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Title:	Use and Maintenance of Daewoo Microwave
Version:	v3
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Valid to:	21/06/2025

SOP History		
Number	Date	Reason for Change
v1	16/08/2013	Original
v2	22/06/2015	Equipment replaced
v3	22/06/2020	Quinquennial Update

1.0 Purpose –

The purpose of this SOP is to outline the principles of the routine use of the Daewoo Microwave in Laboratory 248 at the St Andrews School of Medicine (SASoM).

2.0 Scope –

This SOP applies to routine Use and Maintenance of the Daewoo Microwave within the SASoM.

3.0 Responsibilities –

It is the responsibility of all users of the Daewoo Microwave within the SASoM to comply with this SOP.



Equipment Operation Procedure

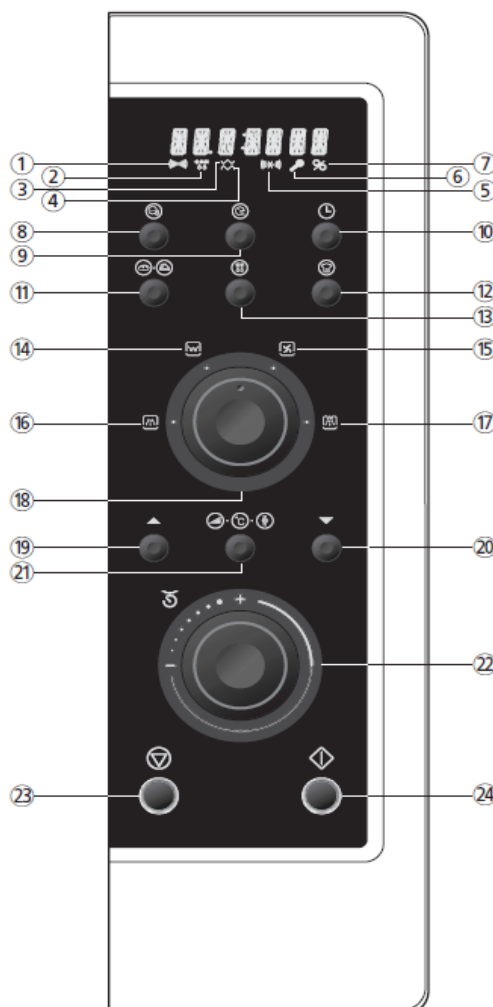
4.0 Procedure –

The microwave should be located on a bench area within a short distance of the laboratory sink. Ensure only non-metallic items are used within the microwave.

Agar and agarose **MUST** be melted on the 'DEFROST' setting as per the University guidelines. These guidelines are displayed as a printed sticker located on front of the main autoclave.

Do not over-fill bottles with liquid agar – air space must be allowed to avoid spillage during microwaving as liquid heats up. Bottle caps must be loose. Ensure that an appropriate size of glassware is used for the volume being heated - e.g. for 100mls liquid use a 250ml conical, for 250mls liquid use 500ml conical.

Control Panel laid out as follows: –



DISPLAY WINDOW

1. MICROWAVE indicator, showing microwaving in progress.
2. DEFROST indicator, showing defrosting in progress.
3. GRILL(upper grill heater) indicator, showing grilling in progress.
4. GRILL(lower grill heater) indicator, showing grilling in progress.
5. CONVECTION indicator, showing convectioning in progress.
6. CHILD LOCK indicator.
7. % percentage microwave power level indicator.

BUTTONS

8. Memory : Use to set favorite cooking mode.
9. Language : Use to select the language.
10. Clock : Use to set clock.
11. Crusty/Cake : Use to select crusty/cake menu.
12. Auto cook : Use to select auto cook menu.
13. Auto defrost : Use to select defrost menu.
14. Grill : Use to select grill.
15. Convection : Use to select convection mode.
16. M/W : Use to select microwave.
17. Combi : Use to select combi cooking mode.
18. Menu knob : Use to select menus.
19. More : Use to add time to cooking.
20. Less : Use to remove time from cooking.
21. Power / Temp / Mode : Use to set power,temp or grill/combi mode.
22. Dial knob : Use to set time, weight and quantity.
23. Stop / Clear : Use once to stop a programme, and twice to cancel a programme.
24. Start / Speedy cook : Use to start a programme, also for speedy start (each press adds 30 seconds microwave cooking time).



