

HEAP LEACHING



The concept of using the Metallurgical leaching process to produce mineral concentrates from mining materials is not new. Since 1700 copper ore was leached using acid in Spain, while in late 19th century in England was discovered the use of cyanide to leach gold and silver.

However it was not until 1970 that the former Bureau of Mines of the United States developed this method to recover precious metals from low-grade heaps of ore and to recover metals by an activated carbon and electro winning process, making its application in the industry since the 1970s.



Attached is one of the documents of the Bureau of Mines addressing the issue:” Circular 8770 – Processing Gold Ores Using Heap Leach-Carbon Adsorption Methods”

Thereafter, several different applications and technologies have been developed that allow this concept to be applied to many types of minerals, climate and operations of any size, so it is applied in the extraction of precious metals such as gold, base metals as copper and even radioactive metals.

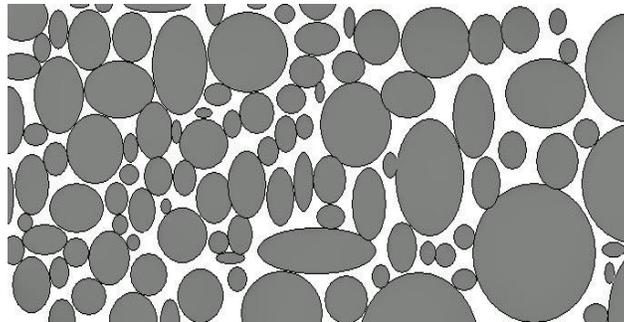
The heap leaching can be adapted to a variety of minerals and climates, so it is essential to carry out a series of tests in order to determine what is the best design for each particular mineral.



The leaching process requires an adequate and responsible preparation of the area where you will perform the leaching action to prevent, mitigate or reduce potential negative impacts of the activity to the environment and to the health of mankind.

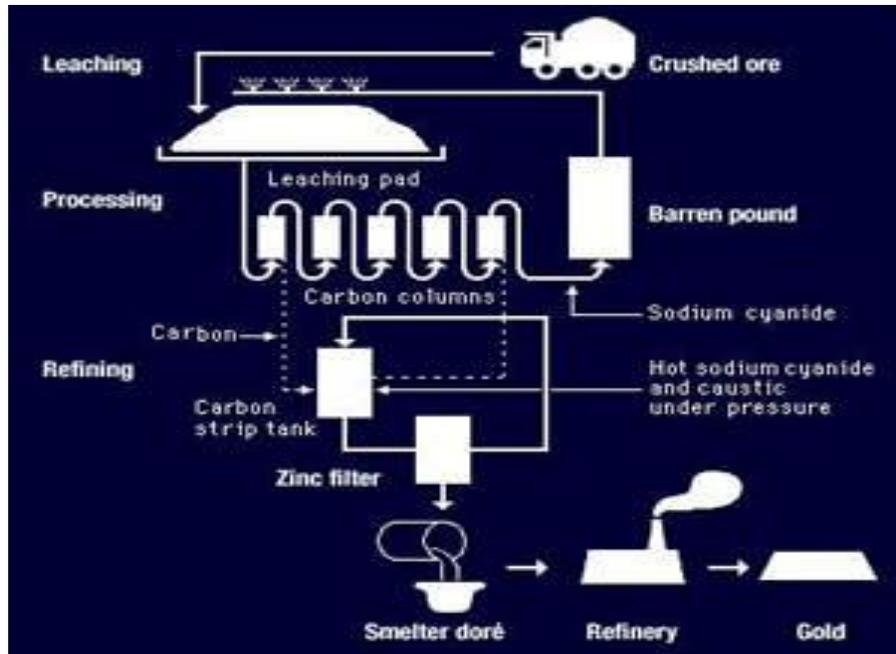
General impacts caused by the leaching process are much lower than the traditional metallurgical exploitation techniques for it virtually does not require heat application, hence lower costs in the process, and requiring less energy than the other methods.

For the method of leaching heaps be more effective there are two key variables to be taken into account: the “permeability” of the ore and the “percolation” of the leaching solution through the ore heap.



Heap leaching is a relatively simple process with 3 components: “The Formation of an Ore Heap”, “The Heap Leach Ore” and “obtention of the product”

This process uses a membrane to place upon it certain amounts of mineral, in order to add chemical solutions.



This process requires a continuous monitoring of chemical recovery and leaching solution, even once the leaching operation finishes. Also it is critical a responsible design of the facilities to allow the formation of stable stacks as to weight, pressure and chemical addition to carry out leaching in order to prevent the release or volatilization of cyanide as cyanide gas.

Source: <http://www.artinaid.com/2013/04/heap-leaching/>