

Alaska Myth Busters:

“You Can’t Make Fuel Pellets Out of
Alaska Hemlock” ~ Anon. 2008

Daniel J. Parrent
Program Director, Wood Utilization Specialist
Juneau Economic Development Council



ACKNOWLEDGEMENTS: This research project was conducted in cooperation with the USDAFS Pacific Northwest Research Station Alaska Wood Utilization Center in Sitka, AK and Alaska Pellet Company, dba Logging and Milling Associates, Delta Junction, AK

Hemlock logs were obtained in Haines, AK, trucked to Delta Junction, and sawn for large timbers.

Virtually all of the bark was lost during harvesting and subsequent handling.



Hemlock jacket boards, slabs and edgings were saved for this research project and were dried in make-shift racks in a lumber dry kiln to approximately 5% MC (db).

Kiln-dried white spruce slabs were also used in this test. **HOWEVER**, they were not debarked. Bark component was estimated at 15% by volume.



Kiln-dried slabwood of each species was reduced to “hog fuel” in with a Rotochopper MC266 horizontal grinder.



Hemlock “hog fuel” (right).
Moisture content at time of tests
was 10.18% (db), [9.24% (wb)].



Hog fuel was further reduced in size by a hammer mill turning at 1725 rpm with screen sizes of 0.190". The lower screen has since been changed to 0.109" mesh and pellet quality has gotten even better.

Testing was conducted on THREE volumetric feedstock mixtures:

1. 100% Alaska hemlock
2. 1/3 White spruce :: 2/3 Alaska hemlock
3. 2/3 White spruce :: 1/3 Alaska hemlock

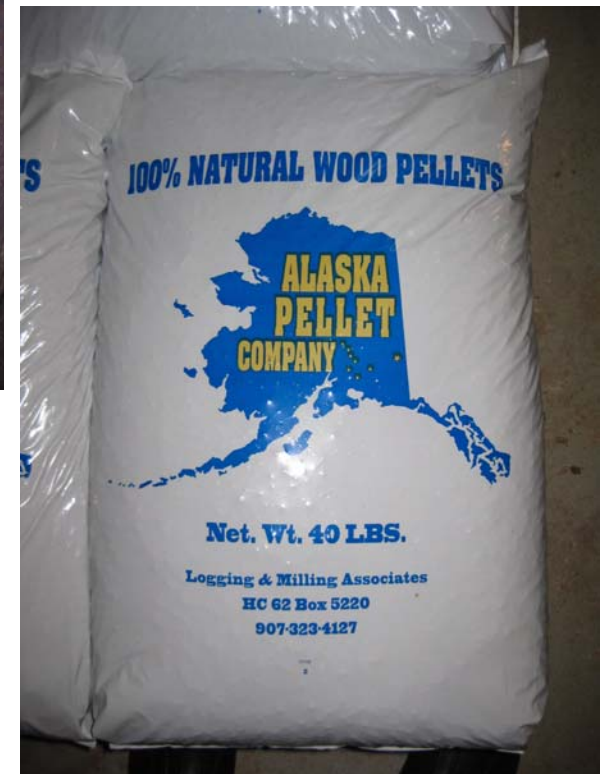
Normal spruce pellet production consists of kiln-dried barky slabs (as previously described) PLUS approximately 10% Pendu shavings at 12% to 15% moisture content (db).

Pellet Machine Specs: California Pellet Mill (CPM) Century 100 Model, 100 h.p. electric motor, 16" (diameter) ring die, 2.75" thick, hole pattern: 0.250" diameter, 1.75" effective zone, 1.00" taper zone





100% Alaska hemlock pellets



Physical Properties	<u>Sample A</u> 100% Hemlock 0% Spruce	<u>Sample B</u> 66.7% Hemlock 33.3% Spruce	<u>Sample C</u> 33.3% Hemlock 66.7% Spruce	<u>Sample D</u> 0% Hemlock 100% Spruce
Moisture Content (as tested)	5.79	6.83	5.39	7.84
BTU/lb (MC0)	8,406	8,545	8,504	8,585
BTU/lb (as tested)	7,919	7,961	8,045	7,912
Bulk Density (lb/ft³)	47.21	46.34	47.41	44.29
Ash (wt. %)	0.33	0.51	0.78	0.70
Durability Index	96.8	96.7	96.5	93.6
Chemical Analysis (as tested)				
Sulfur (wt. %)	0.010	0.008	0.009	0.008
Carbon (wt. %)	48.59	47.89	48.45	47.48
Hydrogen (wt. %)	5.50	5.42	5.49	5.40
Nitrogen (wt. %)	0.07	0.08	0.08	0.08
Oxygen (wt. %)	39.71	39.26	39.80	38.49
Chlorine (mg/kg)	<10	10	26	31

Testing conducted by Twin Ports Testing, Superior, WI. February 3, 2010

MYTH You can't make fuel pellets out of Alaska hemlock

This myth has been circulating around southeast Alaska for approximately two years, BUT it is NOT true.

With financial assistance from the Alaska Wood Utilization Center and the logistical support of Logging and Milling Associates this myth was officially

BUSTED!

on January 20, 2010



Wood Products Development Service

Daniel J. Parrent
Program Director, Wood Utilization Specialist
204 Signaka Way
Sitka, AK 99835
Tel: (907) 747-5688
E-mail: dparrent@ptialaska.net

Our mission is to help foster diversification and growth within Alaska's wood products and wood energy industries, thereby expanding the State's economy, improving the utilization of forest resources, and retaining and creating jobs.