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with an oral presentation entitled

**INDOOR AIR QUALITY ASSESMENT IN MINES WITH
FUZZY LOGIC APPROACH**

Prof. Dr. Bernadetha Nadeak, M.Pd., PA.
Universitas Kristen Indonesia
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INDOOR AIR QUALITY ASSESMENT IN MINES WITH FUZZY LOGIC APPROACH

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ABSTRACT

Some sad accidents and incidents recently in mines reveal the need for more research, studies, and output in this sector. Mine air quality is one of the most important research topics in the mining industry in terms of worker health and safety. The amount of gas in mines, the humidity in the air, and the amount of dust inside are among the factors that determine indoor air quality. The research aims to evaluate indoor air quality and air quality in and around mines with a fuzzy logic approach. There are three sub- and one main fuzzy inference system, which include nine different parameters and three main factors affecting the problem. The parameters of the proposed decision support system were determined by existing studies in the literature and regulations and instructions related to relevant institutions. The main factors used in the proposed system are gase rates (GR), climate conditions (CC), and air criteria (AC). Parameters of GR are defined as flammable gases, choking gases, toxic gases and oxygen; parameters of CC are temperature and humidity, and parameters of AC are PM10, PM2.5 and air speed. Main factors are calculated by entering data regarding 9 parameters into the system, and the final result is achieved by running these main factor values in the main system. Additionally, the application of the system according to certain data is also shown. By regular monitoring of these data, it is aimed to prevent possible risks from occurring negatively as much as possible and to increase the security of the environment.

Keywords: Mine; Air Quality; Factors; FIS (fuzzy inference system).