

GEOCHEMICAL INFLUENCE ON SRI LANKAN BOTTLE WATER

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Abstract

The purpose of this study was to analyze the chemical composition of bottle water and compare it with the permissible limits given in SLS 894:2003 and identify the geochemical influence according to the bottle water composition. Therefore laboratory investigations were carried out to analyze the chemical composition of bottle water and ground water samples that are collected from various places of the country and compare it with the standards. From the Laboratory investigations of the 19 chemical components included in the bottle water samples and ground water samples; few chemical components such as pH, Nitrite, Residual Chlorine, Fluorine, Ammonia and Total Hardness of some samples are shown deviated values from the permissible level given by the SLS 894:2003 for mineral water. And compare to the bottle water samples, in ground water samples some chemical component such as Total Dissolved Solids, Conductivity, Iron, Chlorine, Ammonia, Calcium and Chlorine are exposed higher concentration values. According cation and anion analyze of the bottle water samples and ground water samples Mg-HCO₃ water type is the generally abundant water and Mg-Cl water type is found lesser amount. And the water flows through the underground was contained different types of minerals and ions. These minerals were dissolved, precipitate or in equilibrium with the water. With the analysis of visual MINTEQ software it was identified nine minerals were at the over saturation state for all the water samples and K-Jarosite mineral was at the over saturation state for some ground water samples collected from Colombo and Badulla districts. Except that, all the other 60 minerals were in under saturation state in water samples that was analyzed. And there was no any mineral at the apparent equilibrium state with the collected bottle or ground water samples.

Keywords: Geochemical influence, Bottle water samples, Ground water, Permissible level, Mineral water, visual MINTEQ software