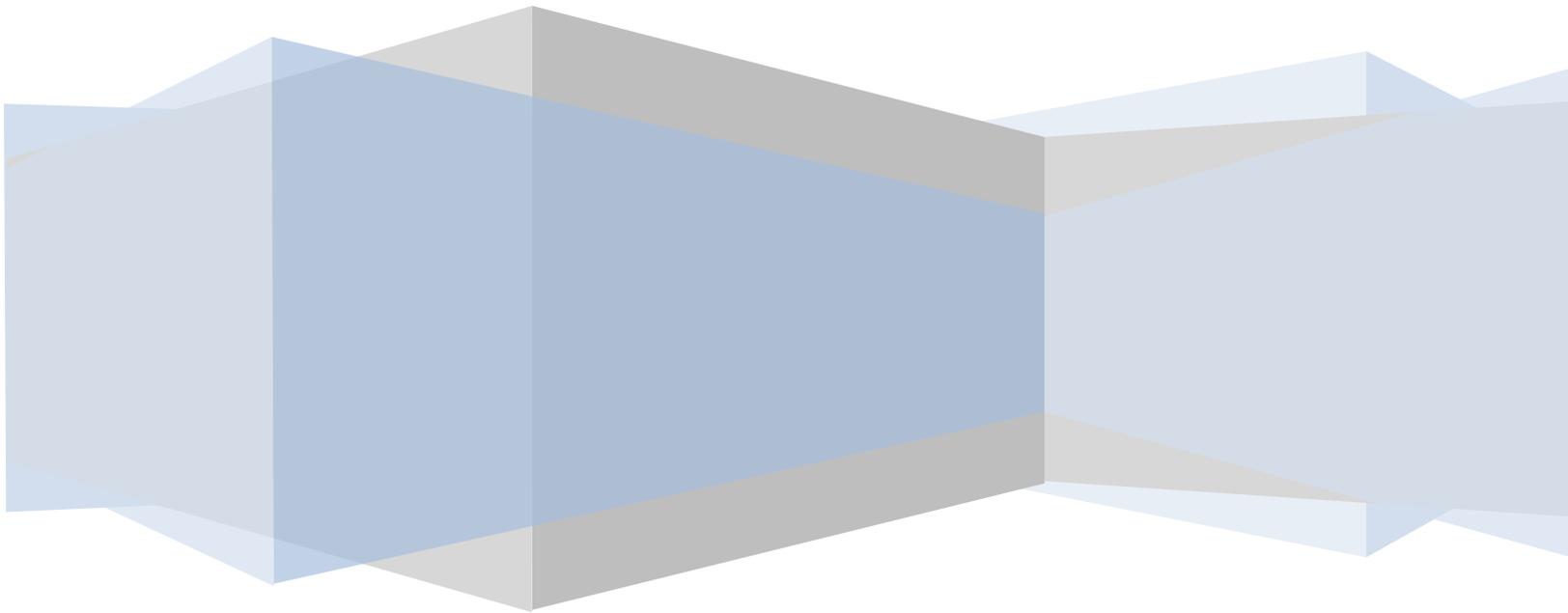




VIRIDIS ENERGY INC.

Wood Pellet Brands 2010/2011



New Additions to Report for 2010/2011

- **11 New Brands Tested**
 - Allegheny
 - Blazers
 - Country Pine
 - Clean Energy
 - Freedom Fuel
 - Hardwood Heat
 - LG's
 - Potomac
 - PWI
 - Southern Indiana Hardwoods (SIH)
 - Stove Chow

- **3 Re-Tests of Brands**
 - Okanagan
 - Maine Woods
 - Vermont Wood Pellets

- **New Testimonies of Okanagan Pellets**

- **More information about how pellets are made**

- **Added detail on new pellets tested**
 - Density, Bag weight, Length, Burn Time, Diameter

- **Updated Lists of Heat and Ash comparison**

Okanagan

Temp average 262°F
Ash volume 10 ounce mark
Ash weight 3.52 ounces
Ash Percentage 0.275 %
Fines were less than 1/8 cup each bag.



Okanagan - NEW Test for 2011

Temp average 265°F
Ash volume 12 ounces
Ash weight 3.68 ounces
Ash Percentage 0.284%
Density 44.98 LBS.
Fines volume 4 ounces
Fines 2.08 ounces
Fines Percentage 0.161%
Bag 1 40.59 LBS
Bag 2 40.28 LBS
Diameter .255
Length 1/4 to 1
Total Burn Length: 23 hrs 42 min



Allegheny - NEW Test for 2011

Temp average 256°F
Ash volume 8 ounces
Ash weight 2.64 ounces
Ash Percentage .270%
Density 44.06 LBS.
Fines volume 4 ounces
Fines 2.64 ounces
Fines Percentage .21%
Bag 1 Weight **39.81 LBS**
Bag 2 Weight 2 **39.80 LBS**
Diameter .256"
Length 1/4 to 1 inches
Total Burn Time: 23 hrs 50 min



ACP (Appling County Pellet)

Temp average 225°F
Ash volume **24** ounce mark
Ash weight 11.52 ounces
Ash Percentage **0.90%**
Fines were at 1/2 cup each bag.



Not Available for 2011 season in NE

AWF

Temp average 240°F
Ash volume 14 ounce mark
Ash weight 4.48 ounces
Ash Percentage 0.35%
Fines were at ¼ cup both bags



Bayou

Temp average 223°F
Ash volume 18 ounce mark
Ash weight 16 ounces
Ash Percentage 0.480%
Fines were at 1/2 cup both bags



Barefoot

Temp average 265°F
Ash volume 15 ounce mark
Ash weight 6.08 ounces
Ash Percentage 0.48%
Fines were at 1/8 cup each bag



Blazers - NEW Test for 2011

Temp average 274°F
Ash volume 6 ounces
Ash weight 3.04 ounces
Ash Percentage .235%
Density 42.45 LBS.
Fines volume 8 ounces
Fines 3.36 ounces
Fines Percentage .261%
Bag 1 Weight 40.15 LBS
Bag 2 Weight 40.47 LBS
Diameter .257
Length 1/4 to 1 1/16
Total Burn Length: 26 hrs 58 min



Only available at one dealer in NE

Country Pine - NEW Test for 2011

Temp average	252°F
Ash volume ounces	15 ounces
Ash weight ounces	4.83 ounces
Ash Percentage	.375%
Density	43.14 LBS.
Fines volume	5 ounces
Fines weight	1.84 ounces
Fines Percentage	0.144%
Bag Weight Bag 1	40.125 LBS
Bag 2	39.86 LBS
Diameter	.257
Length	1/4 to 1 1/2 inches
Total Burn Length:	25 hrs 15min



Only available at one dealer in NE

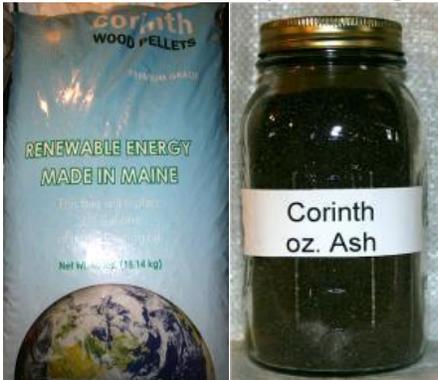
Clean Energy - NEW Test for 2011

Temp average	249°F
Ash volume	18 ounces
Ash	8.64 weight ounces
Ash Percentage	.653%
Density	42.37 LBS.
Fines volume	8 ounces
Fines	3.21 ounces
Fines Percentage	.242%
Bag 1 Weight	41.36 LBS
Bag 2 Weight	41.43 LBS
Diameter	.267
Length	1/4 to 1 5/16
Total Burn Length:	24 hrs 05 min



Corinth

Temp average	218°F
Ash volume	32 ounce mark.
Ash weight	8.64 ounces
Ash Percentage	0.675%
Fines were at	3/4 cup each bag.



Cubex

Temp average	269°F
Ash volume	10 ounce mark
Ash weight	3.6 ounces
Ash Percentage	0.281%
Fines were at	1/8 cup for each bag.



Curran

Temp average 228°F
Ash volume 20 ounce mark
Ash weight 6.08 ounces
Ash Percentage 0.48%
Fines were at ¼ cup both bags



Dry Creek

Temp average 245°F
Ash volume 12 ounce mark
Ash weight 4.8 ounces
Ash Percentage 0.375%
Fines were at ¼ cup each bag.



