Recycled Carpet
- and -
Clean Coal Technology
US Coal Numbers

13 – 38 – 458,600 – 27
You Mean You Didn’t Know?

- 13 - Percent of US where coal is found
- 38 - Number of States with coal
- 458,600 - Square miles of coal
- 27 - States where coal is mined
Waste Coal Fines

- A substantial source of energy
- Generated at coal mines and coal processing plants
- Over two billion tons in 700 impoundment sites
- 50 million tons added each year

Waste Coal “Gob” Pile
Two Billion

For what its worth -

It would take you more than 100 years to count to two billion, speaking at a normal rate without breaks.

That is if you don’t lose your place and have to start over!
The Coal Fines Problem

• Energy not easily tapped
• Handling, processing and burning problems
A Valuable Raw Material

• Billions of pounds of carpet are land-filled each year
• A fraction of that carpet is recycled
The Reese’s Cup Equation

Recycled Carpet + Coal Fines = KeLa Engineered Fuel
Not to be Land-Filled
KeLa Engineered Fuel

- A coal derived, synthetic fuel made up of coal fines, binding materials, and biomass.
KeLa Engineered Fuel

• Engineered to meet the needs of the customer in terms of emissions, Btu value, biomass content, and size.
KeLa Engineered Fuel

- Utilizes a readily available stream of recycled and renewable waste materials – waste coal fines, renewable biomass and recycled binder components.
Clean Coal Technology

KeLa Engineered Fuel Compared to Coal

• Lower $\text{SO}_x$ emissions.
• Lower $\text{NO}_x$ emissions.
• Lower VOC’s.
• Reduction in total HAP’s emissions.

The quality of the coal, amounts of binder and amounts of biomass determine the final reductions. Reductions have been documented by independent testing based on EPA methodology.
Burning Characteristics

- Easier to ignite than coal.
- Produces less smoke on start-up than coal.
Burning Characteristics

- Btu value equal to or greater than coal.
- Higher combustion efficiency. Significantly less unburned carbon in ash.
The KeLa Process ©

• Combines recovered coal fines and renewable biomass using a binder based on recycled materials.
• Process lowers the moisture content of produced fuel.
• KeLa Engineered Fuels are not affected by water or moisture.
• Higher hydrogen content than coal.
The KeLa Process©

- Coal or Biomass Particle
- Fiber Reinforcement
- Adhesion Point
- Encapsulated Particle
Handling & Storage

- KeLa Engineered Fuel is not affected by water.
- Can be stored outside like coal.
- Does not pick-up water when stored outside.
Handling & Storage

- Transported, stored, and handled like coal. Requires no special equipment.
- Does not foul production equipment.
- Does not produce dusty residues.
The Benefits

- Renewable & Recycled Content
- Lower Emissions
- Higher Btu Value

Value
KeLa Energy Company Status

- First commercial plant currently under development.
- Plant One will produce in excess of 125,000 tons of KeLa Engineered Fuel per year.
- Plant One will consume in excess of 6,600 tons (13.2 million pounds) of post consumer carpet per year.
- Additional larger plants being planned.
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