Equipment Operation Procedure

1. The **Microwave function** should be used for normal Laboratory microwave operation – refer to microwave function.

Note : When the operation is finished the oven beeps three times, "OPEN DOOR" appears in the display, the rotating plate stops turning and the oven light turns off. The oven will continue to beep every 1 minute until the **stop/clear** button is pressed, or the door is opened. The cooling fan continues to run for a few minutes after cooking has stopped when it takes over a few minutes for cooling. (the display will show "COOLING" and ":0 or clock")

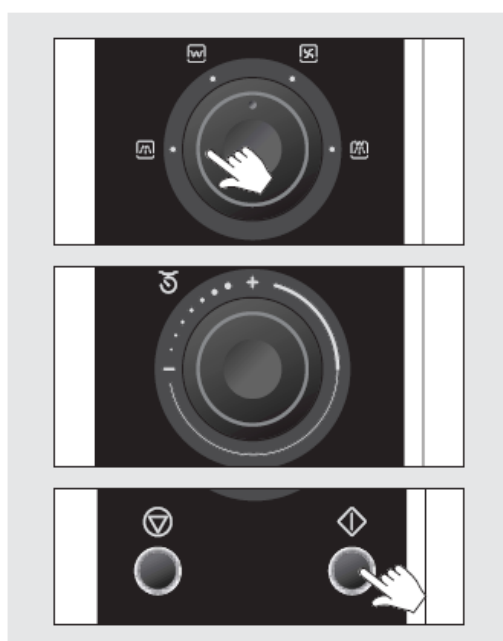
Opening the oven door interrupts any operation except cooling fan.

To cancel the operation, press **stop/clear** button. To continue the operation, press **start/speedy cook** button.

The oven displays the set cooking time in 10 seconds steps(up to 5 minutes cooking time), in 30 seconds steps(up to 10 minutes cooking time), in 1 minutes steps(up to 60 minutes cooking time).

MICROWAVE COOKING

This microwave cooking method allows you to cook food for a desired time. In addition to the maximum power level(100%), you can select different microwave power from 9 other levels, 10% to 90% for the foods that require slower cooking. If you have used the appliance for grilling, convection or combination cooking, let the oven cool down before using again. Never switch the microwave oven on when it is empty.



1. Select M/W menu. **MICROWAVE** indicator lights. "100 %" and "SET TIME" shows in display.
2. Select the appropriate power level by pressing the **Power/Temp/Mode** button again until the corresponding percentage is displayed. Refer to the power level table below for further details.
3. Turn the **dial knob** to set the cooking time.
For a cooking time of 5 minutes 30 seconds, turn the **dial knob** to the right to set 5:30. (up to 60 minutes)
"5:30" and "PRESS START" shows in display.
4. Touch **start/speedy cook** button.
The oven light comes on and the turntable starts rotating.
Cooking starts and the time in the display will count down.

Note : You can check the power level while cooking is in progress by pressing the **Power/Temp/Mode** button. The display will show the current power level for 3 seconds.

Power level table

Power level	percentage	Power level	percentage
High	100%	Medium	50%
Sauté	90%	Medium low	40%
Reheat	80%	Low	30%
Medium high	70%	Defrost	20%
Simmer	60%	Warm	10%

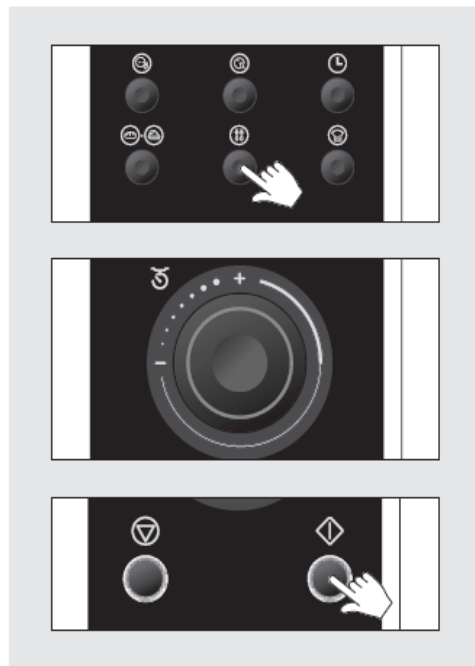
- The **'AUTO DEFROST'** mode must be used **when melting agar/agarose**.