Dragon Mountain

Temp average 255°F
Ash volume 10 ounce mark
Ash weight 3.36 ounces
Ash Percentage 0.2625%
Fines were less than 1/8 cup both bags



Not Available for 2011 season in NE

Echo Flame

Temp average 232°F
Ash volume 15ounce mark
Ash weight 4.48 ounces
Ash Percentage 0.35%
Fines were at 1/8 cup both bags



Energex Canadian

Temp average 245°F
Ash volume 14 ounce mark
Ash weight 7.36 ounces
Ash Percentage 0.575%
Fines were at ¼ cup both bags



Fireside Ultra

Temp average 228°F
Ash volume 18ounce mark
Ash weight 11.84 ounces
Ash Percentage **0.93%**
Fines were at ¼ cup both bags



Freedom Fuel – NEW Test for 2011

Temp average 229°F
Ash volume 20 ounces
Ash weight 5.52 ounces
Ash Percentage .452%
Density 44.22 LBS.
Fines volume 7 ounces
Fines 3.52 ounces
Fines Percentage .28%
Bag 1 Weight **39.00 LBS**
Bag 2 **39.29 LBS**
Diameter .320
Length inches 1/4 to 1 inch long
Total Burn Time: 27 hrs 26 min



Green Team

Temp average 248°F
Ash volume 13 ounce mark
Ash weight 7.04 ounces
Ash Percentage 0.55%
Fines were at ¼ cup both bags



Green Way

Temp average 234°F
Ash volume 11ounce mark
Ash weight 4.8 ounces
Ash Percentage 0.38%
Fines were at ¼ cup both bags



Hardwood Heat (Hamer Hot Ones)

NEW Test for 2011

Temp average 263°F
Ash volume 13 ounces
Ash weight 3.04 ounces
Ash Percentage 0.482%
Density 43.45 LBS.
Fines volume 6 ounces
Fines weight 3.04 ounces
Fines Percentage 0.238%
Bag 1 40.72 LBS
Bag 2 **39.17 LBS**
Diameter .258
Length 1/8 to 1 5/8 inches
Total Burn Length: 19 hrs 53 min



Hamer Hot Ones

Temp average 266 °F
Ash volume 12 ounce mark
Ash weight 5.35 ounces
Ash Percentage 0.420%
Fines were at 3/8 cup each bag.



Inferno

Temp average **185°F**
Ash volume 18 ounce mark
Ash weight 12.80 ounces
Ash Percentage **1.00%**
Fines were at ¾ cup both bags



Instant Heat

Temp average 224°F
Ash volume 14 ounce mark
Ash weight 8.02 ounces
Ash Percentage 0.630%
Fines were at ¼ cup both bags



Kentucky Kernel

Temp average 243°F
Ash volume 13 ounce mark.
Ash weight 6.592 ounces
Ash Percentage 0.515%
Fines were very low < 1/8 cup both bags



Juniata

Temp average 242°F
Ash volume 16 ounce mark
Ash weight 6.40 ounces
Ash Percentage .50%
Fines were at 2/3 cup both bags



Lakes Region

Temp average 230°F
Ash volume 18 ounce mark
Ash weight 12.8 ounces
Ash Percentage **1.00%**
Fines were at ¼ cup each bag.



Not Available for 2011 in NE

LG results – NEW Test for 2011

(These results are from 1 bag only)

Temp average	247°F
Ash volume	6 ounces
Ash weight	1.92 ounces
Ash Percentage	.296%
Density	44.29 LBS.
Fines volume	4 ounces
Fines	2 ounces
Fines Percentage	.31%
Bag 1 Weight	40.48 LBS
Bag 2	N/A
Diameter	.253"
Length inches	1/8 to 1 1/8"
Total Burn Time:	12hrs 20min



Maine Choice

Temp average	228°F
Ash volume	16 ounce mark
Ash weight	8.05 ounces
Ash Percentage	0.63%

Fines were at ¼ cup both bags



Lignetics

Temp average	250°F
Ash volume	16 ounce mark
Ash weight	7.52 ounces
Ash Percentage	0.59%

Fines were at ¼ cup each per bag.

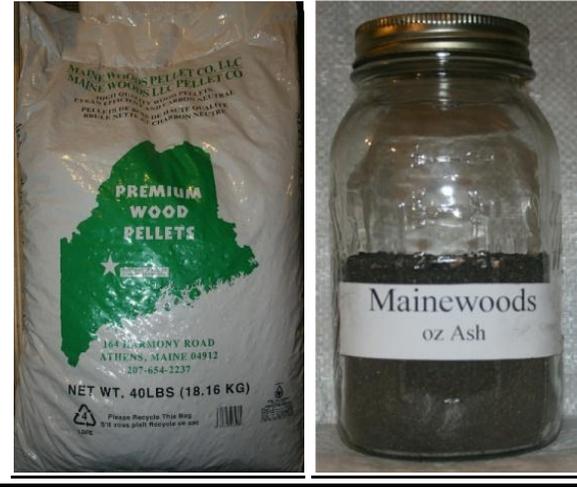


Notes: This is the Green Label Hardwood Conifer Blend.

Maine Woods (2010)

Temp average	224°F
Ash volume	16 ounce mark
Ash weight	8.32 ounces
Ash Percentage	0.65%

Fines were at ¼ cup both bags



Maine Woods - **NEW Test for 2011**

Temp average 243°F
Ash volume 12 ounces
Ash weight 4.48 ounces
Ash Percentage 0.351%
Density 40.91 LBS.
Fines volume 9 ounces
Fines 3.68 ounces
Fines Percentage .288%
Bag 1 Weight 40.21 LBS
Bag 2 Weight **39.64 LBS**
Diameter .258
Length 1/4 to 1
Total Burn Length: 27 hrs 48 min



Michigan

Temp average 232°F
Ash volume **28** ounce mark
Ash weight 10.24 ounces
Ash Percentage **0.80%**

Fines were at ¼ cup both bags



Marth

Temp average 247°F
Ash volume 16 ounce mark
Ash weight 5.12 ounces
Ash Percentage 0.400%

Fines were at ¼ cup both bags



NEWP (NY Schuyler Plant)

Temp average 230°F
Ash volume 20 ounce mark
Ash weight 6.904 ounces
Ash Percentage 0.54%

Fines were at ¼ cup both bags



NEWP (NH Jaffery)

Temp average 243°F
Ash volume 16 ounce mark
Ash weight 6.34 ounces
Ash Percentage 0.50%
Fines were at $\frac{1}{8}$ cup both bags



O Malley's

Temp average 227°F
Ash volume 20 ounce mark
Ash weight 9.6 ounces
Ash Percentage 0.75%
Fines were slightly $< \frac{1}{4}$ cup each bag.



Notes: Quite a few pellets over $1\frac{1}{2}$ " to 2" overall.

Nature's Own (Pennington)

Temp average 240°F
Ash volume 18 ounce mark
Ash weight 7.016 ounces
Ash Percentage 0.548%
Fines were at $\frac{1}{4}$ cup both bags



Ozark Hardwood (OHP)

Temp average 247 °F
Ash volume 19 ounce mark
Ash weight 9.952 ounces
Ash Percentage 0.78%
Fines were at $< \frac{1}{4}$ cup both bags



Pennington's

Temp average 227°F
Ash volume 12ounce mark
Ash weight 8.00 ounces
Ash Percentage 0.63%
Fines were at ½ cup both bags



Potomac – NEW Test for 2011

Temp average 248°F
Ash volume 15 ounces
Ash weight 4.8 ounces
Ash Percentage .37%
Density 41.53 LBS.
Fines 18 ounces
Fines weight N/A
Fines Percentage N/A
Bag 1 Weight 40.24 LBS
Bag 2 Weight 40.13 LBS
Diameter .265
Length 3/8 to 1 1/2 inches
Total Burn Time: N/A



PA Pellets

Temp average 235°F
Ash volume 14 ounce mark
Ash weight 8.656 ounces
Ash Percentage 0.676%
Fines were > ¼cup both bags



Presto Logs

Temp average 225°F
Ash volume **25** ounce mark
Ash weight 11.84 ounces
Ash Percentage **0.93%**
Fines were at ¼ cup both bags



ProPellets

Temp average 245°F
Ash volume 16 ounce mark
Ash weight 5.90 ounces
Ash Percentage 0.46%
Fines Less than ¼cup both bags



PWI – NEW Test for 2011

Temp average 246°F
Ash volume 12 ounces
Ash weight 3.2 ounces
Ash Percentage 0.250%
Density 42.53 LBS.
Fines volume 10 ounces
Fines 4.72 ounces
Fines Percentage .369%
Bag 1 Weight 40.03 LBS
Bag 2 Weight 40.02 LBS
Diameter .254
Length 1/8 to 1 1/4
Total Burn Length: 23hrs 06min



Only available in 1 store in NE

Pure Fire

Temp average 241°F
Ash volume 12 ounce mark on jar.
Ash weight 4.184 ounces
Ash Percentage 0.3269%
Fines Just about ¼cup for both bags.



Rocky Mountain

Temp average 235°F
Ash volume 14 ounce mark
Ash weight 5.76 ounces
Ash Percentage 0.45%
Fines were at 1 cup each bag.



Not Available for 2011 in NE

Somerset

Temp average 251°F
Ash volume 8 ounce mark
Ash weight 4.80 ounces
Ash Percentage 0.380%
Fines were at ¼ cup both bags



Southern Indiana Hardwoods (SIH)

NEW Test for 2011

Temp average 250°F
Ash volume ounces 14 ounces
Ash weight ounces 4.96
Ash Percentage .379%
Density 45.98 LBS.
Fines volume 8 ounces
Fines weight 5.28 ounces
Fines Percentage .4%
Bag 1 Weight 40.14 LBS
Bag 2 Weight 41.69 LBS
Diameter .253
Length 3/8 to 1 1/4 inches
Total Burn Time: 25hrs 44min



Not widely available in NE

Spruce Pointe

Temp average 259°F
Ash volume 12 ounce mark
Ash weight 3.36 ounces
Ash Percentage 0.263%
Fines were at ½ cup each bag.



