United States
Environmental Protection
Agency

National Risk Management
Research Laboratory
Cincinnati, OH 45268

Research and Development | EPA/600/SR-98/017 | February 1998

Project Summary

Emissions from Outdoor Wood-Burning Residential Hot Water Furnaces

presented. Compared to a wide range of residential heating options, these furnaces' emissions were of the same order as other stick wood burning appliances.

This Project Summary was developed by the National Risk Management Research Laboratory's Air Pollution Prevention and Control Division, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Furnace/Test/ Condition	Wood Load (wet lbs)	Coal Bed (lbs)	Moisture (% dry basis)	Average Burnrate (dry kg/hr)	Average Delivered Efficiency (%)	Particulate, EPA Method 5G				
						g/hr	g/kg of dry fuel	mg/Btu output	mg/MJ output	mg/MJ input
Furnace B/B-1/high heat removal	133.0	29.5	23.7	3.36	50.5	36.5	10.8	1.21	1145	579
Furnace B/B-2/high heat removal	136.9	29.5	23.7	2.84	57.1	37.6	13.3	1.31	1238	707
Furnace B/B-3/low heat removal	125.3	28.0	24.7	1.51	55.4	14.3	9.5	0.96	911	505
Furnace B/B-4/low heat removal	139.5	28.0	23.6	1.68	55.1	15.5	9.2	0.94	892	491

Table 1. Comparison of average particulate emission factors (5H adjusted) to AP-42 values.

Stove Group	Method 5H Equivalent Emission Factor g/kg (Dry)
Catalytic Stoves (5 Stoves, 13 Runs)	10.8
Noncatalytic Stoves (11 Stoves, 30 Runs)	9.23
Catalytic	8.1
Noncatalytic	7.3
Conventional	15.3

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Research and Development | EPA/600/SR-00/100 | December 2000

Project Summary

Long-Term Performance of EPA-Certified Phase 2 Woodstoves, Klamath Falls and Portland, Oregon: 1998/1999