

PORTLAND CEMENT AND HEALTH IMPACTS

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Portland Cement is basically a finely ground cement clinker mixed with a small amount of calcium sulfate dehydrate. It is obtained by heating to a high temperature a mixture of substances such as limestone, sand, clay and shale. It is a light gray or white powder. Cement dusts are produced during blasting of raw materials, grinding of cement clinker and packaging or loading of finished cement.

Although this material is widely used in building and construction works as an important ingredient in concrete products, very scarce information on health effects of the particulate air pollution from cement factories, is available. However, most cement dusts chemical elements are potentially harmful to the environmental biota in general and children are the most susceptible affected human populations.

Some of the dangerous elements of cement dust include: Particulate Matter (PM2.5 & PM10), lead, arsenic, chromium VI and chromium III, mercury, manganese, cadmium, crystalline silica among others.

It is well known that when Portland Cement, contacts with moisture in eyes or on skin, or when mixed with water, it becomes highly caustic (pH >12) and will damage or burn the eyes or skin. Inhalation may cause irritation and lung disease as well. Low levels toxic metals chronic exposure are other health issues to take into account.

Uruguay has several Portland Cement kilns in different parts of the country and there are only few studies on occupational exposure assessment .

This work describes the main health risks of populations living near a cement kiln and of occupationally exposed workers. Risk assessment and safety conditions are explained with special emphasis on minimizing toxic effects of cement pollutants.

We conclude that there must be a concern on risk management not only for health prevention but also for the environment protection in cement quarrying sites and around cement factories.

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