

**UNIVERSITI TEKNOLOGI MARA**

**TOTAL VOLATILE ORGANIC COMPOUNDS  
(TVOCs) EXPOSURE AT CAR SPRAY INDUSTRIES  
IN PUNCAK ALAM**

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Project submitted in fulfillment requirement for  
the degree of  
**Bachelor in Environmental Health and Safety  
(Hons.)**

**Faculty of Health Sciences**

**July 2018**

## DECLARATION BY STUDENT

Project entitled “Total Volatile Organic Compounds (TVOCs) Exposure at Car Spray Industries in Puncak Alam” 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. Megat Azman Bin Megat Mokhtar. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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## **ACKNOWLEDGEMENT**

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

Assalamualaikum and Alhamdulillah, all praise belongs to Allah S.W.T, peace and blessing to Prophet Muhammad S.A.W., all prophets and their family. I praise to Allah for giving me opportunity and strength in completing my study. Thanks Allah for blessing until I am finished my thesis.

I wish to thank and I owe my deepest appreciation to my supervisor, Megat Azman Bin Megat Mokhtar for the encouragement, guidance and unlimited support toward this project from beginning and toward the end of this project. I also want to thank to him for the knowledge, motivation and enthusiasm always be precious for me. Not to forget, I would like to thanks to all lecturers in Environmental Health and Safety Department who always share their knowledge and advised throughout this study.

My special thank extended to my beloved parents. This thesis was dedicated for both of you Mohd Kasri Bin Ramli and Limah Binti Draman for your prayers and sacrifice throughout my study. To my siblings, Hazwani Mohd Kasri and Hazmira Mohd Kasri thank you for continuous support and always being there for me. I am blessed to have all of you as my family.

My sincere thanks to all laboratory staff and our Cis who give their full cooperation and help in many way for completion this study. Not to forget to all my colleagues especially from HS 243/8A, thank you for your cooperation, help and suggestion during this study and thank you for the moment that we share together. Then, I would like to thank to the workshops owner that giving me opportunity to conduct my research at their workshop and give full cooperation during this research. Lastly, I would like to thank to all person who directly and indirectly involve in this study. Thank you.

## TABLE OF CONTENTS

|                                |             |
|--------------------------------|-------------|
| <b>TITLE PAGE</b>              |             |
| <b>DECLARATION BY STUDENT</b>  | <b>ii</b>   |
| <b>INTELLECTUAL PROPERTIES</b> | <b>iii</b>  |
| <b>APPROVAL BY SUPERVISOR</b>  | <b>v</b>    |
| <b>ACKNOWLEDGEMENT</b>         | <b>vi</b>   |
| <b>TABLE OF CONTENTS</b>       | <b>vii</b>  |
| <b>LIST OF TABLE</b>           | <b>xi</b>   |
| <b>LIST OF FIGURES</b>         | <b>xii</b>  |
| <b>LIST OF PLATES</b>          | <b>xiii</b> |
| <b>LIST OF EQUATIONS</b>       | <b>xiv</b>  |
| <b>LIST OF ABBREVIATIONS</b>   | <b>xv</b>   |
| <b>ABSTRACT</b>                | <b>xvi</b>  |
| <b>ABSTRAK</b>                 | <b>xvii</b> |
| <br>                           |             |
| <b>CHAPTER 1: INTRODUCTION</b> | <b>1</b>    |
| 1.1 Background information     | 1           |
| 1.2 Problem statement          | 3           |
| 1.3 Objectives                 | 4           |
| 1.3.1 General objective        | 4           |
| 1.3.2 Specific objectives      | 4           |
| 1.4 Study justification        | 5           |
| 1.5 Research hypothesis        | 6           |
| 1.6 Conceptual framework       | 6           |

## ABSTRACT

Workers in the car spray workshops were exposed to Total Volatile Organic Compounds (TVOCs) and the main source of TVOCs was paints whether were release direct or indirectly during painting process. The main route for TVOCs enter the workers body through inhalation and it may cause adverse health effect to the workers if exposed to TVOC for a long period of time. The examples of the health effect from TVOCs exposure such as respiratory problem, cardiovascular diseases, dizziness and nervous system and brain impairment. The study has been conducted in Puncak Alam area which are Alam Jaya and Felda Bukit Cerakah area and six (6) car spray workshops have been monitored. The study design for this study is cross – sectional study and the monitoring was conducted for eight (8) hours in each workshops. TVOCs concentration in the car spray workshops was measure by using ppbRae Model 3000 and by using mean concentration of TVOCs that was get from monitoring, Health Risk Assessment have been conducted to know the degree of risk exposure from TVOCs to the workers. The finding of this study show that there is high concentration of TVOCs exposure in the car spray workshop with the mean concentration ranging from 16.611 ppm to 65.625 ppm which exceed permissible limit that was stated in ICoP 2010 which 3 ppm. In addition, there was significance difference in the concentration of TVOCs before, during and after spraying process with the p value < 0.05. Furthermore, the health risk assessment that was conducted also show that all six car spray workshops may pose potential health risk to the worker which hazard quotient value > 1 which ranging from 15.89 to 62.80. Based on the finding, TVOCs exposure at car spray workshops may pose potential health effect to the workers and effective control measure to control TVOCs exposure must be implement to ensure safety and health of the workers.

*Keywords: Total Volatile Organic Compounds (TVOCs), Car Spray Workshops, Health Risk Assessment*