

FUEL

What does "Well-Seasoned" mean?

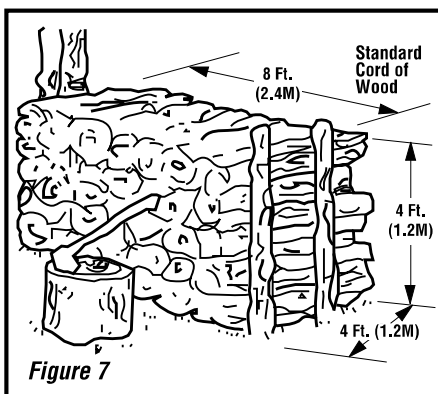
When a tree is cut down, the wood is green, full of sap and moisture. This moisture content can exceed 80%, which must be reduced to less than 20%. Wood properly seasoned is then capable of generating the heat the stove was designed to provide.

Green wood does not burn easily. Attempting to burn green wood often results in a lot of smoke and very little fire. Time is the most important factor in seasoning wood. Ideally the moisture content should be reduced to 11-20%. **NOTE: The use of a firewood moisture meter is recommended to ensure the firewood contains less than 20% moisture.**

Seasoning Guide

Softwoods - 6 months to 18 months
Hardwoods - 12 months to 24 months

Logs that are 5" diameter across or larger should be split in half, three pieces if over 8 inches, and four pieces when over a foot across. If a tree has been dead for 2 - 4 years it still needs to be cut, split, and seasoned for 6 to 24 months depending on the wood.



Prohibited Fuels

This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods. **DO NOT BURN:**

- Garbage;
- Lawn clippings or yard waste;
- Materials containing rubber, including tires;
- Materials containing plastic;
- Waste petroleum products, paints or paint thinners, or asphalt products;
- Materials containing asbestos;
- Construction or demolition debris;
- Railroad ties or pressure-treated wood;
- Manure or animal remains;
- Salt water driftwood or other previously salt water saturated materials;
- Unseasoned wood;
- Christmas tree branches;
- Paper products, colored paper, cardboard, plywood, or particleboard;
- gasoline;

- naphtha;
- engine oil;
- flammable liquids;
- solvents;
- grease; or
- coal

The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in an affected wood heater.

Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke. Intense firing with these materials may overheat the fireplace, causing damage to the unit, a fire or even possibly igniting a chimney fire if the chimney is creosoted. Burning unapproved fuel, resulting in excessive pollutants being emitted, may be prohibited and subject to a fine or other penalty by the authority having jurisdiction in your area.

MAINTAINING YOUR FIREPLACE

Have your product inspected at least once a year by a qualified service technician to ensure gaskets, air tubes, baffles, and venting are in good repair to ensure proper performance. Have degraded items replaced by a qualified service technician.

This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic element is deactivated or removed.

Creosote

When wood is burned slowly, it produces tar and other organic vapors which combine with expelled moisture to form a black deposit called creosote which accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire. If the creosote accumulation is large, a creosote fire in the chimney can damage the chimney and overheat the surrounding wood framing. Creosote formation in a chimney can be minimized by making small hot fires rather than slow burning, smoldering fires and by proper refuelling techniques.

Chimney Maintenance

Regular chimney inspection and maintenance combined with proper operation will prevent chimney fires. Keep your chimney clean. Do not allow more than 1/16" creosote build up in your chimney. The amount of creosote will depend on variables such as frequency of use and type of fire. We recommend that you:

1. Initially inspect the chimney system weekly. From this, you will learn how often it will be necessary to clean your chimney.
2. Have your chimney cleaned by a qualified chimney sweep. If you wish to clean it yourself, we recommend using a stiff plastic or non-metallic brush. If a metal brush is used, its size should be slightly smaller than the flue to avoid damaging the chimney. Do not use a brush that will scratch the stainless steel interior of the chimney.
3. Do not expect chemical cleaners to keep your chimney clean. The rain cap can be removed for inspection and/or cleaning of the chimney. Using gloves, firmly grip the lower portion of the rain cap. Turn the cap 1/8 of a turn counter-clockwise and lift it off the chimney.

Before performing chimney sweep, open the by-pass and remove the combustor. Remove dust accumulation after chimney sweep and put the combustor back in place.

Catalytic Combustor

The Villa Vista™ series fireplaces are designed with a catalytic combustor which will reduce pollution emissions and creosote build up while improving thermal efficiency. In order to optimize and maintain the combustor performance, it is important to visually check the combustor at least 3 times during the heating season to determine if physical degradation has occurred.

Catalytic combustors require little maintenance. Cleaning the combustor once a year, preferably when your flue system is serviced, is sufficient for most users.

WARNING

To prevent damage to your combustor, do not:

- Drop the combustor (which is fragile compared to the rest of the unit – so handle with care)
- Run water or compressed air through the combustor
- Try to clean the combustor with any sharp tool

The combustor supplied with this heater is a Applied Ceramics, Inc., Long Life Combustor. Consult the catalytic combustor warranty also supplied with this wood heater. Warranty claims should be addressed to:

**Applied Ceramics, Inc.
5555 Pleasantdale Rd
Doraville, GA 30340
Phone # 770-368-8261**

The packaging of the combustor must be robust enough to protect against any shipping damage that may occur.

