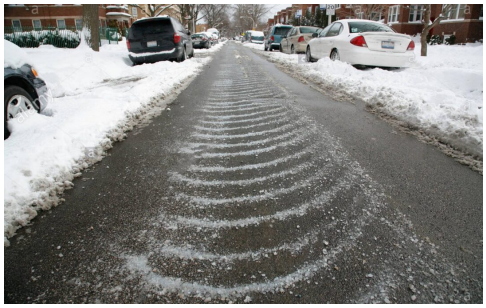

Figure 2: Road salts are used to melt ice

Environmental Impacts

1. The chemical reaction that makes table salt doesn't cause emission of any green house gases whatsoever.
2. Table salt can contaminate water by making it too salty, and thus undrinkable. This can harm marine animals and wildlife.
3. Table salt is generally environmentally friendly, unless used in high concentrations. For instance, road salt is damaging to aquatic animals.

Reactant: Chlorine

Chlorine is a yellow-green gas at room temperature that is poisonous at high concentrations.[2]

[2] Encyclopedia Britannica. (2013). Chlorine. https://www.britannica.com/science/chlorine

WHMIS Safety Symbols: The WHMIS safety symbols are

Respective Symbols: Oxidizing hazard, gas under pressure, acute toxicity, corrosive, can cause damage to environment. [3]

Figure 3: Chlorine gas in an erlenmeyer flask

[3] Airgas. (2021). Chlorine safety data sheet

[4] Airgas. (2021). Chlorine safety data sheet

Chlorine: 3 Safety Tips[4]

1. Do not get in eyes or on skin.
2. Contain gas under pressure.
3. Maintain suitable ventilation.

[5] Airgas. (2021). Chlorine safety data sheet

Chlorine: 2 Pieces of PPE[5]

1. Put on appropriate personal protective equipment, such as a hazmat suit (see Figure 4).
2. Equip a respiratory when ventilation is poor.

Figure 4: Hazmat suit

[6] Centers for Disease Control and Prevention. (n.d.). Chlorine: Exposure, decontamination, treatment. https://bit.ly/3Tm19lC

[7] You want to seek higher ground because chlorine is heavier than air, and will thus sink.

Chlorine: 2 Tips for When it Goes Wrong[6]

1. Escape the area infected by the chlorine as soon as possible and breathe fresh air.
2. Seek higher ground[7], wash your entire body while holding your breathe, and seek help immediately.