Stove Chow - NEW Test for 2011

Temp average 244°F
Ash volume 15 ounces
Ash weight 7.04 ounces
Ash Percentage .544%
Density 42.37 LBS.
Fines volume 6 ounces
Fines 2.88 ounces
Fines Percentage .22%
Bag 1 Weight 40.54 LBS
Bag 2 Weight 40.30 LBS
Diameter .260"
Length 1/4 to 1 inches
Total Burn Time: 23 hrs 50 min



Tidy Timbers

Temp average 229°F
Ash volume 16 ounce mark
Ash weight 6.24 ounces
Ash Percentage 0.49%
Fines were at ¼ cup both bags



Wood Pellet Co. (C&C Smith)

Temp average 234°F
Ash volume 16 ounce mark
Ash weight 8.00 ounces
Ash Percentage 0.625%
Fines were at 1 ¼ cup for both bags



Notes: Very Dusty. Found several pellets longer than 1 1/2 inches.

Turman's

Temp average 256°F
Ash volume 8 ounce mark
Ash weight 4.48 ounces
Ash Percentage 0.35%
Fines were less than ¼ cup both bags



Tree Cycle

Temp average 243°F
Ash volume 12 ounce mark
Ash weight 22.504 ounces
Ash Percentage 1.758%
Fines were at 3/8 of a cup both bags



Vermont Wood Pellets NEW Test for 2011

Temp average	249°F
Ash volume	12 ounces
Ash weight	3.25 ounces
Ash Percentage	0.246%
Density	42.76 LBS.
Fines volume	8 ounces
Fines	3.63 ounces
Fines Percentage	0.276%
Bag 1	41.03 LBS
Bag 2	40.41 LBS
Diameter	.254
Length	1/4 to 1 1/4
Total Burn Length:	27 hrs 37 min



Disclaimer: All stoves are different your results may vary

This test was done in a Enviro Omega Multi Fuel Pellet Stove (Installed Feb of 2008) Every effort was made to adjust air flow and burning conditions to achieve maximum output of each pellet

Tests were conducted between Oct 2009 - Feb 2010
2011 Tests were done between Nov 2010 – Dec 2010

This is **NOT** a scientific test, but each pellet was tested with two 40 lbs. bags, and the stove was thoroughly cleaned and ash content gathered after each burn.

This is meant to show only a comparison of the different pellets and your results may vary depending on your stove, settings, outside temperature, humidity stove age, cleanliness and other factors.

This is meant as a gauge only.

Tests were done by Jay Takeman of CT. Jay is not in the pellet business or affiliated with Okanagan Pellets/CPM in any manner whatsoever.

*Omega HH23 thermometer. It is calibrated(by the QA dept.) for Lad Testing and process ovens to + or - .001 degree

Weight scale is calibrated to .0001 lbs. (actually weight can be provided if desired)

*** More information on this test and all original findings are available at**

<http://www.hearth.com/econtent/index.php/forums/viewthread/42511/>

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<http://www.hearth.com/econtent/index.php/forums/viewthread/60581/>

<http://www.hearth.com/econtent/index.php/forums/viewthread/60581/> (2011)



<u>Brand</u>	<u>Heat Ave</u>	<u>+/-</u>	<u>Brand</u>	<u>Ash Ave</u>	<u>+/-</u>
1 Blazers* **	274°	3.40%	Blazers* **	0.235%	-20.85%
2 Cubex/Northern/Comfort	269°	1.51%	Vermont Wood^	0.246%	-15.45%
3 Hamer Hot Ones	266°	0.38%	PWI* **	0.250%	-13.60%
4 Okanagan^	265°	-	Spruce Pointe	0.263%	-7.98%
5 Barefoot	265°	-	Allegheny*	0.270%	-5.19%
6 Hardwood Heat* (Hamer)	263°	-0.75%	Cubex/Northern/Comfort	0.281%	-1.07%
7 Spruce Pointe	259°	-2.26%	Okanagan^	0.284%	-
8 Turman's	256°	-3.40%	LG's*	0.296%	4.23%
9 Allegheny*	256°	-3.40%	Pure Fire*	0.327%	15.14%
10 Country Pine* **	252°	-4.91%	Turman's	0.350%	23.24%
11 Somerset	251°	-5.25%	AWF	0.350%	23.24%
12 SIH* (S.Indiana Hardwood)	250°	-5.66%	Echo Flame	0.350%	23.24%
13 Lignetics (Green Blend)	250°	-5.66%	Maine Woods^ (2011)	0.350%	23.24%
14 Clean Energy*	249°	-6.04%	Potomac*	0.370%	30.28%
15 Vermont Wood^ (2011)	249°	-6.04%	Country Pine* **	0.375%	32.04%
16 Green Team	248°	-6.42%	Greenway	0.375%	32.04%
17 Potomac*	248°	-6.42%	Somerset	0.375%	32.04%
18 Ozark Hardwood	247°	-6.79%	Dry Creek	0.375%	32.04%
19 Marth	247°	-6.79%	SIH*	0.379%	33.45%
20 LG's*	247°	-6.79%	Marth	0.400%	40.85%
21 PWI* **	246°	-7.17%	Hamer Hot Ones	0.420%	47.89%
22 Dry Creek	245°	-7.55%	Rocky Mtn	0.450%	58.45%
23 ProPellets	245°	-7.55%	Freedom Fuel	0.452%	59.15%
24 Energex (Canadian)	245°	-7.55%	ProPellets	0.460%	61.97%
25 Stove Chow	244°	-7.92%	Bayou	0.475%	67.25%
26 NEWP (Jaffery)	243°	-8.30%	Curran	0.475%	67.25%
27 Kentucky Kernels	243°	-8.30%	Barefoot	0.480%	69.01%
28 Tree Cycle	243°	-8.30%	Hardwood Heat*	0.482%	69.72%
29 Maine Woods^ (2011)	243°	-8.30%	Tidy Timbers	0.487%	71.48%
30 Energex (Juniata US)	242°	-8.68%	Quality One**	0.490%	72.54%
31 Quality One* **	241°	-9.06%	NEWP (Jaffery)	0.495%	74.30%
32 Pure Fire*	241°	-9.06%	Energex (Juniata US)	0.500%	76.06%
33 AWF	240°	-9.43%	Kentucky Kernels	0.515%	81.34%
34 Nature's Own (Energex)	240°	-9.43%	NEWP (Schuyler)	0.539%	89.79%
35 PA Pellets	235°	-11.32%	Show Chow	0.544%	91.55%
36 Rocky Mtn	235°	-11.32%	Nature's Own (Energex)	0.548%	92.96%
37 Greenway	234°	-11.70%	Green Team	0.550%	93.66%
38 C&C Smith (Wd Pt Co)	234°	-11.70%	Energex (Canadian)	0.575%	102.46%
39 Michigan/North Country	232°	-12.45%	Lignetics (Green Blend)	0.590%	107.75%
40 Echo Flame	232°	-12.45%	C&C Smith (Wd Pt Co)	0.625%	120.07%
41 NEWP (Schuyler)	230°	-13.21%	Instant Heat	0.625%	120.07%
42 Freedom Fuel*	229°	-13.58%	Pennington's	0.625%	120.07%
43 Tidy Timbers	229°	-13.58%	Maine Choice	0.630%	121.83%
44 Fireside	228°	-13.96%	Tree Cycle	0.646%	127.46%
45 Curran	228°	-13.96%	Clean Energy	0.650%	128.87%
46 Maine Choice	228°	-13.96%	Cornith	0.675%	137.68%
47 O'Malley's	227°	-14.34%	PA Pellets	0.676%	138.03%
48 Pennington's	227°	-14.34%	O'Malley's	0.750%	164.08%
49 Presto Logs	225°	-15.09%	Ozark Hardwood	0.778%	173.94%
50 Instant Heat	224°	-15.47%	Michigan/North Country	0.800%	181.69%
51 Bayou	223°	-15.85%	Presto Logs	0.925%	225.70%
52 Cornith	218°	-17.74%	Fireside	0.925%	225.70%
53 Inferno	185°	-30.19%	Inferno	1.000%	252.11%

* New product tested for 2010/2011

** Only 1 dealer in New England currently

*** Out of Business

^ Retest for 2011

Dragon Mt, Appling County and Lakes Region*** are not available for the 2010/21011 season in NE

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<http://www.hearth.com/econtent/index.php/forums/viewthread/60581/> (2011)



Just a Sample of Comments about Okanagan Pellets found on Hearth.com

"The best softwood pellet has been Okanagan, which I find equal in cleanliness, high heat output, etc. I would take the Pepsi challenge using these pellets any day of the week... Not to mention that so far their delivery and transportation network has been great to deal with, getting us all that we can sell. You can tell that the stock material to make it is very pure, and very dry, nicely diced up and compressed... just put 'em in a cup of water and you'll see it is all little bits, no long bark fibers, no dark bark coloration. Leaves a nice fine ash when burned, no clinkers. Both of these companies have good access to quality stock to make the product. Softwood or hardwood makes no difference: it's what goes into it that is most important.