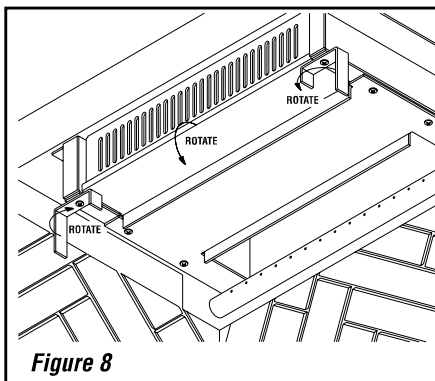


Figure 8

Cleaning Procedure (see Figure 8):

1. Rotate the retainers to release the combustor support plate while holding it to make sure it does not drop.
2. Rotate the support plate and remove the combustor.

3. Remove fly ashes on the combustor using a soft brush.
4. Put the combustor back in place.

Catalyst Monitoring

It is important to periodically monitor the operation of the catalytic combustor to ensure that it is functioning properly and to determine when it needs to be replaced. A non-functioning combustor will result in a loss of heating efficiency, and an increase in creosote and emissions. Following is a list of items that should be checked on a periodic basis:

- Combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred. Actual removal of the combustor is not recommended unless more detailed inspection is warranted because of decreased

performance. If any of these conditions exists, refer to Catalyst Troubleshooting section of this owner's manual.

- This catalytic heater is equipped with a temperature probe to monitor catalyst operation. Properly functioning combustors typically maintain temperatures in excess of 500°F, and often reach temperatures in excess of 1,000°F. If catalyst temperatures are not in excess of 500°F, refer to Catalyst Troubleshooting section of this owner's manual.
- You can get an indication of whether the catalyst is working by comparing the amount of smoke leaving the chimney when the smoke is going through the combustor and catalyst light-off has been achieved, to the amount of smoke leaving the chimney when the smoke is not routed through the combustor (bypass mode).

Catalyst Troubleshooting — Problems, Causes and Solutions (see Figure 9, Page 9)

PROBLEM	POSSIBLE CAUSE	WHAT TO DO
Crumbling Substrate (See Photo #1)	Flame impingement Flames contacting combustor Flame impingement High draft	Reduce air volume to logs; don't overload wood box. Bypass combustor when the appliance is running in high-fire mode. Lower flames by reducing air to logs. Use less logs in the firebox. Do not exceed .06" of water draft. Install a manual damper and draft gauge or a barometric damper.
Fly-Ash Build-up (See Photo #2) Fly-Ash Masking (See Photo #5) Fly-ash Plugging (See Photo #6)	Combustor has not maintained light-off temperature. Combustor has not maintained light-off temperature. Burning materials that produce a lot of char and fly-ash. Closing the bypass too soon.	Brush cold combustor with a soft bristled brush or vacuum lightly. Brush cold combustor with a soft bristled brush or vacuum lightly. Do not burn cardboard, gift wrap or garbage. Follow instructions for proper light-off.
Thermal Cracking (See Photo #3)	Thermal Shock Moisture, wet logs Uneven temperatures and heat spikes. Burning appliance with the door open.	Burn dry, seasoned logs only. If cracking causes large pieces to fall out, replace the combustor. Check appliance for air leaks.
Mechanical Cracks (See Photo #4)	Combustor mishandled or abused. Distortion of combustor holder.	Handle combustor with care. Replace if necessary. Replace combustor if large pieces are missing, replace any warped appliance parts as well. Check appliance for air leaks.
Creosote Plugging (See Photo #7)	Burning wet, pitchy woods or burning large loads of small diameter wood with the combustor in the operating position without light-off ever occurring.	Burn dried seasoned wood. Make sure combustor has light-off before closing the bypass damper. It may be possible to burn the soot or creosote accumulation off by putting the combustor in a partially open and partially closed position after a hot fire has been started. Burn hardwoods.
Masking (Soot) (See Photo #8)	Combustor has not maintained a light-off. Burning coal will cause a sulfur-based compound to coat the catalyst.	Place combustor in a partially open and partially closed position after a hot fire has been started to burn off the soot accumulation. Revert to burning wood and fire the combustor to elevated temperatures for one hour.

Table 1



Photo #1 Crumbling



Photo #2 Fly-Ash



Photo #3 Thermal Cracks



Photo #4 Mechanical Cracks



Photo #7 Creosote Plugging



Photo #6 Fly-Ash



Photo #5 Fly-Ash Masking



Photo #8 Soot Masking

These conditions are primarily related to such factors as draft, aging or failure of the appliance components, aging or fatigue of the combustor, flue installation, using the wrong fuel or to improper operation of the appliance. Following the appliance's operating manual will prevent these conditions.

Figure 9