

SOP Number PPM_03

SOP Title Compression Machine Operation

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NAME	TITLE	SIGNATURE	DATE

1. PURPOSE

The purpose of this document is to detail the standard operating procedure for the PPMUC Compression Machine v1.0 in accordance to safe handling of the machine.

2. INTRODUCTION

The Compression Machine v1.0 designed by the Precious Plastic Monash University Chapter is one of the four different machines intended for use as part of the integrated plastic recycling process. It has been designed for assembly and use on the integrated pallet.

The aim of this document is to provide detailed instructions on the general assembly, operation and maintenance of the Compression Machine v1.0. Adherence to the following procedures will ensure that the machine is safe for operators to use with minimal risk of injury.

3. SCOPE

This document covers the intended standard operation of the machine including assembly, set-up, product manufacturing, cleaning, maintenance and storage.

This document does not cover intentional misuses of the Compression Machine.

This document does not cover modifications made to future versions of the machine.

4. DEFINITIONS

PPE: Personal Protective Equipment

5. RESPONSIBILITIES

PERSON IN CHARGE OF MACHINE Responsibilities

- **Assembly:** assembling machine components including jack assembly, handwheel assembly, jig plates, reinforcement assembly.
- **Set up:** PPE, plastic selection, selection of the required sieve.
- **Product manufacturing:** loading of plastic, turning on of the machine, inserting of the plastic selected, removal of product.
- **Cleaning:** removal of residual plastic from jig plates.
- **General maintenance:** ensure the components are well assembled (no loose components), check the jack is working smooth.
- **Storage:** removal and storage of mould, jig plates and the compression rod.

Operator Responsibilities

- **Set up:** PPE, plastic selection, selection of the required sieve.
- **Product manufacturing:** loading of plastic, turning on of the machine, inserting of the plastic selected, removal of product.
- **Cleaning:** removal of residual plastic from jig plates
- Minimum of two operators or one operator and PERSON IN CHARGE OF MACHINE are required for manufacturing.

6. SPECIFIC PROCEDURE

6.1 Initial Check

1. Check for Oven Reinforcement plate fixed to timber wood.
2. Check for Oven ON/OFF
3. Check for the jack assembly, Wheel assembly, and compression assembly

6.2 Jack Assembly

1. Bolt the two angle brackets on the frame.
2. Bolt the scissors jack to the brackets.
3. Attach the threaded rods for which acts as compression stopper.
4. Attach the compression rod by turning it on threaded collar.

6.3 Wheel Assembly

1. Attach the wheel coupling to the rotating pivot of jack.
2. Place the Hand wheel and Bolt it to the coupling.

6.4 Compression assembly

1. Check for the Oven plate, aluminium bottom jig plate properly screwed.
2. Attach the extension rod to the compression rod which is ultimately attached to the jack
3. Attach the top jig plate to the extension rod.
4. Ensure that the top jig plate passes through all the four guide rails when you are attaching it to rod.

6.3 Product Manufacturing

1. Wear protective glasses prior using the machine.
2. Check the On/Off Switch
3. Prepare the Mould with shredded plastic.
4. Bolt the mould on Bottom Jig Plate with baking paper covering the remaining open holes around mould.
5. Start the Preheating in presence of team member.

6. Check for Fumes.
7. Check if the Plastic has started to melt
8. Lower the Top Jig Plate
9. Start compressing with help of scissor jack
10. Turn off the Machine
11. Open the door to let it cool down.
12. Remove the Mould and break it open to reveal the product.

6.4 Cleaning

1. Ensure machine is OFF and disconnected from the mains power prior to removal of any components.
2. Remove the bottom and top jig plates.
3. Remove the baking paper.
4. Remove the oven plate and inspect it.
5. After opening the Mould, clean the Mould.

6.5 Storage

1. All components should be stored in a dry environment when not in use.
2. All components should be stable or securely stored to prevent damage or injury to environment and persons when in storage.

6.6 General Maintenance

1. Keep Jack lubricated.
2. Ensure the machine is clear of melted plastic following each use.
3. Ensure all metal components are covered in protective film when transported, and renew it regularly.

7. REFERENCES

Labelling of storage containers

8. CHANGE HISTORY

SOP no.	Effective Date	Significant Changes	Previous SOP no.
1	21/09/18	Initial version	N/A