We get a couple truck loads a month of Cubex when we're busy this time of yr. maybe three if they are available. Pricey: we sell them at 300/ton: but many people insist on a hardwood pellet, and this has been the best hardwood pellet i have ever seen. Flip side: we get 2 truckload a week from Okanagan and get 285/ton (370 for a whole 65 bag pallet) and they are the best softwood pellet I have ever seen... now that the craziness has ceased from last yr, we want to sell only super pellets for fewer headaches. not to say i haven't seen bad Cubex come thru: a batch a year or so ago had some cellulose insulation in it and we paid out alot of service until the problem was figured out... and the first few loads of Okies had rips in the packaging, and no vapor barrier under the pellets on the pallet, so we ate 10-12 bags per pallet as we took alot of wet bags back from pick up customers... however, both companies have corrected said issues since, and are great."

"I think that approach works for me. I want the best pellet **on balance**. That means maybe a trade off. Heat comes first but ash and clinkers are a close second. Price and environment also come in there. My goal is to get the whole package and so far that means in my part of the country Okanagans."

"I burn high quality softwood (Okanagan) on the softwood setting and never get any build up whatsoever in the burn pot."

"We burned 3 ½ tons of the Okanagan's last years, what an awesome pellet."

"(Oh, and Okies might be God's absolute gift to the pellet world. 🤔) I found the OKs at BJ's in Haverhill, btw. Same price as H&H; they're set up to sell "by the bag", though. No delivery or anything".

"I bought 5 pallets of Okanagan, sight unseen. I took the advice of a friend and from the fine folks on this forum. I've burned through about 2 bags over the last 3+weeks. Though the temps have not been at all bad yet, (burned them to take the morning chill out of the house) this pellet is noticeably hotter than the Hamer's I burned last year. Hamer's were good too.

I figured I would buy them now, while i could get them from my local guy.

Instead of waiting till it gets cold and everyone is scrambling to get the ones they want. So far, I'm pleased i made the switch to Okanagan.

As far as the post complaining about the pallet wrapping and bag strength of the Okies, I started swearing because I couldn't get the pallet wrap off w/o breaking a sweat. No concerns here regarding their wrap. These things could have been buried in an avalanche, and would have stayed dry."

"The Okies blew me away with pellet quality, low ash, and heat output. Truly an amazing bag of pellets and hopefully they are all like it! The Mt. V seems to like them and I actually had to turn the flame height down-1 to get the flame at the normal level for the setting.

This will be the first year going all softwood and it should be interesting!"

"Well, I am a couple bags in on these Okies, and I'm impressed. Pretty low ash, throw real nice heat and the least fines I have ever seen even after being dropped from the pallet stack to my tailgate, lugged into the basement and re-stacked. Plus my cellar smells nice and 'woody' now."

"I also just picked up 3 bags of Okanagans today. I am burning my first bag as I write this. They are \$284.50 per ton not delivered. It is sad for me to say, but hardwood pellets made in the northeast can't compete with Canadian softwood pellets."

"I've been burning pellets for a loooooooong time. And pellets are the only heat source in my home. I've been through the pellet gluts and the pellet shortages so I have burned every flavor available in my area from garbage to pretty damn good ones. I pay close attention to ash, clinkers and all that jazz since I am the one that maintains my stove. I am totally impressed with the Okies. **BUT**, when my wife says to me "The light colored pellets you just got really throw a ton of heat, the ash pan is almost empty and the glass is staying clean" that is when **I KNOW I've found a winner!**"

"I stopped by the dealer today to pick up a 3 inch pipe brush and couldn't leave without picking up 3 bags of Okies and 3 bags of Dragon Mountain.

I'm burning Okies now, and couldn't be happier with the results. I'm very tempted to dump the remaining Michigan's on CL for a loss just to enjoy burning quality softwood. I know I'll be burning these or some flavor of BC softwood after I move the Michigan dirt pile. No more hardwoods for me.

For reference, I have burned Michigan, Green Supreme- Dragon Mountain and now Okies in the XXV. The stove will burn anything, but I'd rather burn the cleanest pellet around. The Canadians really have their stuff together."

"By the way, I burned some Okies last night and today. I hooked up a digital readout from work with the thermocouple in one of the heat exchanger tubes. Lignetics ran at 133 to 137 degrees (on low) The Okies ran at 140 to 145 degrees No average they were burning about 5.5% hotter than the Lignetics"

"I prefer Okanagan's. As others have mentioned, they're a premium softwood pellet that burn extremely hot with very low ash content in the 1200i. Almost no fines in the bag and zero clinkers after burning 6 bags at low feed and low fan. I can't say enough good things about Okanagan pellets. To be completely honest, I'd like to experiment with a few more brands of wood pellets, but my man-crush with Okanagan's is preventing me from doing so.... My wife thinks I need serious help."

"Okanagans are definitely better. I noticed right away how much hotter they burned. Softwood vs. hardwood I guess. The Okies pellet size is much more consistent than the NEWP I had. Also, the Okies have virtually zero fines. There seems to be a bit less ash in the ash pan after the first cleaning after the switch over. There was slightly less ash in the firebox as well. I have to give the nod to the Okanagans."

"my experienced with Okanagan is only 1 season, however I like them a lot:

-good smell

-VERY consistent color

-VERY consistent small size

-little fines in bag

-good heat

-low ash

-my Englander stove seems to burn them slower (this pellet seems to last longer)"

"This year we are burning Okanagans and everything I'd heard about these Canadian softwood pellets is true. There's only one word I would use to describe the heat output—GRATIFYING! While were satisfied with the LG's (also Canadian softwood), the Okanagans burn much hotter and after 40 bags the ash pan isn't even close to half full."

"Well so far used the Barefoot- and from what I read here and our experience is that it does burn faster. We had to adjust the feed. It does produce more ash than the Okies but the heat output feels the same aka Crazy Hot! Lol. We mixed Cubex and Okies and so far that has been pretty good for us. I think I prefer the Okies because the heat output is the best of the 3 and we don't use as many bags as oppose to the Barefoot. If you have the extra dinero, than by all means get the Barefoot. We're going to start mixing those in and see how that goes."

"I admit, I drank the Okanagan Kool-Aid in September (1.3 ton) and now I'm hooked for good. High heat output, low ash, very low fines and zero clinkers. When I say zero clinkers, I mean I can burn 15-20 bags without having to scrape the burn pot. That's not hype, that's a fact. So far, I've burned Dry Creek, Barefoot and NEWP (all very good pellets in their own right), but Okies really deliver the whole package: high heat, low ash, zero clinkers, and very few fines. I'm picking up another ton on Saturday (1 day sale \$229 per ton) for next season."

"Okanagans really worth it??"

Message: I've gone thru a ton of Okies this season, and I hate to say it, but I'm hooked for the same reasons as Glosta. They are \$300 a ton around here which is \$30-50 more than other brands of pellets, but they are damn hot and clean. When the temps dip below zero along with a wind, the extra cost is irrelevant to me. So if I burn 5 tons a year, that's \$150 extra to burn the good stuff. I'd waste that kind of cash on a couple of good dinners with the wife."

"VERY HOT....just about through my 2nd bag and what a difference from the Lignetics I was burning. usually when i get up in the morning the burn pot is packed with ash, with the OKIE"S it looks like it's been burning for only a few hours.....I also don't run the stove on the same settings, the OAKIE"S allow me to turn the stove temp dial from 4.5, 5 during the night to 3.5, thus making a bag go longer.....GREAT PELLET!"

"These burn Hotter than Hell !!!! I actually had to turn the stove DOWN Sat evening because it was too warm upstairs.

Never had that with the Green Teams, even with the warmer 35 deg temps."

"I've burned about a ton of them, am currently burning Cubex, which has a great reputation, but I had to turn my stove up to get the same results. Once I'm thru the Cubex, it's all Okie's for me. It's worth the price on those really cold nights."

"I have to agree with all the great things said about Okanagan pellets. I bought 2.6 tons this summer and have never looked back. I tried some different pellets this weekend and they could not compare to the heat and overall satisfaction of burning these pellets. I have read on this forum about price, and all I can say is it took 1 1/2 bags of Maine Woods pellets to produce the same heat output of 1 bag of Okanagans. To me it is a no brainer..."

"Awesome!!!, I'm running my stove on 1!!!!, 2 is too hot!!, my house has never been so warm!, were talking living room temps near 80 with my Whitfield running on 2, last night i went to bed early wife was up late like 2am, and i woke up and it was too warm!, had to lower to 1, and the ash is very low, never seen my glass stay so clean so long...Okies ROCK!!
Downside is the dust factor when dumping the bag, otherwise and the real Xmas smell.....last yr i got a real tree for another room, after 15 yrs using a fake tree the real one smelled like a old cigarette, now my house smells like Xmas!"

"We have been retailing Okies for a year - the new batches are even hotter than last year. Customers are very impressed with the heat. Most people say -" The hottest pellet they have ever burned"

"Okies are the absolute best. I buy mines at Home & Hearth in Courtland Manor NY. Regular customer now...lol. I also agree that the Cubex burns just as hot and if you happen to have both Cubex and Okies, try mixing them. The heat is efinf incredible! I also have bags of New England, although good their not as good as the other two. Save the Okies for the really cold days. And the Barefoot pellets were hot but burned way too fast despite adjusting the pellet rate.