AUTO DEFROST

This function allows you to accurately defrost **meat, poultry, fish or bread**.

Simply enter the weight of the food and the oven will select the correct defrosting time.

During the defrosting process the oven will beep to remind you to check the food. **"TURN OVER"** will appear in the display to remind you to attend to the food. Use only recipients that are microwave-safe.



- Touch **auto defrost** button once. **DEFROST** indicator lights. **"1 MEAT"** and **"SET WEIGHT"** shows in display.
- Select the defrosting menu by pressing the **auto defrost** button until the required menu is displayed. Refer to the defrost menu chart below for further details.
- Turn the **dial knob** to set the defrosting weight. For a defrosting weight of 1000 grams, turn the **dial knob** to the right to set 1000 G.(up to 2000 grams) **"1000 G"** and **"PRESS START"** shows in display. Refer to the defrost menu chart below for further details.
- Touch **start/speedy cook** button. The oven light comes on and the turntable starts rotating. Defrosting starts and the time in the display will count down.

Defrost Menu Chart

Press auto defrost key	Defrost Menu	Minimum Weight	Maximum Weight	Weight Step	Standing Time
Once	1 MEAT	100 g	2000 g	50 g	20 - 40 min.
Twice	2 POULTRY	100 g	3000 g	50 g	1 - 2 hours
3 times	3 FISH	100 g	2000 g	50 g	10 - 20 min.
4 times	4 BREAD	50 g	1000 g	50 g	5 min.

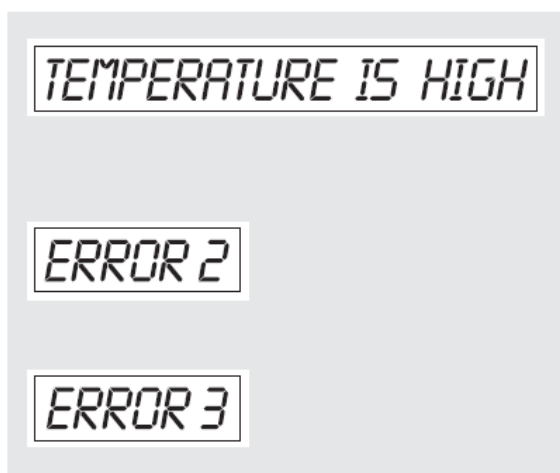


3. Troubleshooting

TO STOP THE OVEN WHILE THE OVEN IS OPERATING

1. Open the door.
 - Oven stops operating.
 - You can restart the oven by closing the door and touching **start / speedy cook** button.
2. Press the **stop / clear** button.
 - Oven stops operating.
 - If you wish to cancel the cooking settings, press the **stop / clear** button again.

ABNORMAL MESSAGE

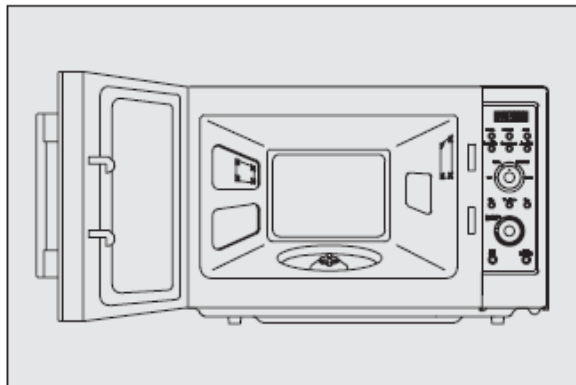


- **"TEMPERATURE IS HIGH"** message will be shown when the inside temperature of the oven is high before selecting defrost or 40°C convection mode.
- To get better cooking result, the oven needs "cooling".
- If the inside temperature of the oven is higher than expected or the temperature sensor doesn't work properly, **"ERROR 2"** message will be shown in the display.
- Unplug the power and call our technical service.
- When the temperature sensor is disconnected, **"ERROR 3"** message will be shown in the display.
- Unplug the power and call our technical service.

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4. Cleaning the microwave

KEEP THE OVEN CLEAN


Note:

Do not use any other Turntable in the oven. Do not operate the oven without the Turntable and Rotating Base Properly in place.

