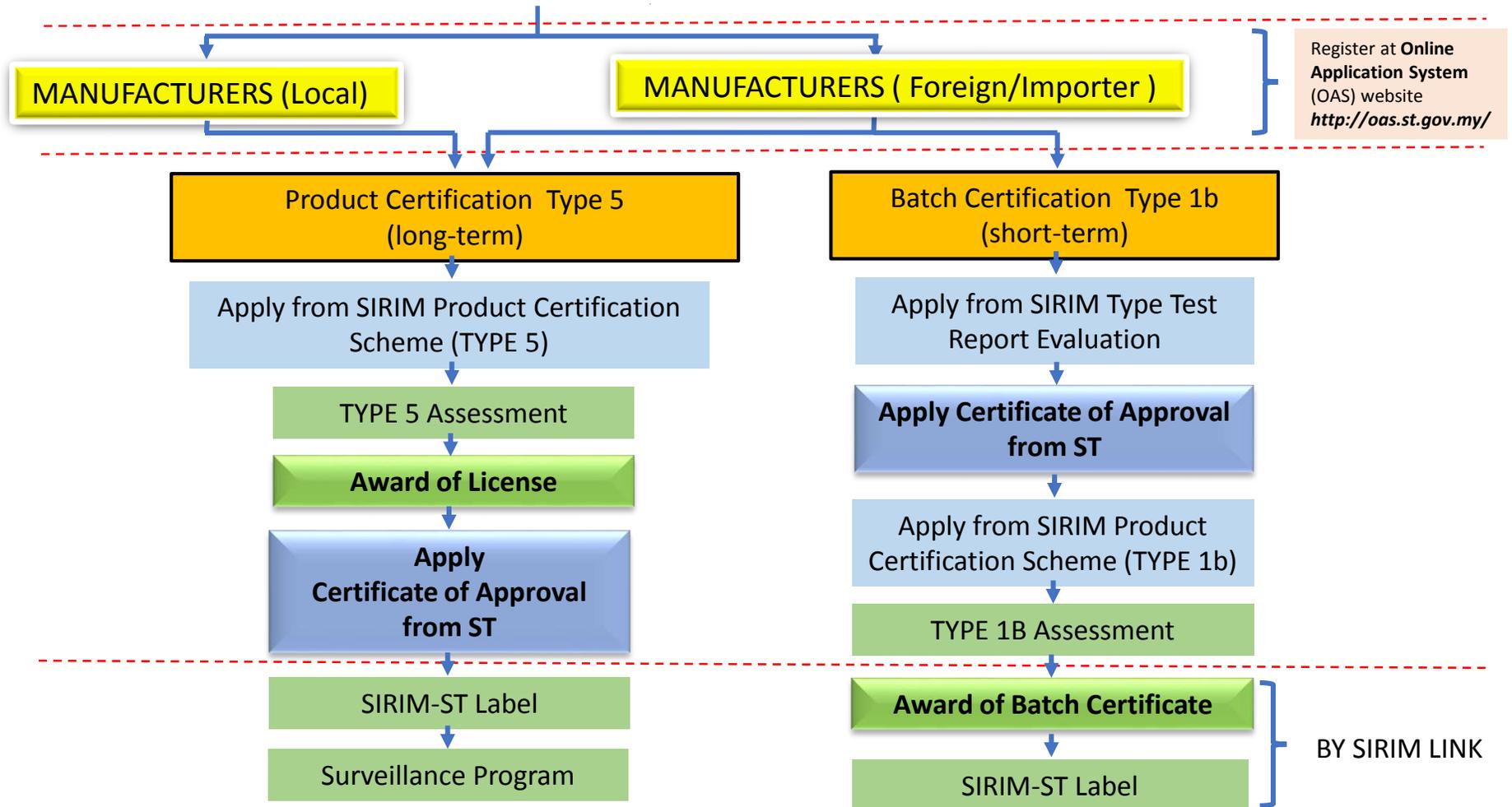




# TESTING OF GAS APPLIANCES

FLOW & GAS APPLIANCES LABORATORY  
MECHANICAL & AUTOMOTIVE SECTION (MAST)

# Domestic Gas Cooker



# Domestic Gas Cooker

MANUFACTURER ( Foreign/Importer )

Register at **Online Application System (OAS)** website  
<http://oas.st.gov.my/>

Batch Certification Type 1b (short-term)

- Applicant submit following documents:
1. Certificate of Approval Manufacturer or Importer (Borang I or J)
  2. Accredited Test Report that carry ILAC/MRA logo according to BS EN 30 or MS 1535 or JIS S 2093, JIS S 2103, JIS S 2092, JIS 2010
  3. Product drawing (bill of material)
  4. Product additional information (Form provided by SIRIM)