"Last night I finished up a bag of Eagle Valley then put in a bag of Okanagan. The Okies were almost 20 degrees hotter. WOW!!! I will def be buying 2 tons of Okanagan next year."

"Here's my lab test:

Greene Teams: Put my hand in front of the air tubes at full steam.....hot hand

Okies: Put my hand in front of the air tubes at full steam.....burned hand

Official lab test results so far.....Okies hotter than Greene Team 😄"

"Was near -10 in central Maine this morning. Burning Okies and had it right at 70 upstairs (cellar install) loving the Okies but wish there were more sellers of the product in central Maine."

"Very happy with the Oakies. They burn amazingly clean. Even after 5 days of 24/7 burning, I barely get any ash buildup on the glass."

"**I had a revelation.** After burning a lower grade pellet during the shoulder seasons and having low heat, dirty stove and glass, I have decided to just burn good pellets. The cost difference is small and the

results are great. **No more lousy pellets for me! Why give these companies my money when I can reward to quality companies with my business.** For the cost difference, the higher BTU output, the lower ash, and the cleaner glass make a super-premium pellet, IMO, well worth the price difference.

"I am going with Okanagan pellets. In my stove they give a hot, clean burn, with low ash, and cleaner glass."

"I make a pretty good living cleaning the stoves which burn NEWP, but I still burn Okies myself."

"Go with Okanagans - excellent heat and very low ash."

"I just finished cleaning my Harman Advance after putting 70 bags of Okanagans through it last winter. I ended up with about 4 oz. of ash and soot from the stove and 4 feet of vent pipe. The ash in the ash pan was minimal also. This was my first year burning a pellet stove but I can tell you I never had a problem with low heat or carbon buildup in the burn pot and after seeing how relatively clean the stove was I have to agree with what others here have said. You pay a little extra for Okanagans but it is the heat value you pay for and not carbon and soot. I plan on using Okanagans again this winter."

"Fall of 2010 - Really wanted to order the LG's from Pelletsales.com again but they didn't have them in stock and I wasn't interested in their other pellets. I ended up getting 2 tons of Okanagans and 2 tons of Cubex from Burn Time in Bristol. Have used the stove for a few days this year and am very happy with the Okanagans (best pellet I've burned to date). Much smaller in size than the other types I've burned. They're also very hot and have minimal fines. Very low ash too. "

"Poor pellets just aren't worth it at any price. When I first bought my P-68, I used Cubex. They worked well but there wasn't a local dealer. I tried Energex the next year and they were very ashy, requiring daily burn pot cleaning. The next year I loaded up with NEWP Green Supreme. They were awesome. Good heat, low ash. The year after I tried "CleanFire" only to discover they weren't. LG worked pretty well so last year I bought a few tons of what was supposed to be "the same thing". Wrong again. It was like being back with Energex. This year I found a comparison chart that rated the major pellet brands available. I saw that up at the top, along with Cubex, was a brand called Okanagan. According to the data, they produced high heat and little ash. So I tried them. Bro, this is like being back on NEWP Green Supremes. The ash, even after 3 or 4 days, is insignificant. Flame is still bright and active. Now it may not matter on some pellet stoves, but on my P-68 the right pellet means everything. And I'm relieved I have finally landed on a pellet that lives up to the marketing hype. I haven't cranked up the PB 105 yet, but I'm confident the Okies will burn as well there as in the P-68. If anyone out there wants to see just how well these burn (and you're local to Wilmot NH), let me know and I'll give you directions. You really have to see it to appreciate how well they burn."

"Fall of 2010 - Really wanted to order the LG's from xxxxx again but they didn't have them in stock and I wasn't interested in their other pellets. I ended up getting 2 tons of Okanagans and 2 tons of Cubex from Burn Time in Bristol. Have used the stove for a few days this year and am very happy with the Okanagans (best pellet I've burned to date). Much smaller in size than the other types I've burned. They're also very hot and have minimal fines. Very low ash too."

"Look for Okanagans (made in Canada), shorter pellet and burn real good"

"I burned a couple tons of Okies last year and couldn't be happier. That said, I was also very happy with the Cubex I tried. My local dealer had a great sale on the Cubex this spring so I jumped on two tons. I still couldn't resist the call of the Okanagans so I sprung for a ton of those as well. I, personally, love the smell. I only burned just over two tons last year so the extra pellets will go towards my 2011/2012 season. What I buy next year will depend on price and availability. (Okies or Cubex)"

"IMO, a more expensive pellet can actually be cheaper and save money by putting out more heat. Instead of saving \$5 on a bag of pellets, it may actually cost you \$10, because of the lower heat output. I am prejudiced after burning several "cheaper" pellets. I now burn Okies, only. As I said, it's just my opinion."

"I love my O'kanagansWhat a fine Irish pellet it tis! 🤔
I have gotten used to the Irish Spring smell too. Son loads pellets in cellar.
It burns hot and clean and my Lennox Winslow loves them also.
Burned NewP last season and I was very disappointed in every measure.
Probably bad batch but it will be awhile before I give NewP another try.
As long as price stays reasonable I am a happy consumer of that "Fine Irish Pellet" O'kanagans!!"

"So far Okanagans burn the best in my stove. Maine Woods, Appling County and PA Pellets came with the stove when I bought it. While the Appling County smelled nice they all burned dirtier and lower heat output than Okanagans. The biggest surprise and disappointment were the New England's that were the most expensive and I had to mix to burn. The stove did not burn those well. I just love Okanagans because I love the heat and I love the easy clean up."

"How to keep a stove clean with the least amount of effort?...my secret weapon.
Message: Scot I agree with you. I can go much longer between cleanings when burning Okies, not to mention the heat these things produce."

"Going with Okanagan again this year. 2.6 tons will be coming to the house soon. Love em. My Quadrafire Non AE Mt Vernon loves these softwoods."

"Tried some test bags of the Okies last season, and this year it's all I am burning. What a big difference from the Maine Choice I had last year: running so much cleaner. "

"Westwood Premium Pellets (AKA Okanagan Pellets from British Columbia). These are my second favorite locally as they burn the hottest and are very consistent in quality. One thing that jumps out is the consistency in length of pellet. They are almost all 5/8" long.....the entire bag! This along with being very clean (no fines in the bags) make for a jamb proof pellet. "

"This thread and others like it are great for new comers like myself. I like seeing real world results rather than just boring test lab data etc. from pellet producer websites."

"We have a couple of locations in our area that stock Westwood Premium Wood Pellets which I have been told are identical to Okanagan's and produced in the same mill in B.C."

“I can confirm that the Westwood’s are the hottest in my less sophisticated tests with my Bosca Stoves. I get anywhere from 10 to 20 degrees hotter air from my stoves when using Westwood Pellets than with my other favorites (North Idaho Energy Pellets, Atlas Ultra-Premium and Rocky Mtn Premium. I don’t measure ash and flame characteristics however I can tell you that I can set my stoves lower with the Westwood’s than the others I typically use.”

“When I started this thread I was thinking of buying CUBEX from Rocky’s Stove Shop in Augusta. But the shipping was more money after 3 tons. So I ended up buying 2 1\2 tons of OAKIES and 2 1/2 tons of Spruce Pointes for Maine Pellet Sales. Very nice guy and his shipping rates were better. Of course we are in the heating season now so I’m sure prices have changed since I order my pellet this summer! And for the record, the Oakies burn hotter than the Spruce Pointes in my stove (I wanted to see if there was much difference between the two). That’s why I bought half and half so then next year I will know which one I want for sure. Also noticed that I can go way over a week without cleaning my stove. Very little ash builds up. Last year I had some pellets I bought from Lowes (not Greene team) and had to vac out the ashes everyday (major pain in the a__)! I now know the difference between super premium pellets and the junk they call premium at all box stores. The old saying stands true; YOU GET WHAT YOU PAY FOR!”

“Okies are just as good if not better than last season. Great heat! Flames are licking my convection tubes (save\$ these had the largest flames in this seasons testing!). The Vermont’s had a good long burn length, but I would have turned them up some to stabilize the flame. So in the end the burn length in the real world would be much closer. The Okies are a very consistent product; Quality fiber makes them one tough pellet to beat!

Douglas Middleton

Cypress Pacific Marketing

A Viridis Energy Company

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Appendix A – Residential Pellet Fuel

(Excerpt from "Pellet Hearth Systems Reference Manual Second Addition" December 2008)

In much of the world, the concept of home is linked directly to the ability to maintain a heated environment in winter months. With the energy crisis of the 1970's came the first notice that the source of that heat and comfort had to be scrutinized. The realization of limitations and eventual shortages for finite, irreplaceable, fossil fuels spurred a new interest in renewable, and therefore sustainable, alternative fuel sources.

Almost simultaneously, the issue of waste surfaced. The habits of our throwaway society not only resulted in costly waste of valuable energy resources, but also in a crisis in disposal space and methods. The development of residential pellet fuel responds to both the call for renewable biomass sources of home heating fuels and waste stream reduction.