DOOR

While the oven door is still warm, any spatters or food soils should be wiped off with a damp sudsy cloth or sponge. Rinse with water and wipe dry with a cloth.

If steam or condensation appears around this area, wipe with a cloth. This may occur when the oven is operating under high humidity and with foods containing lots of moisture. This is a normal part of microwave cooking.

INSIDE THE OVEN

The interior three side walls and floor are stainless steel. For easy cleaning, wipe spills and spatters as they occur with a damp cloth or sponge with water and a mild detergent. Rinse the cavity of any cleaning residue with a clean damp or sponge after cleaning. Dry with a soft cloth.

These areas can also be cleaned by using plastic or nylon scouring pads recommended for use of Teflon and Silverstone*.

For hard to remove soil, use a mild non-abrasive cleaner. Use on the stainless steel areas, turntable and rotating base only.

FLOOR

A grill element is installed under the floor, and there are holes on the floor over the grill. Therefore, you must be very careful not to drop any waterdrops or spills over the holes. Do not wipe the holed-surface with a damp cloth or detergent. Only use soft, clean and dry cloth.

When you clean the groove or floor with a damp cloth, you need to be careful not to touch the holed-surface.

TOP SURFACE

Two quartz grill elements are installed on the top surface. As they are fragile, be careful not to press or grip them hard. Do not remove the grill elements to clean the surface.

Warning

Just as your traditional oven becomes hot also this oven will become hot during use of the grill functions or in combination with microwaves. Children should be supervised at all times when using the oven.

TURNTABLE AND ROTATING BASE

These two parts are easily removable for cleaning. The turntable should be cleaned frequently and is dishwasher proof. If food spills are accumulated under the rotating base, the oven will not operate efficiently. Be sure to wipe up any spills as they occur in this area.

Clean these parts as described in by the same method of cleaning inside the oven. Be sure to properly reinstall these parts into the cavity after cleaning.

Note:

- Although your oven is provided with safety features, it is important to observe the following:
 1. It is important not to defeat or tamper with safety interlocks.
 2. Do not place any object between the oven front face and the door or allow residue to accumulate on sealing surfaces. Wipe the sealing area frequently with a mild detergent, rinse and dry. Never use abrasive powers or pads.
 3. When opened, the door must not be subjected to strain, for example, a child hanging on an opened door or any load could cause the oven to fall forward to cause injury and also damage to the door. Do not operate the oven if it is damaged, until it has been repaired by a service technician. It is particularly important that the oven closes properly and that there is no damage to the:
 - 1) Door(bent)
 - 2) Hinge and Hookes(broken or loosened)
 - 3) Door seals and sealing surface.
 4. The oven should not be adjusted or repaired by anyone except a properly trained service technician.
 5. The oven should be cleaned regularly and any food deposits removed;
 6. Failure to maintain the oven in a clean condition could lead to deterioration of the surface that could adversely affect the life of the appliance and possibly result in a hazardous situation;

EXTERIOR
CONTROL PANEL

Exercise care when cleaning this area. To clean, wipe the panel with a slightly dampened cloth, using only water. Wipe dry. Do not scrub this area or use any sort of chemical cleaner. Avoid use of excess water.

OUTSIDE SURFACE

The outside surfaces should be cleaned with soap and water, rinsed and dried with a soft cloth. Do not use any type of household or abrasive cleanser.

Note:

- DO NOT USE ANY TYPE OF OVEN CLEANER ON ANY PART OF THE OVEN. It will damage some of the interior and exterior surfaces of the oven.
- In order to keep the good condition of your oven, clean the inside after each cooking.



5.0 Personal protection –

Howie coat must be worn at all times.

Heat Resistant gloves must be worn when retrieving items from microwave.

Always wipe away spills using hot soapy water and 70% Ethanol.

If a more thorough clean is required use the Steam Cleaning function

6.0 Spillages –

Mop up any water spillage immediately with mop and bucket located in Autoclave Room (248N). Ensure any floor area where water was spilled has yellow warning board placed at area until it dries.

7.0 Related documents – RA – GEN – 006 – Microwave Ovens Equipment Manuals – Daewoo Microwave – KOC-154K

8.0 Approval and sign off

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