(f) Place symmetrically on the cold ungreased scone trays, allowing one small cake per 50 cm^2 of useable shelf area.

(g) Apply and maintain normal test gas pressure to the inlet of the appliance throughout the test.

(h) Insert all trays at the same time. Cook as directed in manufacturer's instructions, or in the absence of instructions at 170 °C, until satisfactorily browned.

(i) Do not move the trays during cooking.

(j) Remove the cakes from the oven when cooked, but after no more than 20 min. Remove all trays at the same time.

(k) Examine all trays of cakes for even height, colour and texture.

BB.8.7 Test report

Report all relevant observations, including the following:

(a) The evenness of height of cakes from all the trays.

(b) The evenness of colour from all the trays.

(c) The evenness of texture.

Appendix ZA
(normative)

Preliminary test methods

NOTE Where a test method or part of a test method (i.e. clause, figure or table) is cited in this Standard, reference should first be made to AS/NZS 5263.0 for the content of the test method, which may be modified by this Standard.

ZA.2 Gas consumption test

This Test Method of AS/NZS 5263.0 applies, except as modified below.

ZA.2.2 Principle

The appliance is supplied with the appropriate gas and the test point pressure is carefully set to the nominal value. The gas rate to the burner or burners is measured accurately without igniting the gas.

It is necessary to obtain the dry relative density of the gas, the gas temperature, and to note whether the gas is dry or saturated when passing through the gas meter, so that the corrected gas consumption can be calculated.

ZA.2.6 Procedure

The procedure shall be as follows:

(a) Turn on the gas fully to one burner without igniting the gas, and set test point pressure to the nominal test point pressure.

(b) Measure the total gas rate Q_m.

(c) Calculate the determined gas consumption R using the following equation:

$$R = Q_m \times \frac{(P_a + p)}{P_s} \times W_r \times \left[D_t \times \frac{T_s (P_s + h)}{T_m (P_a + h)} \right]^{1/2} \times \left[1 - \frac{P_w}{(P_a + h)} \times \left(1 - \frac{D_w}{D_t} \right) \right]^{1/2}$$

where

R = determined gas consumption (MJ/h)

Q_m = measured total gas rate (m^3/h)

p = measured meter inlet gauge pressure (kPa)

P_s = standard absolute pressure (barometer) (101.325 kPa)

P_a = measured absolute ambient pressure (barometer) (kPa)

W_r = Wobbe index of reference gas (see Table ZA.2.6)

D_t = measured test gas relative density (dry) (Air = 1.000)

T_s = standard absolute temperature (288.15 K)

t = measured meter temperature (°C)

T_m = meter absolute temperature (273.15 + t) (K)

P_w = water vapour absolute pressure (partial pressure) at t (kPa), (refer to Appendix B)

h = injector pressure (nominal test point pressure) (kPa)

D_w = water vapour relative density (0.622)

NOTE 1 For pilots, the effect of h is deemed to be negligible and its value is taken to be 0 kPa.

NOTE 2 The last term in the square brackets equals unity (1) for natural gas, TG and all dry gases.

(d) Repeat (a) to (c) for each burner in turn, including pilots.

(e) Repeat (a) to (c) for each hotplate burner set at turndown.

(f) Repeat (a) to (c) for each grill burner set at turndown.

(g) If the manufacturer provides instructions to set the test point pressure then set the test point pressure according to manufacturer's instructions.

(h) If the manufacturer does not provide instructions to set the test point pressure then turn on sufficient burners to equal approximately 50 % of the total nominal gas consumption, and set the test point pressure to nominal test point pressure.

(i) Repeat (b) to (c) with all burners turned on fully.

ZA.2.7 Test report

All relevant observations shall be reported, including at least the following:

(a) The nominal gas consumption for each burner or pilot and gas type.

(b) The determined gas consumption for each burner or pilot and gas type.

(c) The percentage variation between the nominal and determined gas consumption for each burner or pilot and gas type.

(d) The gas consumption at turndown for each hotplate burner and gas type expressed in megajoules per hour and as a percentage of the nominal gas consumption of the hotplate burner.

(e) The gas consumption at turndown for each grill burner and gas type, expressed in megajoules per hour and as a percentage of the nominal gas consumption of the grill burner.

(f) The sum of the nominal gas consumptions of all burners.

(g) The total gas consumption for all burners operating together.

(h) The percentage variation between the total gas consumption for all burners operating together and the sum of the nominal gas consumptions of all burners for each gas type.

