

CHAPTER 1

INTRODUCTION



1.1 Background of the problem

Air pollution has become one of the most serious problems in densely populated urban areas in many cities around the world. In southeast Asian region, the economic growth has been very fast. These include infrastructure, industries and businesses. Most of these developments would normally concentrate around large cities and industrial areas because of the supporting facilities usually available there. As a consequence, emissions from industrial activities, transportation and services are usually high and concentrated in these areas. To assess the level of air pollution, appropriate monitoring programs must be set up, in which major air pollutants are determined according to the applicable standards. Air pollution caused by particulate matters is one of the most common cases in Asia. In this work, sampling is focused on total suspended particulate matter and air particulate less than 10 μm . In normal practice, particulate matters in air are measured in weight per volume of air. The study is proposed to determine the elemental constituents of the particulate as well. The X-ray fluorescence technique using the wavelength dispersive x-ray (WDX) spectrometers was used in order to develop a reliable alternative analytical method with non-destructive nature. The purpose of the work is to characterize the air particulate matters into group of major elements such as Al, Si, K, Ca, Fe and S, and some trace elements such as Pb, Br, Mn, Ni, Zn, Ti and Cu in total suspended particulate matters and in 10 micron particulate matters in the air. Comparison between the two types of dust was made.

1.2 Objectives

1. To determine major and some trace elements in total suspended particulate and PM-10 particulate using X-ray fluorescence technique.
2. To compare elemental constituents of total suspended particulate matters and PM-10 particulate matters.

1.3 Scope of study

1. Sampling of all total suspended air particulate matter and PM-10 matter were made using standard high volume air sampler and standard PM-10 air sampler.
2. Two sites in industrial area were selected.
3. Only gravimetric and X-ray fluorescence methods are used.



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