NORTH AMERICAN PELLET MILLS

1. PELLET PRODUCTION

As forest products companies produce lumber, plywood, and other goods, they create wood and bark residues that contain energy. In the form of sawdust, bark, and chips, these residues are bulky and vary greatly in moisture content. The process of pelletizing reduces their bulk by compression and increases their combustion manageability by controlling consistency. Originally produced for industrial and institutional use, pellets entered the residential fuel market with the introduction of the first home pellet appliances in the mid-1980's.

1.1 RAW MATERIALS

Although a wide variety of materials, including sawdust and wood scraps from hard and soft woods, shells and nut hulls, agricultural by-products, paper, and cardboard, is pelletized for use as fuel, residential pellets are primarily wood-based residues. Corn, because of its natural similarity to pellets, is used in some specially designed residential appliances. Because corn combustion differs from wood pellet combustion, corn should not be burned alone or mixed with wood pellets unless the appliance is specifically designed for corn combustion.

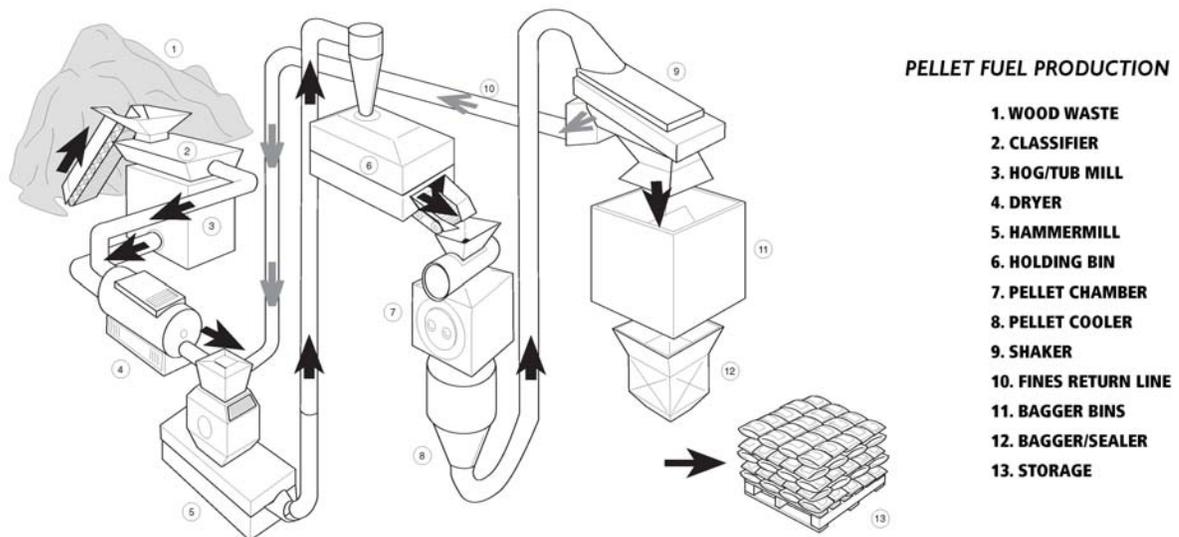
Because ash content and other factors presently limit or prevent the practical use of other agricultural and paper products in most residential appliances. Increasing competition for forest industry by-products and reduction in logging in some areas are a growing concern of pellet manufacturers. Pellet appliance design, however, is responding to fuel manufacturers' predictions of future shortages of premium grade fuel with research and development aimed at greater ash tolerance.

The amount of residues available from processing logs varies depending on factors such as log size, timber species, lumber dimensions, moisture content, and processing machinery. Typically, 5 to 10% of the original material is available for pellet fuel conversion. The raw materials may be received at the pellet processing plant as residues from kiln dried lumber or as residues from freshly processed (green) wood in which the weight of moisture may exceed the dry material weight. Heating, or caloric, value of finished pellets ranges from 7,000 to over 9,000 Btu (British thermal units) per pound (at 5% moisture), with resinous species (such as pines and fir) having slightly higher gross caloric values than non-resinous species (hardwoods) and bark. Average Btu content of pellets as received by the consumer is 8,300 Btu per pound at 5% moisture.

Softwoods, hardwoods, and blends of different species are used as raw materials and known as feed stock. Where hardwoods are generally the preferred species for cordwood appliances because of their higher Btu content and lower emissions, pellets from softwoods generally have slightly higher caloric value and lower ash content than pellets produced from hardwoods, particularly hardwoods containing bark. Resins in softwoods that are more difficult to burn in a cordwood appliance are not a problem in pellet appliances, which regulate the air for combustion and provide precise, gradual fuel feed in small amounts.

Raw material particle size ranges from fine sawdust to large chips that must be ground to uniform size. Careful handling of raw materials before the pelletizing process is important in reducing unwanted foreign materials.

1.2 MANUFACTURING PROCESS



The production of pellet fuel begins with the raw materials, or feed stock. Contaminants must be removed by using magnets to remove iron and classifiers to remove stones and non-magnetic metals. Classifiers, also known as scalpings, are devices which employ air flow to move and separate the lighter wood particles from heavier unwanted materials. Storage facilities and methods for managing feed stock materials are determined by the moisture content of the materials; dry materials must be protected from the elements, and green materials must be processed in timely fashion to prevent microbiological deterioration. After storage, feed stock is pulverized and screened into small uniform pieces by hammer mills and grinders and conveyed to holding bins or silos. A cyclone process of swirling air collects the lighter fines, or dust, for use as dryer fuel.

In the case of green materials, the next step is the drying process. The most commonly used type of dryer is the rotary dryer, a large revolving drum (some more than 10 feet in diameter and 40 feet long) which continually lifts and tumbles the material through a hot gas stream. The drying process is regulated by a variable rate feed screw and by control instruments which measure and match heat input to demand. Uniform moisture is also achieved by the larger, wetter, heavier particles moving more slowly through the drum than finer, drier, lighter particles. Dryers are often fired by using a portion (about 8 to 10%) of the feed stock, mainly the fines, or smallest particles (also known as wood flour). The drying process generally reduces incoming moisture content (wet basis, see following) of 40-45% to 6-10%.

MOISTURE CONTENT

Fuel moisture content has a dramatic effect on efficiency: wood at 50% moisture has a heating value of 4,000 Btu/lb., at 20% the heating value is 6,200 Btu/lb., and oven dry wood delivers up to 8,600 Btu/lb. One of the advantages of pellet fuel is its high Btu content (about 8,000 Btu/lb.) and consistently low moisture content, usually between 6-10%, calculated on the wet basis.

Because there are two methods for determining wood moisture content (M.C.), the wet basis and the dry basis, the concept can be confusing. The pellet fuel industry universally uses the wet basis when describing residential pellet feedstock and fuel. The dry basis is used primarily in labs and technical situations. The following M.C. calculations demonstrate the difference in the two methods.

In the dry basis, the wood is weighed wet, then dried to an oven dried condition. The oven-dried weight is subtracted from the wet wood weight to determine the weight of the lost water. Moisture content is then calculated by dividing the weight of the water by the weight of the oven dry wood. In the wet basis, the weight of the water is divided by the weight of the wet wood.

Example: A quantity of wood weighs 10 pounds. It is dried to oven-dry condition, and then it weighs 8 pounds. What is its wet basis M.C.?

Weight of the wet wood (10 lbs.) - weight of the oven dried wood (8 lbs.) = weight of the water (2 lbs.)

$$\frac{\text{Weight of water} \quad (2)}{\text{Weight of wet wood} \quad (10)} = .20 \text{ M.C. (Wet Basis)}$$

The dry basis used in labs follows the same procedure but divides the weight of the water by the weight of the dried wood.

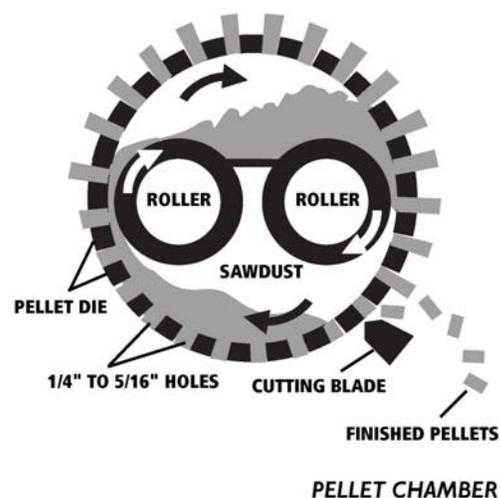
Weight of wet wood minus weight of dried wood = weight of water

10 - 8 = 2 (pounds of water).

$$\frac{\text{Weight of water} \quad (2)}{\text{Weight of dried wood} \quad (8)} = .25 \text{ M.C. (Dry Basis)}$$

The dry basis moisture content is thus 25%, while the wet basis moisture content of this same quantity of wood is 20%. Customers are more likely to understand and relate to wet basis percentages since dry basis figures can exceed 100%. Pellet industry standards use the wet basis.