ZA.3 Gas pressure regulators test

This Test Method of AS/NZS 5263.0 applies, except as modified below.

ZA.3.6 Procedure

The procedure shall be as follows:

(a) Light all burners or as stated in the manufacturer's instructions.

(b) Adjust appliance inlet pressure to the minimum shown in Table 3.5.

(c) For regulators that are intended to be adjusted, set regulator outlet pressure to the nominal test point pressure while maintaining the correct appliance inlet pressure.

(d) Turn off burners to stabilize regulator, then turn burners on again and note regulator outlet pressure.

(e) If necessary, repeat Steps (c) and (d) until the regulator outlet setting can be reproduced within ±5 % of nominal test point pressure.

(f) If unable to obtain regulator outlet settings within ±5 % of nominal test point pressure discontinue test.

(g) Turn on all burners.

(h) Increase the inlet gas pressure gradually to the maximum shown in Table 3.5 and record the test point pressure and inlet pressure at intervals no greater than 0.5 kPa.

(i) Decrease the inlet gas pressure gradually to the minimum shown in Table 3.5 and record the test point pressure and inlet pressure at intervals no greater than 0.5 kPa.

(j) Turn off all burners except the smallest, set this burner at turndown, and repeat Steps (h) and (i).

ZA.8 Flame tracking at ignition test

This Test Method of AS/NZS 5263.0 applies, except as modified below.

ZA.8.2 Principle

The burner is supplied with the appropriate gas at turndown gas consumption or bypass rate and is observed for completeness of ignition.

ZA.8.3 Apparatus

The following apparatus shall be used:

(a) Equipment as specified in Appendix F.

(b) Vessel(s) in accordance with Figure A.12.

(c) Source of ignition.

ZA.8.6 Procedure

The procedure shall be as follows:

(a) In the case of a hotplate burner, place standard vessel containing the mass of water specified in Figure A.12 on the burner.

(b) Adjust the burner to turndown or by-pass gas consumption. In the case of a hotplate burner with a simmerstat this may be achieved by heating the vessel for a period of 10 min and then turning the control to the lowest setting or by turning the control to a dedicated by-pass setting if this is available.

(c) Apply source of ignition to one point of the burner and observe for complete flame tracking. Repeat four times, applying the source of ignition at a different point of the burner each time.

(d) In the case of a hotplate burner other than a special purpose hotplate burner (such as a wok or fish burner) repeat Steps (b) and (c) without a vessel.

ZA.101 Turndown gas consumption test

ZA.101.1 Scope

This method sets out the procedure to assess the capability of at least one hotplate burner to maintain a defined amount of water at a temperature not exceeding 75 °C while operating at turndown.

ZA.101.2 Principle

The burner is operated at its marked turndown setting to heat a standard 195 mm open test vessel containing 1.2 kg of water preheated to a temperature of approximately 75 °C.

ZA.101.3 Apparatus

The following apparatus shall be used:

(a) Equipment as specified in Appendix F.

(b) Standard 195 mm diameter open test vessel (see Figure A.12).

(c) Temperature measuring device such as a thermometer with an accuracy of ±0.5 °C.

ZA.101.4 Materials

The following materials shall be used:

(a) Supply of appropriate test gas (see Clause 3.1) at normal test gas pressure.

(b) Water.

ZA.101.5 Preparation of apparatus

The appliance shall be installed in accordance with Clause 3.2.

ZA.101.6 Procedure

The procedure shall be as follows:

(a) Light the burner and adjust to its marked turndown setting.

(b) Place over the burner a standard 195 mm diameter open test vessel containing 1.2 kg of water preheated to approximately 75 °C.

(c) Monitor the water temperature to ascertain if the burner will maintain the temperature above or below 75 °C.

(d) Measure and record the gas consumption at that burner control setting.

ZA.101.7 Test report

All relevant observations shall be reported, including the following:

(a) The temperature at which the water is maintained.

(b) The gas consumption.

Appendix ZB
(normative)

Limiting conditions test methods

NOTE Where a test method or part of a test method (i.e. clause, figure or table) is cited in this Standard, reference should first be made to AS/NZS 5263.0 for the content of the test method, which may be modified by this Standard.

ZB.2 Determination of CO/CO_2 ratio for any independent burner — Overload test

This Test Method of AS/NZS 5263.0 applies, except as modified below.

ZB.2.3 Apparatus

The following apparatus shall be used:

(a) Equipment specified in Appendix F.

(b) Carbon monoxide analyser, calibrated to give accurate and reproducible results.

