



# Inorganic Technology and its Role in Chemical Industry

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## DESCRIPTION

Inorganic chemical technology is the branch of chemistry that deals with the study, development, and production of inorganic chemicals, which are chemicals that do not contain carbon-hydrogen bonds. Inorganic chemicals are essential to many industrial processes and have a wide range of applications, including the production of fertilizers, pharmaceuticals, and electronic devices.

In this paper, we will explore the different aspects of inorganic chemical technology, including the production and properties of inorganic chemicals, their various applications, and the future of inorganic chemical technology.

### Production of inorganic chemicals

Inorganic chemicals are produced through a variety of methods, including chemical reactions, electrolysis, and thermal decomposition. The production of inorganic chemicals typically involves large-scale chemical reactions that require careful control of temperature, pressure, and reactant concentrations.

One common method of producing inorganic chemicals is the Haber-Bosch process, which is used to produce ammonia from nitrogen and hydrogen. This process involves the reaction of nitrogen and hydrogen gases in the presence of a catalyst and high pressure and temperature conditions.

Another method of producing inorganic chemicals is through electrolysis, which involves passing an electric current through a solution to produce chemical reactions. For example, the production of chlorine gas from saltwater involves passing an electric current through a solution of saltwater, which causes the salt molecules to break down and form chlorine gas.

**Properties of inorganic chemicals:** Inorganic chemicals have a wide range of properties, depending on their composition and structure. In general, inorganic chemicals are often characterized by their high melting and boiling points, their ability to conduct electricity, and their tendency to form crystalline structures.

Many inorganic chemicals are also highly reactive and can form strong bonds with other chemicals, making them useful for a variety of industrial applications. For example, sodium chloride, or table salt, is an inorganic chemical that is widely used as a flavor enhancer and preservative in the food industry.

### Applications of inorganic chemicals

Inorganic chemicals have a wide range of applications across many different industries. Some of the most common applications of inorganic chemicals include:

**Fertilizers:** Inorganic chemicals such as ammonia and phosphates are commonly used as fertilizers in agriculture. These chemicals provide essential nutrients to plants, helping them to grow and produce higher yields.

**Pharmaceuticals:** Inorganic chemicals such as sodium chloride and magnesium hydroxide are used in the production of pharmaceuticals. These chemicals are used as excipients, which are substances that are added to drugs to improve their stability, bioavailability, and other properties.

**Electronics:** Inorganic chemicals such as silicon and gallium are used in the production of electronic devices such as computer chips and solar cells. These chemicals have unique electronic properties that make them ideal for use in these applications.

**Water treatment:** Inorganic chemicals such as chlorine and aluminum sulfate are used in the treatment of water. Chlorine is used as a disinfectant to kill bacteria and other harmful organisms in drinking water, while aluminum sulfate is used to clarify and remove impurities from the water.

## CONCLUSION

The future of inorganic chemical technology is likely to be shaped by several trends, including the development of new materials, advances in manufacturing techniques, and a growing focus on sustainability and environmental impact. One area of research that is likely to drive the future of inorganic chemical technology is the development of new materials with the unique

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properties. For example, researchers are currently working on the development of new materials that can absorb and store carbon dioxide, which could have important applications in reducing greenhouse gas emissions. Advances in manufacturing techniques

are also likely to play a key role in the future of inorganic chemical technology. For example, the use of 3D printing technology is already being explored as a way to produce complex inorganic structures.