

## ASSESSMENTS OF ELEMENTAL CONCENTRATIONS OF PARTICLE MATTER IN ULAANBAATAR, MONGOLIA

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### ABSTRACT

Air pollution is a growing problem in developing countries in the world and especially Mongolia. Particulate matter air pollution in Ulaanbaatar is several times higher polluted than the permissible level of Mongolian National Air Quality Standards 4585:2007 and the World Health Organization standards. Ulaanbaatar was in the list of the most polluted cities of world by World Bank. This study focused on the contents of the air particulate matter pollution in some districts of Ulaanbaatar, determination of the chemical composition of air borne samples and the source of those particles. Samples of fine and coarse fractions of particle matter were collected using a “Gent” stacked filter unit in two fractions of 0-2.2  $\mu\text{m}$  and 2.2-10  $\mu\text{m}$  sizes in a two semi residential areas from September 2012 to August 2013 of Ulaanbaatar, Mongolia. This paper analysis, fine and coarse concentration varied seasonally with meteorological changes.

Multi elemental analysis has been determined by Roentgen Fluorescence Analysis using SPESTRO XEPOS spectrometer.

Two sampling sites produce the air borne PM. In sampling site 1, Zuun Ail combustion generators generate the majority of pollution around 50.6% of household waste furnace to create high-temperature combustion of 21.6%. However, this net contribution to soil contamination near the lower value (5%) that arise around the vacuum environment in substantial amounts (14%), where is open around the buildings and residential areas, the soil is considered to be due to the construction. But the data points to the highway in the distance, where is 9 percent of contaminated of all vehicles smoke, exhaust is similar to the data collected in Ulaanbaatar.

From the sampling site 2, Nuclear Research Center (NRC) for the burning source of PM<sub>2.5</sub> pollution in the air around 25.5% of household waste furnace to create high-temperature combustion of 8.1 percent. But here the very high net contribution to the pollution of soil, is 31.6 percent. Today's emerging dust is around 15.2 percent, showing that motor vehicle pollution caused 19.7%.

Since the analysis was done on a sample-by-sample basis, it is possible to estimate the daily contributions of pollution sources and provide useful information based on a limited number of samples in order to address air quality management issues in Ulaanbaatar.

**KEYWORDS:** Pollution, Particle Matter, Source, Combustion