

Acceptable Carbon Monoxide and Combustion Test Results

It is very important to consult with the manufacturer or their literature to determine acceptable ranges of O₂, CO, Stack Temperature, Steady State Efficiency, Smoke and Draft. Requirements for NO_x and SO₂ emissions (if any exist) vary from local to local.

The following ranges are generally considered acceptable for commercial/industrial units; always check with the appliance manufacturer of specific recommendations, particularly when testing residential systems as these vary considerably from manufacturer to manufacturer.

Atmospheric Gas Fired Burners

| | |
|------------------------------------|-----------------------------------|
| Oxygen (O ₂) | 7% to 9% |
| Stack Temperature (°F) | 325° to 500° |
| Draft in Water Column Inches (WC") | -.02 WC" to -.04 WC" in the stack |

Carbon Monoxide in Parts Per Million (ppm) <100ppm air free

Gas Fired Power Burners

| | |
|------------------------------------|---------------------------|
| Oxygen (O ₂) | 3% to 6% |
| Stack Temperature (°F) | 275° to 500° |
| Draft in Water Column Inches (WC") | -.02 WC" Overfire or *PMI |

Carbon Monoxide in Parts Per Million (ppm) <100ppm air free

Oil Fired Power Burners

| | |
|------------------------------------|---------------------------|
| Oxygen (O ₂) | 4% to 7% |
| Stack Temperature (°F) | 325° to 600° |
| Draft in Water Column Inches (WC") | -.02 WC" Overfire or *PMI |

Carbon Monoxide in Parts Per Million (ppm) <100ppm air free

Smoke Zero or *PMI (smoke number)

*PMI = Product Manufactures Instructions

| Munchkin Boiler / Panicle / Knight / Others | | |
|--|------------------|------------------|
| | Natural Gas Low | Natural Gas High |
| Carbon Monoxide (CO ppm) | 0–20 ppm | 70 ppm–135 ppm |
| Carbon Dioxide (CO ₂ %) | 8-1/2% – 9-1/2% | 8-1/2% – 9-1/2% |
| | | |
| | LP Gas Low | LP Gas High |
| Carbon Monoxide (CO ppm) | 0–20 ppm | 80 ppm–150 ppm |
| Carbon Dioxide (CO ₂ %) | 9-1/2% – 10-1/2% | 9-1/2% – 10-1/2% |