The dried materials are conveyed to the conditioning chamber where steam may be added to lubricate the materials and to help soften the natural lignens that act as a bonding agent to hold the pellets together. The materials (feedstock) go next to the pelleting chamber where they are extruded, or pressed, through thousands of 1/4 to 5/16" diameter holes in a steel die 1.5 to 3.5 inches thick. This extrusion process heats the newly formed pellets to temperatures approaching 250° F. The hot, still soft pellets are conveyed to a cooler to achieve room temperatures and hardening. Dust and loose fines are shaken off and recycled as the pellets proceed to be bagged.



2. FUEL STANDARDS

The importance of consistent fuel and quality controls became apparent in the early years of residential pellet appliances. Fuel characteristics are crucial factors in appliance performance and maintenance. The Fiber Fuels Institute (FFI) and the Association of Pellet Fuel Industries (APFI) adopted national standards recognizing acceptable criteria for these characteristics in 1991. FFI and APFI have now merged into one association, the Pellet Fuel Institute (PFI). Voluntary fuel quality certification is the responsibility of the pellet manufacturer. Not all pellet fuels carry the voluntary PFI guaranteed analysis, even though some packaging may be marked "Premium." End users may have to rely on experienced retailers in choosing appropriate fuel.

2.1 CRITERIA

PFI standards establish two grades of fuel, Premium and Standard. The following chart indicates that the only difference between the two grades is inorganic ash content. Table 1 outlines the fuel grade standards. However, each of the six criteria is important, because understanding them clarifies appliance performance and maintenance.

<i>Criteria</i>	<i>Premium Grade</i>	<i>Standard Grade</i>
<i>1. Bulk density/cu. ft.</i>	<i>Not less than 40 lbs.</i>	<i>Not less than 40 lbs.</i>
<i>2. Dimensions</i>	<i>Diameter 1/4-5/16"</i>	<i>Diameter 1/4-5/16"</i>
<i>3. Fines</i>	<i>Not more than .5% by weight shall pass 1/8" screen</i>	<i>Not more than .5% by weight shall pass 1/8" screen</i>
<i>4. Sodium (salts)</i>	<i>Less than 300 parts per million</i>	<i>Less than 300 parts per million</i>
<i>5. Inorganic ash</i>	<i>Less than 1%</i>	<i>Less than 3%</i>
<i>6. Length</i>	<i>Maximum 1 1/2"</i>	<i>Maximum 1 1/2"</i>

Understanding the rationale for each of the criteria begins the process of understanding appliance performance and maintenance.

2.1.1 DENSITY

The density, or weight per cubic foot, reflects the amount of solid material packed into the pellet and therefore has a relationship to the heat content of the fuel. In the same number of auger turns, higher density fuel delivers more Btu content than a low density fuel. Additionally, lower density fuel burns faster and may affect low burn settings. Wide variations can require appliance adjustment, particularly in the case of excessively low density fuel which could cause the fire to go out. Density is also important as a gauge that adequate pressure and bonding have produced hard pellets that can withstand shipping and handling.

2.1.2 DIMENSIONS

Pellet diameter is another factor that affects stove performance. The 1/4-5/16 inch standard reflects the common die size for residential fuel in the Americas. Industrial pellets can range as large as 1/2" in diameter and are unacceptable in residential appliances. The most common size for residential appliances is 1/4"; in fact, some appliance manufacturers report problems with some varieties of 5/16" pellets. Apparently, unusually hard pellets of this size may not cut easily when caught

between parts of the feeding mechanism and may cause feeding jams. It is therefore important to know whether an appliance manufacturer specifies the size of pellets to be used in a specific appliance.

2.1.3 FINES

Fines are the smallest, dust-like particles produced in the pelleting process. They also occur in breakdown during shipping and handling. The production standard is intended to assure hard pellets that withstand handling. Excessive fines represent loss of usable fuel and cause performance and maintenance problems. They are also a source of irritation for appliance owners when the dust escapes into the home during pouring from the bag into the hopper. The fines are less likely to burn because they are easily blown away from the flame by combustion air. Fines cause performance problems, including loss of fuel feeding if they build up on the sides of the hopper and reduce the opening size to the fuel delivery system. Additionally, fines can increase the need for maintenance by filling ash traps prematurely and by jamming augers.

2.1.4 SODIUM

The presence of excessive salt, specifically water soluble inorganic sodium, can cause severe damage from corrosion in appliances and venting systems. The sources of salt contamination include logs that have been floated in salt water, plywood, and particleboard. Manufacturers now test to ASTM E776, standard for sodium extraction. Additionally, the presence of trace amounts of alkaline salts can increase clinkering, due to a reduced ash melting point for silica.

2.1.5 INORGANIC ASH

Ash is the term for the various noncombustible minerals that remain after combustion. Ash content is the basis for determining fuel grade since all other criteria are identical for both premium and standard grade. Later discussion of appliance design and maintenance requirements will indicate clearly how crucial this fuel characteristic is. On one hand, fused ash, or clinkers (see discussion under 3.1.1 Combustion below), can block combustion air inlets and affect performance adversely. On the other, fly ash that is blown from the fire chamber can accumulate on heat exchangers and in the venting system with problematic results. Simply put, ash content is the main factor determining the frequency of appliance maintenance. In some appliances, that frequency can make the use of higher ash fuels impractical. Predictions of premium quality low ash fuel shortages are consequently a growing concern that appliance manufacturers are addressing in appliance design.

Appliance sensitivity to ash content varies with design, venting system design, and recommended maintenance frequency. Even within the allowed 1% ash content of premium grade pellets, there are noticeable performance variations in some appliances. Changing from a .25% ash content fuel to a .75% ash content fuel can cause troublesome performance and maintenance in some appliances. Manufacturer's fuel recommendations and individual ongoing experience with locally used fuels are important for appliance adjustment and customer satisfaction. Some biomass and corn burning appliances have been introduced to deal with the 1-3% ash produced from these fuels. A fuel stirring/aeration device may be incorporated to mix the ash with the fuel and to increase fuel efficiency.

2.1.6 LENGTH

Excessively long pellets can cause bridging, the condition of pellets getting stuck across the fuel delivery entrance of the hopper. The effect is that of a log jam, with fuel unable to feed past the blockage. Long pellets may also cause auger jams. Finally, long pellets deliver inconsistent amounts of fuel. Dramatic variations in fuel feed rates in turn causes performance problems since combustion air settings deliver a volume of air based on expectations of consistent amounts of fuel. PFI standards call for maximum pellet length of 1 1/2 inches. In spite of this standard, some appliances will bridge with this length pellet and can be difficult to diagnose. The appliance manufacturer should be consulted regarding their recommendations for maximum pellet length.

2.2 LABELING

PFI Fuel Standards recommend that manufacturers identify their product with a guaranteed analysis and parameters included in the label (example below).

GUARANTEED ANALYSIS	
<i>Grade:</i>	<i>xxx</i>
<i>Type of Material:</i>	<i>xxx</i>
<i>Ash:</i>	<i>x%</i>
<i>Fines:</i>	<i>x%</i>
<i>Chlorides:</i>	<i>x ppm</i>

3. EFFECTS ON PERFORMANCE AND MAINTENANCE

When compared to cordwood on a one to one basis, pellets offer some distinct advantages. Pellets are more consistent and predictable in moisture and Btu content. They are more compact, so they require less storage space. They are cleaner, easier to handle, and they burn cleaner. However, these characteristics have to be put into the perspective of the appliances they burn in to have real meaning. Pellet fuels narrow the wide variables of cordwood fuels, but pellet appliances, as mechanical, electrical based systems, also have a narrower range of fuel tolerance than wood stoves. Understanding the effects of fuel characteristics in pellet appliances is essential for optimum performance, adequate maintenance, and overall customer satisfaction.

3.1 PERFORMANCE

As will be discussed later, different appliance designs have different fuel requirements and tolerances. For now, we can look broadly at some effects of using unsuitable or impure fuel.

3.1.1 COMBUSTION

A direct effect of fuel quality on combustion that is not included in the PFI Standards is silica content. Silica is essentially sand or dirt that is naturally in the bark of the tree or that enters the feed stock in the handling process. In the combustion process, silica is heated to fusion temperatures, melts, and solidifies as it is cooled. The result is clinkers, solid chunks of lava like material. The effect on combustion occurs if the clinkers stay in the grate area and block incoming combustion air.

Analysis of silica content is impractical because of the variations in growing conditions and because of the significant effect on fusion temperatures of small amounts of trace elements. The normal melting point of silica, 2,700° F., is reduced to 1,500° F. in the presence of minute amounts (1/4%) of alkaline salts (sodium chloride or potassium chloride). This reduction in the melting point promotes ash fusion at lower temperatures and increases clinkering. Combustion temperatures in the burn pot/grate area vary widely with appliance design, so fuel with silica may cause clinkering problems in a stove with high combustion chamber temperatures and not in another appliance that operates with lower temperatures.

Ash content has indirect effects on combustion. Excessive ash content, if not maintained properly, can restrict or block burn pot air holes and/or the venting system and result in poor combustion due to inadequate combustion air.

