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Hydrochemical Characteristics of Natural Mineral Water in Korea

B. Lee

Hydrogeology Division, Korea Institute of Geoscience and Mineral Resources(blee@kigam.re.kr / Fax: +82 42-8619719 / Phone: +82 42-8683088)

Groundwaters that are currently being used for natural mineral water were hydrochemically evaluated and investigated in order to maintain their quality to satisfy strict health standards. There exist 20 mineral water plants in the granite and 15 mineral water plants in the Okcheon metamorphic belt and 18 mineral water plants in the Precambrian metamorphic terrains. A total of 53 groundwater samples collected at each mineral water plants show variable chemical composition of groundwater, e.g. electrical conductance ranges from 44 to 314§Á/cm. The content of major cations in the granite, Okcheon metamorphic belt, and Precambrian metamorphic terrains is in the order of Ca>Na>Mg>K, Ca>Mg>Na>K, and Ca>Na>Mg>K, respectively. While that of major anions shows the order of HCOç>SO4>Cl>F in the total area. The chemical types of groundwater from the granite, Okcheon metamorphic belt, and Precambrian metamorphic terrains are Ca-Na-HCOç, Ca-Mg-HCOç, and Ca-Na-HCOç, respectively. According to saturation index, most chemical species are undersaturated with respect to major minerals, except for some silica phases. Groundwater from the granite and Precambrian metamorphic terrains is slightly undersaturated with respect to calcite, whereas it is still greatly undersaturated with respect to dolomite, gypsum, and fluorite. But groundwater from the Okcheon metamorphic belt is slightly undersaturated with respect to calcite and dolomite, whereas it is still greatly undersaturated with respect to gypsum, anhydrite and fluorite.