

UNIVERSITI TEKNOLOGI MARA

**EXPOSURE TO WELDING FUMES
TOWARDS
BRONCHOCONSTRICTION AMONG
WORKERS AT STEEL
MANUFACTURING FACTORY**

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the degree of
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(Hons.)

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DECLARATION BY STUDENT

Project entitled “Exposure to Welding Fumes towards Bronchoconstriction among Workers at Steel Manufacturing Factory” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, En. Nasaruddin Bin Abd Rahman. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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In the name of Allah, The Most Gracious, The Most Merciful.

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ABSTRACT

As Malaysia develops, welding is the most vital work process in industrial and construction sector. Welding is used in joining material which is metals. When metal compound is burned will emit fumes. Uncontrollable of exposure to welding fumes leads to higher chances of occupational diseases. The size of welding fumes is less than 1 μm that be able to accumulate in the lung. Excessive exposure to welding fumes, reduce lung function performance of workers. The objective of this study is a cross-sectional study was done to assess the relationship of welding fumes exposure and bronchoconstriction among steel manufacturing workers. The methodology of this study is welding fumes was measured by air sampling pump and been analyzed by Atomic Absorption Spectroscopy (AAS). Meanwhile, bronchoconstriction was measured by Koko Legend Spirometry. Adapted questionnaire by Arrowhead worker compensation and the interview was done to gather preliminary data. The result is there were four parameters tested which are cadmium, copper, lead and nickel. All four parameter was below permissible exposure limit in Use and Standards of Exposure of Chemical Hazardous to Health Regulation (USECHH) 2000 in Occupational Safety and Health Act 1994. Meanwhile bronchoconstriction, majority have normal lung function performance however, there were two welders who are having obstructive lung function. Thus, the welding fumes were not strong enough to predict and cause bronchoconstriction. These results may cause from ventilation and good spaces between welders at workplace. However, consistent monitoring is required to monitor health surveillance of the welders and ensure the quality and effectiveness of ventilation of welding fumes. This is due to ventilation is one of the most effective control measures that can be adopted in the workplace.

Keyword: *welding fumes, bronchoconstriction, lung function, monitoring, health*