Improper pellet density can also have a direct effect on combustion by causing an abnormal feed rate. Low density pellets may feed too little combustible fuel and may cause the fire to go out, while excessively high density pellets can be difficult to start in automatic ignition appliances or they can

overfeed the stove, causing high temperatures or smothering the fire. Most appliances now have simple adjustment mechanisms to overcome these difficulties. Proper adjustment of fuel to air settings for the particular fuel must be made for maximum performance as the appliance owner changes the fuel source to one with different density.

Bridging and blockage or auger jamming caused by unsuitable pellet diameter or length, or by excessive fines, indirectly affects combustion by depriving the combustion chamber of fuel.

3.1.2 HEAT TRANSFER

Fly ash gradually builds up on heat exchanger tubes or fins. The coating of ash acts as an insulator and prevents proper transfer of heat to the convection air passing through the tubes into the home. The frequency of cleaning heat exchangers is determined in large part by the ash content of the fuel.

3.1.3 MECHANICS

High ash and fines content can build up on impellers and affect blower motor durability. Jamming from excessive fines or improper pellet size can affect auger durability.

3.2 MAINTENANCE

Using a fuel that is not suited for a particular appliance increases the frequency of maintenance. Clinkers from high silica content fuel (or from lowered ash fusion temperatures brought about by the presence of alkaline salts) must be removed before they block combustion air, affect performance, or cause other maintenance needs. High ash and/or fines in fuel necessitate more frequent cleaning of the burn pot/grate, ash storage areas, heat exchangers and venting system. The systems and components of pellet appliances are interdependent and sensitive to proper maintenance. Simple maintenance tasks, left unattended, can become a need for total system maintenance as well as a source of owner frustration. The frequency of component replacement is also increased by the lack of regular, properly performed maintenance.

4. SUMMARY

-  Residential pellet fuel is recovered biomass products processed to be of uniform size, density, moisture content, and ash content.
-  Feed stock is separated from unwanted contaminants, pulverized into small pieces, dried, compressed, cooled, and bagged in the pellet manufacturing process.
-  PFI standards for density, dimensions, fines, sodium and ash are voluntarily complied with by pellet manufacturers. Recommended labeling includes an analysis of these factors.
-  Ash content, the primary maintenance factor, is the only difference in composition between standard (up to 3%) and premium (less than 1%) grades of fuel in PFI standards.
-  The fuel quality standards include characteristics that affect performance, maintenance, durability, and customer satisfaction. Another factor not included in the standards is silica content, the primary cause of clinkering.

OKANAGAN Wood Pellets



100 % NATURAL SUPER PREMIUM CANADIAN FUEL PELLETS

WHEN YOU DEMAND THE VERY BEST VALUE FOR YOUR ENERGY DOLLAR!

WHY OKANAGAN FUEL PELLETS?

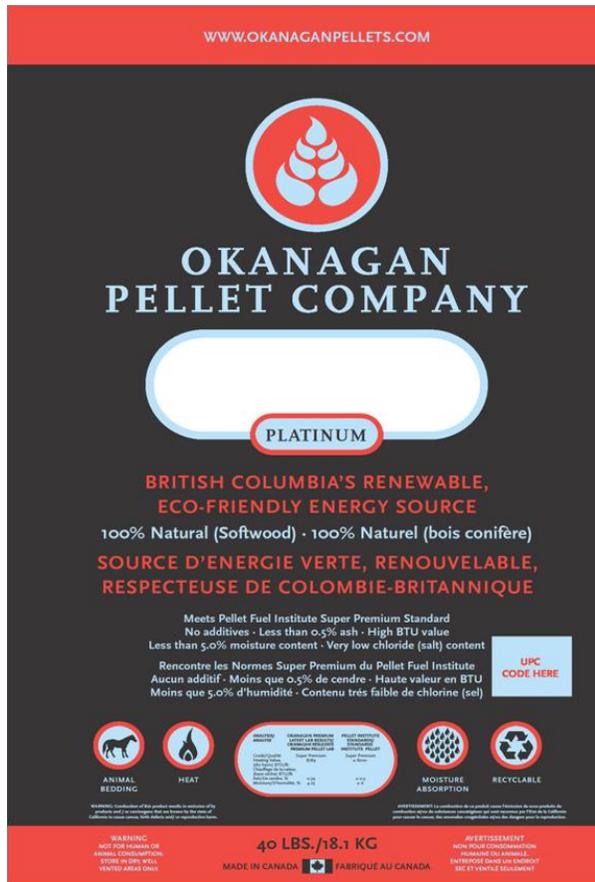
“Okanagan Fuel Pellets significantly outperform competing brands in North America”

- ✓ British Columbia’s Green , Renewable , Environmentally Friendly Energy Source
- ✓ Highest Grade fiber (Raw Material) from British Columbia Lumber/Saw Mills
- ✓ 100% Natural, NO Additives – Pine and White Spruce –Western Softwood
- ✓ Meets or exceeds all applicable standards for **Super Premium Grade Fuel Pellets**
- ✓ Can be used with confidence in any brand Pellet Stove or Boiler.
- ✓ BTU’s 8800+ BTU’s- on average ... Less Than 0.3% ASH – tested to 0.275 %
- ✓ Low Moisture ,Very Low Chloride Content, minimal Fines
- ✓ Delivered in standard 40 lbs./18.1 KG’s Bags
- ✓ Burns Hotter, Cleaner and with less Clinkers than most Competitors brands
- ✓ Universally accepted by seasoned stove users as one of the very best pellets
- ✓ Available Supply through multiple warehouses across the United States and Canada

“The Only Call Backs you will get from our pellets are for “More Okanagan Pellets Please”

DEALER INFORMATION

OKANAGAN WOOD PELLETS



Product Information:

- British Columbia's Green , Renewable, Environmentally Friendly Energy Source
- Highest Grade fiber (Raw Material) from British Columbia Lumber/Saw Mills
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- Universally accepted by seasoned stove users as one of the very best pellets

Packaging:

- Pellet Fuel is packaged in 40 Lb Bags
- 50 & 65 Bags per pallet
- Waterproof & UV Resistant Pallet Covers cover product down to the pallet
- 2 layers of shrink-wrapping for additional support in shipping
- Slip sheet on pallet to provide additional protection from elements

MANUFACTURING



Pellet Manufacturing:

Our sawdust only comes from sawmills where the bark has been removed from the trees. This helps ensure that there will be no contaminants in our pellets, just 100% softwood.

We never expose our sawdust to the weather. Our sawdust is always protected from the elements which helps ensure that it is never compromised by contaminants from the outside environment (dirt, rocks, etc.)

Before we make pellets the sawdust has to be dried to precise moisture content. Then the material is ground down to fine particles before being pelletized. As an added precaution high intensity magnets are in place along the manufacturing line to remove any potential metal contaminants.

The pellets are passed across two different screens to remove any under or over sized pellets and also any excess dust. Just before bagging, the pellets are vacuumed to remove any remaining sawdust. Our bagging system is fully automated giving us a fine quality finish to our packaging.

Douglas Middleton

Cypress Pacific Marketing

A Viridis Energy Company

Telephone (480) 419-6792

www.okanaganpellets.com



REPORT OF ANALYSIS

Principal: WESTWOOD FIBRE PRODUCTS INC..
 2677 Kyle Road
 Westbank, BC V1Z 2M9

August 5, 2010

SAMPLE DESCRIPTION	:	Wood Fuel Pellets
RECEIVED	:	May 28, 2010

Our Ref: 203-12358

The sample(s) to which the findings recorded here (the "Findings") relate were drawn and/or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representation of any goods and strictly relate to the sample(s) are said to be extracted. The Company accepts no liability with regard to the origin or source from which the sample(s) are said to be extracted.

THIS IS TO REPORT that in accordance with instructions received from our Principal, Westwood Fibre Products Inc., to perform analysis of the above mentioned sample, we hereby report the following:

ANALYSIS		AS RECEIVED BASIS	DRY BASIS
Total Moisture	%	4.27	xxxx
Ash	%	xxxx	0.39

PARAMETER	MEASURE	VALUE
Hydrogen, (dry basis)	% of weight	6.18
Nitrogen, (dry basis)	% of weight	0.10
Oxygen, (dry basis)	% of weight	41.01
Carbon (dry basis)	% of weight	52.28
Sulphur (dry basis)	% of weight	0.04

CALORIFIC VALUE (ISO 1928)	MJ/kg	Kcal/kg	MWh/tonne	BTU/lb
Net Calorific Value at Constant Pressure, including moisture (as received basis)	18.18	4342	5.05	7816
Net Calorific Value at Constant Volume, including moisture(as received basis)	18.25	4359	5.07	7847
Net Calorific Value at Constant Pressure (dry basis)	19.10	4562	5.31	8211
Net Calorific Value at Constant Volume (dry basis)	19.17	4579	5.33	8242
Gross Calorific Value (Dry Basis)	20.44	4883	5.68	8789

Fusion Temperature of Ash (Reducing Atmosphere)			
Initial Deformation		1418	°C
Softening (h=W)		1423	°C
Hemispherical		1426	°C
Fluid		1431	°C

ANALYSIS	AS RECEIVED BASIS	DRY BASIS
Chlorine (ug/g)	126	132
Chlorine (%)	0.013	0.013

Screen: -3 mm x 0	0.2 %
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V. Sharma, Laboratory Supervisor

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