(c) Carbon dioxide analyser, calibrated to give accurate and reproducible results.

(d) Sampling apparatus (probe or hood, as appropriate) known to not affect the representativeness of the sampled gases under the prevailing conditions (see Figures A.3, A.18 and A.19).

(e) Sampling lines and conditioner (if used) known to be inert to the CO and CO_2.

(f) Suitable timing device.

(g) For hotplates, standard test vessels in accordance with Figure A.12.

ZB.2.5 Preparation of apparatus

The apparatus shall be prepared as follows:

(a) Install the appliance in accordance with Clause 3.2.

All open flued appliances with atmospheric burners shall be tested with twin wall flue of the minimum length specified in manufacturer's instructions, or 0.6 m long if there is no minimum length specified or if the appliance is intended to be installed in a masonry chimney.

(b) Set up test equipment.

(c) Identify and note the location of the manufacturer's specified pressure test point(s).

(d) Adjust the appliance in an attempt to achieve the overload gas rate as specified in Table 4.3 when measured in Item (e).

The specified overload conditions shall be obtained by adjusting the inlet pressure with the appliance regulator at its nominal setting. If the overload condition cannot be obtained with a maximum inlet pressure of 3.0 kPa then the appliance regulator shall be rendered inoperative or bypassed.

(e) Ensure the appliance is at room temperature. Without further adjustment, operate the burner without igniting the gas and measure the gas rate. If the overload gas rate is not achieved repeat Item (d).

(f) Turn off the burner.

(g) Place the appropriate sampling hood above the flueway outlet, or in the case of a hotplate burner, place a vessel as specified in Figure A.12 with the water at near boiling point over the burner so that the water is boiling during combustion analysis. Place the appropriate sampling hood on the vessel (see Figures A.18 and A.19).

ZB.4 Flame characteristics at maximum and minimum limiting conditions test

This Test Method of AS/NZS 5263.0 applies, except as modified below.

ZB.4.2 Principle

The appliance is tested at maximum and minimum limiting conditions, at both hot and ambient temperature conditions, with all appropriate test gases. Burner flames are observed for any abnormalities.

Hotplate burners are tested with and without a vessel in place.

ZB.4.3 Apparatus

The following apparatus shall be used:

(a) Equipment as specified in Appendix F.

(b) Means of observing the burner flames (mirror or glass panel) if necessary.

(c) For open flued appliances, updraught and downdraught apparatus.

(d) Standard test vessel, where applicable (see Figure A.12).

(e) Suitable timing device.

ZB.4.5 Preparation of apparatus

The apparatus shall be prepared as follows:

(a) Install the appliance in accordance with Clause 3.2.

(b) Set up test equipment.

(c) Operate the appliance and adjust to the appropriate limiting conditions.

(d) Shut off the gas supply, and allow the appliance to stand at ambient temperature until temperature equilibrium is reached.

ZB.4.6 Procedure

ZB.4.6.1 All burners

The procedure shall be as follows:

(a) Turn on water, if applicable.

(b) Light the burner and check that the test point pressure is at the appropriate proportion of nominal test point pressure, as shown under the limiting conditions specified in Table 4.5.

(c) Observe the burner flame for any abnormality.

(d) Repeat the procedure with each test gas and under each limiting condition.

NOTE Ensure the gas lines are purged after each test gas.

(e) In the case of hotplate burners, place standard test vessel containing specified quantity of water over the hotplate burner (see Figure A.12) and repeat Steps (b), (c) and (d).

(f) Allow the appliance to cool and repeat Steps (b), (c), (d) and (e) with the fan on (if applicable).

(g) Repeat Steps (b) to (f) in the hot condition.

(h) For open flued appliances, set up the appliance at normal room temperature with the test point pressure at the appropriate proportion of nominal test point pressure, as shown under limiting conditions in Step (b).

ZB.4.6.2 Open flued appliances

In addition to Clause ZB.4.6.1, the procedure shall be as follows:

(a) Block the flue outlet.

(b) Observe the burner flames for any abnormality.

(c) Clear the flue and connect the draught apparatus to the secondary flue of the appliance.

(d) Apply downdraught with a velocity head of up to 7.5 Pa (3.5 m/s) to the flue connection.

(e) Observe the burner flames for any abnormality.

(f) Apply updraught with a velocity head of up to 7.5 Pa (3.5 m/s) to the flue connection.

(g) Observe the burner flames for any abnormality.

(h) Repeat the procedure with each test gas and under each limiting condition.

NOTE Ensure the gas lines are purged after each test gas.