Apply from SIRIM Type Test Report Evaluation

Submit sample for full type test against BS EN 30 or MS 1535 or JIS S 2093, JIS S 2103, JIS S 2092, JIS 2010

Test Report Evaluation (Letter Assessment)

Apply Certificate of Approval from ST (Borang K)

- Notify SIRIM when batch arrived and submit the following forms:
- (1) K1 form
  - (2) Invoice
  - (3) Packing List
  - (4) Receipt from custom
  - (5) Letter Assessment
  - (6) Bill of Lading

Apply from SIRIM Product Certification Scheme (TYPE 1b)

Perform confirmatory test (Leakage & Consumption)

TYPE 1B Assessment

Award of Batch Certificate

BY SIRIM LINK

SIRIM-ST Label



# FULL TYPE TEST



**STANDARD (MS 1535:2002 )**  
Domestic Gas Cooking Appliances for  
Use with Liquefied Petroleum Gases

# CLASSIFICATION

- Cooking Burner
- Grill
- Oven
- Rice Cooker
- Complex Type
- Cooking Table



# TYPE OF TEST

Leakage
Gas Consumption
Combustion
Sound Pressure Level
CO Concentration
Temperature Rise
Heat Shock Resistance

Ignition
Safety Devices
Duty Cycle/Endurance
Vibration
Operational
Structure, Materials
Dimension & Construction

# SAMPLE PREPARATION



## Finished Product

3 units in original packing



## Parts

3 units of gassing parts  
(burner, valve, gas inlet attachment,  
nozzle and etc ) with identification name

# SAMPLE PREPARATION



# SAMPLE PREPARATION



## Materials

- 3 samples of each gasket used
- Rubber materials (100mm x 2mm thick) 2 pieces
- 20g of sealing materials
- Corrosion test
- Prepare 3 layer of metal with dimension of 130mm x 100mm
- The materials and surface treatment (coating) of the above samples must be the same as the construction of appliance body

# SAMPLE PREPARATION



## Documentations

- Detail drawing of the appliance.
- Detail drawing with material used of the appliances.
- Detail information on seal materials used for gas passing parts or for maintaining gas tightness.
- Instruction manuals.
- Information on coating method/techniques and coating material used.
- Information on insulating materials used (if applicable).

# SAMPLE PREPARATION



## Estimated Testing Duration

4 weeks from date of acceptance of complete application

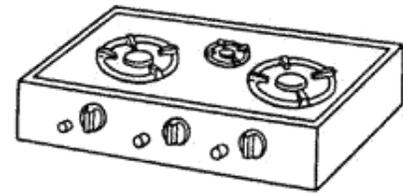


## Testing Fees

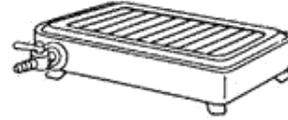
RM 6000.00\*

*\*The testing fee applies only for **basic** two-burner tabletop LPG gas cooking appliances and not applicable to any two-burner tabletop that come with extra features such as electric cooking function, ignition using AC/DC power supply, gas consumption changeover device, flame failure shut-off device, temperature control and flame detecting device. Please consult us for any clarification.*

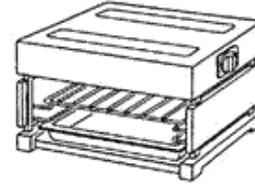
# DESIGN



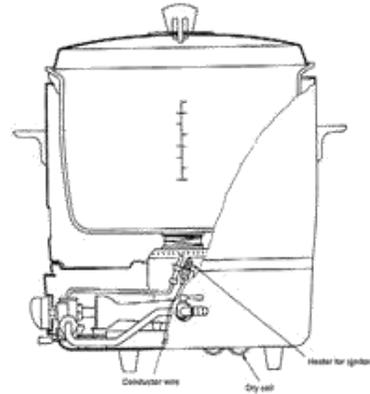
Upfiring grill



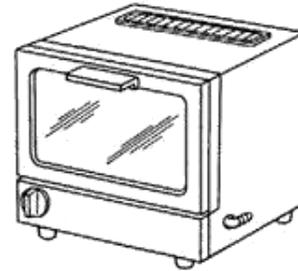
Down firing grill



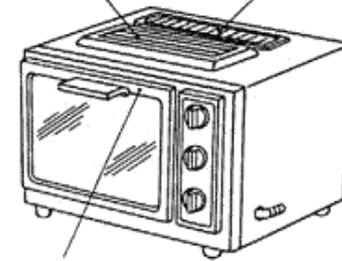
Box shape grill



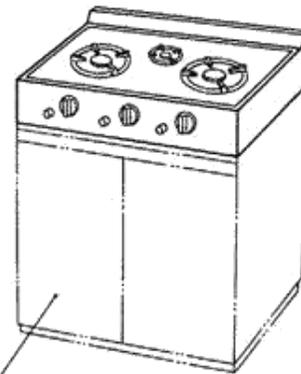
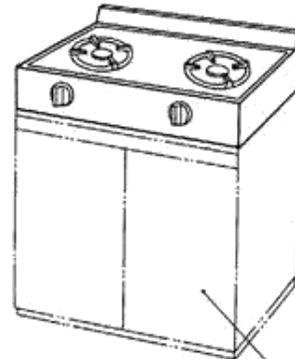
Conductor wire  
Silly coil  
Heater for igniter



