

DOWNLOAD PDF POTASH DEPOSITS, PROCESSING, PROPERTIES AND USES

Chapter 1 : Potash - Wikipedia

In addition, Potash describes the basic mining and processing methods, and discusses its uses, properties, and statistics. A major feature of this book is the presentation of a totally new explanation of how potash deposits originated.

Potash ores are typically rich in potassium chloride KCl, sodium chloride NaCl and other salts and clays, and are typically obtained by conventional shaft mining with the extracted ore ground into a powder. In the evaporation method, hot water is injected into the potash which is dissolved and then pumped to the surface where it is concentrated by solar induced evaporation. Amine reagents are then added to either the mined or evaporated solutions. The amine coats the KCl but not NaCl. History of production[edit] The first U. A covered hopper car in a Canadian train for shipping potash by rail. Potash was principally obtained by leaching the ashes of land and sea plants. Beginning in the 14th century potash was mined in Ethiopia. It was refined from the ashes of broadleaved trees and produced primarily in the forested areas of Europe, Russia, and North America. Potash pits were once used in England to produce potash that was used in making soap for the preparation of wool for yarn production. As early as 1782, potash from wood ashes was exported from Canada, and exports of potash and pearl ash potash and lime reached 43, barrels in 1783. There were asheries in operation in 1784. The industry declined in the late 19th century when large-scale production of potash from mineral salts was established in Germany. In 1868, potash was discovered in Saskatchewan, Canada, in the process of drilling for oil. Active exploration began in 1869. In 1870, the Potash Company of America became the first potash producer in Canada with the commissioning of an underground potash mine at Patience Lake; however, due to water seepage in its shaft, production stopped late in 1870 but following extensive grouting and repairs, resumed in 1871. The underground mine was flooded in 1872 and was reactivated for commercial production as a solution mine in 1873. To make full use of their land, settlers needed to dispose of excess wood. The easiest way to accomplish this was to burn any wood not needed for fuel or construction. Ashes from hardwood trees could then be used to make lye, which could either be used to make soap or boiled down to produce valuable potash. Potash making became a major industry in British North America. Great Britain was always the most important market. After about 1800, New York replaced New England as the most important source; by the center was in Ohio. Potash production was always a by-product industry, following from the need to clear land for agriculture. After the water evaporated, the potassium salts crystallized into beds of potash ore. These are the locations where potash is being mined today. The deposits are a naturally occurring mixture of potassium chloride KCl and sodium chloride NaCl, more commonly known as table salt. Over time, as the surface of the earth changed, these deposits were covered by thousands of feet of earth. Others are mined as strip mines, having been laid down in horizontal layers as sedimentary rock. In above-ground processing plants, the KCl is separated from the mixture to produce a high-analysis potassium fertilizer. Other potassium salts can be separated by various procedures, resulting in potassium sulfate and potassium-magnesium sulfate. Canada is the largest producer, followed by Russia and Belarus. The latter is particularly suitable for surface mining; it was explored in the 1950s but the works stopped due to the flood in 1954. Attempts to continue mining in the 1950s were halted by the Eritrean–Ethiopian War and have not resumed as of 2008. The latter was a joint venture between Belaruskali and Uralkali, but on July 30, Uralkali announced that it had ended the venture.