



**INSTITUT TEKNOLOGI
MARA
SHAH ALAM**

اينستيتوت تيكنولوگي مارل

**FACULTY OF MECHANICAL
ENGINEERING**

STUDY ON AQUAGAS WELDING

SUPERVISOR: TUAN HAJI SUNHAJI KIYAI ABAS

PREPARED BY:

- 1. MD FAKARUDIN AB RAHMAN (95684350)**
- 2. HELMY ROHAIZAD HAMZAH (96793305)**
- 3. MOHD AL-RASHIDIN MOHD RASHID (96818090)**

CONTENTS

SYNOPSIS

ACKNOWLEDGEMENT

1.0	INTRODUCTION	1
1.1	Project Objective	
2.0	LITERATURE SURVEY	
2.1	General Welding Review	2-4
2.2.1	Definition of Welding	
2.2.2	Safety in Welding	
2.2.3	Welding Techniques	
2.2.3.1	Backhand	
2.2.3.2	Forehand	
2.2	Some Examples of Welding Classification	5-12
2.2.1	Arc Welding	
2.2.2	Gas Welding	
2.2.3	Thermit Welding	
2.2.4	Resistance Welding	
2.3	Gases Used in Gas Welding	13-15
2.3.1	Oxygen	
2.3.2	Acetylene	
2.3.3	Hydrogen	
2.3.4	Other Oxy-Fuel Gases	
2.4	Hydrogen Control in Welding	16-17
2.4.1	Effect of Hydrogen Absorption in Welding	
2.5	Welding on Mild Steel Using Oxy-Acetylene Gas Flame	18
2.5.1	Flame Requirement for Welding	
2.5.2	Welding Rod	
2.5.3	Welding Technique	

ACKNOWLEDGEMENT

Alhamdulillah, with the grace of Allah s.w.t, we managed to complete this project. We would like to express our special thanks to all persons involved who have contributed their invaluable assistance, co-operation and support toward the construction and completion of this project. We honestly appreciated and forever indebted to them.

First of all, we would like to express our gratitude and appreciation to our project adviser, Tuan Haji Sunhaji Kiyai Abas for understanding, guidance, support and advice which beyond repayment in the preparation of this project.

Our appreciation also goes to all staff members of ITM in Mechanical Workshop engineering especially to En Ramli Badron, En Abu Kassim Salleh of material Strength Laboratory, Mr. Ng Swee Heng of Production Manager of Gas Generators (Malaysia) Sdn Bhd and all staff members of SIRIM Shah Alam for their co-operation in supplying us with various facilities, data and information for our project.

Finally, we would like to express our deepest gratitude to our parents and others who have contributed directly or indirectly to the success of this project.

MAY ALLAH BLESS ALL OF YOU

SYNOPSIS

The “**Study On AquaGas Welding**” generally, to gain knowledge and experience in this new technology in the world of welding and able to report our experience on the advantages, disadvantages and the difficulty that used faced while using it as compared to that of oxy-acetylene welding process.

1.0 INTRODUCTION

Welding has not been entirely lifted from category of a new science. Around the turn of the century, when several of the important welding processes were being developed and established as industrial tools, the advantages of joining metals by this means were quickly recognized. The enthusiastic use of the processes, with an insufficient background of research and experience, led to results of inferior quality. It naturally followed that the unsuccessful use of a new method make its rejection inevitable, with little consideration being given to whether the operational procedure used was the correct one. However, thus persistent individuals who continued to apply welding methods were rewarded in varying degrees, and numerous articles were published that related or discussed welding experiences.

1.1 Project Objective

- i) To study and analyze the new technology of oxy-hydrogen welding process using AquaGas method.
- ii) To study and analyzed the performance of AquaGas welding machine and the welds produced by it.
- iii) To compare Aquagas welding performance with that of oxy-acetylene welding process.