

Measurements of Environmental Pollution in Chemical Fertilizer Industrial Area Using Magnetic Susceptibility Method

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Abstract : The World Health Organization (WHO) estimates that about a quarter of the diseases facing mankind today occur due to environmental pollution. The soil is a part of environment that have a widespread problem. The contaminated soil should no longer be used to grow food because the chemicals can leech into the food and harm people who eat it. The chemical fertilizer industry gives specific effect due to soil pollution. To determine ammonia and urea emissions from fertilizer industry, we can use physical characteristic of soil, which is magnetic susceptibility. Rock magnetism is used as a proxy indicator to determine changes in physical properties. Magnetic susceptibilities of samples in low and high frequency have been measured by Bartington MS2B magnetic susceptibility measurement device. The sample was taken from different area which located closer by pollution source and far from the pollution source. The susceptibility values of polluted samples in topsoil were quite low, with range from 187.1- 494.8 [$\times 10^{-8} \text{ m}^3 \text{ kg}^{-1}$] when free polluted area's sample has high values (1188.7- 2237.8 [$\times 10^{-8} \text{ m}^3 \text{ kg}^{-1}$]). From this studies shows that susceptibility values in areas of the fertilizer industry are lower than the free polluted area.

Keywords : environmental, magnetic susceptibility, rock magnetism, soil pollution

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