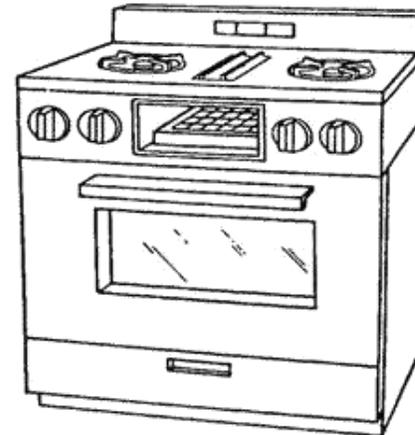
Grill exhaust outlet  
Oven exhaust outlet



Oven door



Cabinet



# TEST SEQUENCE

TEST	Sample 1	Sample 2
Vibration	*	
Marking	*	*
Gas Tightness	*	*
Ignition	*	*
Input Rate	*	*
Combustion	*	*
Temperature Rise		*
Efficiency	*	
Endurance	*	
Heat Resistance	*	*

# TEST SEQUENCE

TEST	Sample 3
Construction	*
Dimensions	*
Corrosion	*
Heat Resistance	*
Materials	*
Appliance Marking	*
Instruction Manual	*

# TESTING EQUIPMENTS

Optical Ultra Dynascope,  
Weathering Chamber,  
Pressure Tester, Flow  
Meter. Endurance / Duty  
Cycle Tester, Vibration  
Machine, Gas Wet Meter.

Salt Spray/Corrosion Tester,  
Soap-Film Leak Tester, CO  
Analyser, Sound Level Meter,  
Rubber Hardness Tester  
(Shore A and IRHD), Wooden  
Temperature Panel.



**WHY GAS APPLIANCES NEED  
TO COMPLY WITH THE  
STANDARD?**

✓ To avoid any gas leakage from the system

✓ Good flame condition (flame failure, flame lifting, blue flame, back fire, no soot).

✓ CO concentration produced must be below 0.14 vol %.

✓ Constructed from non-corroded materials

✓ Rigid structure

✓ Minimum gas consumption with high efficiency

✓ Combustion efficiency must be more than 40%.

# VERIFICATION TEST



## STANDARD

**BS EN 30-1-1:2008+A3:2013**

Domestic cooking appliances burning

Gas Safety General

# TYPE OF TEST

Clause	Requirements
<p>1. Clause 6.1.1</p> <p>Soundness.</p>	<p>Under the test conditions, any leak detected during each of the tests shall not exceed 0.10 dm<sup>3</sup>/h.</p>
<p>2. Clause 6.1.2 &amp; 6.1.7</p> <p>Obtaining the input rates.</p> <p>Total input of the appliances.</p>	<p>Obtaining the input rates.</p> <p>Under the test conditions, each of the burners, supplied separately, shall be capable of giving the nominal heat input stated by manufacturer.</p> <p>The requirement is deemed to be satisfied if the nominal heat input <math>Q_n</math> is within the limits indicated below:</p> <p>a) <math>Q_n</math> of the burner does not exceed 2.25kW, the tolerance shall be <math>\pm 8\%</math>.</p> <p>b) <math>Q_n</math> of the burner does exceed 2.25kW and does not exceed 3.6kW, the tolerance shall be <math>\pm 0.177</math>kW.</p> <p>c) <math>Q_n</math> of the burner does not exceeds 3.6kW, the tolerance shall be <math>\pm 5\%</math>.</p> <p>d) For burners fitted with injectors of diameter more than 0.3mm but not exceeding 0.5mm, the tolerance shall be <math>\pm 10\%</math>.</p> <p>e) For burners fitted with injectors of diameter not exceeding 0.3mm, the tolerance shall be <math>\pm 20\%</math>.</p> <p>Total input of the appliances.</p> <p>Under the test conditions, the total input of the appliance, all the tap being in fully open position, shall not be more than 10% less than the sum of the individual inputs of the different burners supplied separately under the same conditions.</p>

# VIDEO FULL TYPE TEST







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