

**DESIGN OF SAFETY PROCEDURES
FOR THE P. IOANNIDES. PLASTICS. L.T.D**

**PROJECT REPORT SUBMITTED BY
AMYROTOS ZACHARIAS**

**IN PARTIAL FULFIMENT OF THE REQUIREMENTS FOR AWARD OF THE
DIPLOMA OF TECHNICIAN ENGINEER IN MECHANICAL ENGINEERING OF
THE HIGHER TECHNICAL INSTITUTE, CYPRUS**

**PROJECT SUPERVISOR: MR. R. DAMIANOS
LECTURER, MECHANICAL ENGINEERING
DEPARTMENT**

EXTERNAL ASSESSOR: MR. SOTIRIOY

TYPE OF PROJECT: INDIVIDUAL.

ABSTRACT

This project deals with the study and improvement of safety measures, working environment and equipment in the factory for a better Safeguard of operators and other personnel. Also it deals with the investigation of all safety guards and the design of new ones. The implementation of the Factory Act Regulations in some cases and the writing up of Safety rules for individual Cases. Finally it deals with the writing up of procedures and responsibilities for a Safety officer and a cost estimation for the design of new safeguards and other suggestions.

LIST OF CONTENTS

PAGE

ACKNOWLEDGEMENTS

ABSTRACT

INTRODUCTION

CHAPTER : 1 - SAFETY	1
1. Layout of the Machines in the Factory	1
2. Machinery included in the production line	3
2.1 Printing machine in conjunction with the heaters	3
2.1.1 The Machinery	3
2.1.2 Description of function	4
2.1.3 The hazard	4
2.1.4 Existing Safeguard	6
2.1.5 Proposed Safeguard	7
2.1.6 Construction	10
2.2 Extruder in conjunction with Polishing Rolls and ancillary take-off equipment	12
2.2.1 The Machinery	12
2.2.2 Description of function	13
2.2.3 The hazard	14
2.2.4 Proposed Safeguard	14
2.2.5 Construction	16
2.3 Thermoforming Machine (T.F.T. 5030)	17
2.3.1 The Machinery	17
2.3.2 Description of function	18
2.3.3 The hazard	20
2.3.4 Proposed Safeguard	21
3. Machinery included in the machine shop	22
3.1 Safety in the machine Shop	22
3.1.1 General safety precautions	22
3.2 Safety recautions for gas welding	23
3.3 Safety precautions for arc-welding	24
4. Fire fighting in P.I.P factory	27
4.1 Care, maintenance and inspection of equipment .	28
4.2 Means of escape in case of fire	29

CHAPTER : 2 - HEALTH	30
Introduction	30
1. Cleanliness	32
1.1 Provisions for individual cases	33
2. Overcrowding	34
3. Temperature	35
3.1 Suggestions and provisions	35
4. Ventilation	38
4.1 Suggestions and provisions	39
5. Task analysis	48
5.1 How to predict task requirements	49
6. Drainage of floors	50
7. Sanitary conveniences	51
8. Underground rooms	51
9. Noise	52
9.1 Control of noise exposure	53
9.1.1 Reduction in amount of noise produced by the source	53
9.1.2 Use of personal protection	64
9.1.3 Maintenance	67
10. Lighting	68
 CHAPTER : 3 - WELFARE	 69
Introduction	69
1. Supply of drinking water	71
1.1 In-plant contamination	71
2. Personal service facilities	73
3. Food service	74
3.1 Eating areas	75
3.2 Controlling contamination of foods	75
4. First-Aid	76
4.1 Persons in charge of first-aid	77
4.2 Posting of Notices	78
4.3 Maintenance of Records	79
4.4 Position of First Aid Boxes	79
4.5 Contents of First-Aid Boxes	79

CHAPTER : IV	80
Introduction	80
Safety Direction	82
Duties and Responsibilities of the Safety officer ...	83
Procedures for a safety officer	86
1. Inspection Techniques	86
1.1 Inspection Checklists	87
1.2 Inspection of work areas	92
1.3 Periodic Inspections	93
1.4 Inspection of work practices	93
2. Control Procedures	94
2.1 Posters and displays	96
2.2 Purposes of posters	96
2.3 Courses and demonstrations	98
2.4 Newsletters	99
CHAPTER : V - COST ANALYSIS	101
Introduction	101
2. Cost analysis of Safeguards	102
2.1 Safeguard for the printing machine	102
2.2 Safeguard for the ancillary take - off equipment	105