# Fluorspar and Inorganic Fluorine Compounds

This report covers fluorspar and its major derivative, hydrofluoric acid, as well as providing additional data on aluminum fluoride, cryolite, and fluosilicic acid.

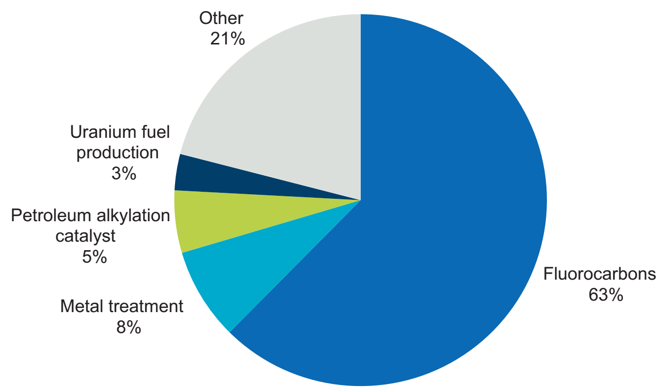
Fluorspar is a mineral from which more than 95% of all fluorine-based compounds are derived. Production of hydrofluoric acid accounted for an estimated 67% of the world production of fluorspar in 2014, followed by use for aluminum smelting, with 19%, and steel manufacturing, with 12%. Hydrofluoric acid is the most important chemical derived from fluorspar and accounted for about 63% of global fluorspar consumption in 2014.

Although 20 countries have the ability to produce significant quantities of fluorspar, the majority of the world's fluorspar production has become concentrated in China, which accounted for 62% of world production in 2014. The next-largest producers are Mexico, with 18%; Mongolia, with 5%; and South Africa, with 3% of world production in 2014. Historically, the majority of China's fluorspar production was exported, but the country has spent the last decade building and growing its fluorine-based chemical industry. Now, China adds value to its domestic acid-spar supply through the production of downstream products such as hydrofluoric acid, fluorocarbons, and fluoropolymers rather than exporting the mineral.

World demand for fluorspar will grow at an average annual rate of almost 4.5% during 2012–17.

The following pie chart shows world consumption of hydrofluoric acid:

**World consumption of hydrofluoric acid—2014**




Source: IHS



Hydrofluoric acid is the raw material for the production of fluorocarbons, which are used in refrigeration and air conditioning, and as a precursor to fluoropolymers and elastomers. In addition, hydrofluoric acid serves as a catalyst in petroleum alkylation, a process used for gasoline manufacture. It is also used in metal treatment, uranium fuel production, and as a raw material in the manufacture of inorganic fluorine compounds, including most inorganic fluorides as well as elemental fluorine.

Fluorocarbons accounted for 63% of hydrofluoric acid consumption in 2014. The refrigerant and air conditioning gases markets account for almost half of the total fluorocarbon consumption globally. Moderate growth of about 2% is expected over the next few years. Many changes are looming in this industry over the next 15 years, as hydrochlorofluorocarbons (HCFCs) are being restricted and gradually substituted by gases with a lower global warming potential.

Foam blowing agents and propellants together account for about 16% of the global fluorocarbon market, and both of these markets are likely to decline globally at 1–2% per year over the next few years, as restrictions and full bans come into place on the HCFCs typically used for these applications.

Aluminum fluoride is used in primary aluminum production. As with hydrofluoric acid, China has become the world's largest producer of aluminum fluoride in the last few years. Aluminum production has been shifting and growing faster in regions where energy costs are lower. As this trend continues, most of the growth in aluminum fluoride will occur outside the traditional manufacturing areas of North America and Western Europe.

# Contents