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Emissions Testing of the Masport LE7 Provincial Wood Burning Heater

Customer: Masport Ltd
PO Box 14-349
Panmure
AUCKLAND

Report 03/939

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2.13 Water Heating Device

This heater was not fitted with a water heating device for the testing reported here.

Design information supplied by the manufacturer is given in Appendix 1 of this report.

3.0 Test Procedures

Tests were carried out using equipment and procedures specified in the joint Australian/New Zealand Standards 4012:1999 and 4013:1999.

During the tests the heater is stabilised with the air controls at a chosen position. A test load of wood is then burnt and emissions, output, efficiency and other data are collected during the time it takes to burn the test fuel.

3.1 Details of Test Runs

The heater was conditioned with the control set on high and using a combination of *saligna* and *pilularis* eucalypt as fuel.

A test load comprising a combination of *saligna* and *pilularis* eucalypt logs was prepared for each test. Details of the test load complying with the requirements of AS/NZS4012 are given in Table 1. The test pieces were stacked in accordance with AS/NZS4012. A photograph of a typical test load is shown in Figure 1.

The test fuel was added to a bed of embers weighing between 24% and 26% of the total fuel weight. For tests on medium and low burn rates the air control was left fully open until 20% (by weight) of the fuel load had been consumed. The air control was then set to the appropriate position for the required burn rate.

4.0 Results

A summary of the data obtained from these tests is given in Table 2 and an estimate of the uncertainties in individual measurements is given in Table 3.

4.1 Appliance Air Flow Test

The air flow was measured in the flue before and after the tests and the results were found to comply with the requirements of the standard (less than 25% change).

4.2 Efficiency

Efficiency is estimated on the basis of a gross calorific value of 20.1MJ/kg (dry weight basis) for the fuel burned during the test. This value was determined by measurements of samples of the wood used to prepare the test fuel.

4.2.1 Overall Efficiency

Based on the test results the average overall efficiency of the heater is estimated to be 55.8%. The average is taken over all the tests reported. The overall efficiency takes into account the heat output to air.