Elements that make up salt

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Salt has been used throughout most of written history to flavor and preserve food. There are many different types of salt including pickling salt and kosher salt, but table salt is the kind most used in recipes. Salt is a compound, NaCl, made up of two elements, and table salt contains some additional ingredients.

Sodium, or Na, is a soft metallic element, a highly reactive member of the alkali metals. The sodium ion is soluble in water and is responsible for the salty state of the ocean, and the element is essential to sustain human and animal life. Sodium on its own is dangerous to ingest, as sodium ignites when it comes into contact with water, so the element must be handled carefully. It is a component of many common household compounds, including baking soda, soda ash, borax and table salt.

Chlorine, or Cl, is a halogen element, and because of its oxidation powers, is used in many cleaners, bleaches and disinfectants. Chlorine on its own is dangerous to ingest, as it is poisonous. However, chlorine becomes chloride when combined with other elements, and as such it forms many compounds necessary to sustain human life. When sodium and chlorine come together they form sodium chloride, NaCl, or table salt. Sodium chloride can be manufactured, but it is also found in nature in the form of the crystals left from evaporated seawater.

Table salt is not just comprised of sodium and chlorine. Because it is used in homes and restaurants to flavor and preserve food, additives are combined with sodium chloride to preserve the salt. Potassium iodide is added to some salt to prevent goiter, a thyroid gland problem; this is referred to as iodized table salt. Not all table salt is iodized. Glucose is added in very small quantities to table salt to keep the potassium iodide from breaking down. Lastly, calcium silicate is added to keep the salt from caking and becoming lumpy in environments with high humidity.

Erin Clyburn has been writing professionally since 2004. She has been published in "The Progressive Farmer" magazine, Pearson's "Student Book of College English" textbook and Birmingham's "Lipstick" magazine. She holds a Bachelor of Arts in English literature from Mississippi State University, and is pursuing a Master of Arts in children's literature from Hollins University.

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Sodium chloride is an essential mineral compound for human and animal health and has many industrial applications. Sodium chloride is another name for salt. It can be found in the seas and seawater. It’s also a component of rock salt.

Both human and animal bodies need salt to function properly. The fine-grained and very pure salt used in

cooking and seasoning is known as table salt. Small amounts of sodium aluminosilicate, tricalcium phosphate, or magnesium silicate are added to this hygroscopic (i.e. water-attracting) compound to keep it fluid when exposed to air. Iodized salt, or salt to which potassium iodide has been added in trace amounts, is routinely used in regions where iodine shortage leads to goitre (an enlargement of the thyroid gland). Salt is also needed by livestock, and it is often provided in the form of solid blocks.

Salt is used as a preservative or flavoring in the meat packing, sausage manufacturing, fish curing, and food processing industries. It’s used as a brine in fridges and for curing and preserving hides.

Impurities in the form of calcium chloride, sodium sulfate, and magnesium chloride are present in the sodium obtained from the crystallization of brine. The coarse salt is dissolved in minute quantities of water in order to remove insoluble impurities. Then, the solution is saturated with hydrogen chloride gas.

Sodium Chloride can also be extracted from underground deposits using the room-and-pillar technique. By sinking passageways into the earth, miners use drilling and blasting to break up rock salt using the room and pillar method.

Sodium chloride, or NaCl, is an ionic chemical with a huge, three-dimensional lattice structure that repeats indefinitely. Strong electrostatic forces of attraction keep the oppositely charged ions together in the enormous lattice. The anions are arranged in a face-centered cubic (fcc) array, and the cations are arranged in a face-centered cubic (fcc) lattice that is interpenetrating with the anions. Its geometry is localized as an octahedron.