

An Analysis of Fluoride Contamination in Global Groundwater

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ABSTRACT

Fluoride is a mineral that can be found in seawater, oceans, and groundwater. It is a source of drinking water in many parts of the world and, therefore, is the main source of fluoride ingestion

INTRODUCTION

Fluoride is a compound that is present in groundwater as well as other sources of water in varying concentration in different locations. Fluoride forms a crystalline-like structure around the enamel which acts as a protective layer. Excess intake of fluorine during the infancy stage causes Fluorosis. (Committee on Nutrition, 1986). Fluoride is also used in toothpaste for the same reason of protection of enamel from dental caries, but intake of the excess amount can be harmful hence parents are advised to keep a check on their children.

Skeletal Fluorosis is a kind of bone disorder caused due to increase in fluorine intake. It doesn't happen for the concentration of fluorine below 1.4 ppm but chances of happening increases with the increase in concentration (Jolly et al., 1968). Apart from that, a study conducted in some regions of America reveals that exposure of fluoride may also lead to harmful effects on fertility rates (Freni, 1994).

Fluoride is given as a supplement to the children in the area where the concentration of fluoride is nil or low. It is to be prescribed by the medical authorities in the area generally where fluoride concentration is below 0.3mg fluoride per liter (Riordan, 1989). Fluoride wastewater generated can be used to prepare synthetic calcium fluoride which can be further utilized for the production of Hydrofluoric acid and also can be used in the ceramic industry. (Aldaco, Garea and Ibrahim, 2007).

Fluoride varnish can be used in the prevention