



CITY OF KEENE & Biodiesel

It all started six years ago with a small grant for the State of NH to offset the cost of B-20 biodiesel. Since then the City has used over 250,000 gallons of B-20.

BIODIESEL B-20 - THE REASONS:

- Runs in Existing, unmodified engines
- INTEGRATES WITH EXISTING FUELING INFRASTRUCTURE
- INCREASES LUBRICITY
- CUTS EXHAUST EMISSIONS, ELIMINATES BLACK SMOKE AND ODOR – Just ask my mechanics!
- HIGHER FLASHPOINT THAN PETROLEUM DIESEL
- BIODEGRADABLE
- RENEWABLE SOURCE OF ENERGY
- LOW-RISK SIMPLE TO PHASE IN AND OUT OF USE

BIODIESEL IN KEENE- the facts

- Total diesel fleet using B-20.
 - 68 vehicles and equipment.
 - No problems have been reported.
 - 200,000 gallons for the City have been burned since July 1,2002.
 - This Equipment includes the Highway Department, Parks and Recreation and Emergency services.
- One of the many pieces of equipment burning Biodiesel



Biodiesel- Keene NH

- As well as :
- The City of Keene's ladder truck
- It is busy keeping Keene safe.
- It uses B-20 and is very dependable! (except when being serviced as seen here)



Biodiesel – Keene NH

So what engines do we
use B-20 in:

International

Case New Holland

Cat John Deere

Cummins Detroit

& Kohler

from a 1969 Ingram roller
to a 2007 Ford F450



Who else uses B-20 ?

- Cranmore Mountain Ski area, City of Denver Co., & Yellowstone National Park
- Keene State College, Bangor, Maine, Harvard University, Cape Cod Regional Transit Authority and the City Express bus system in Keene, NH

Health benefits

- Operators have stated that the headaches they would get from operating equipment with 100% diesel have gone away while operating equipment with B-20. In an air quality study done at the Keene transfer station the PM2.5 particulate matter was reduced by over 50% !
- Let's hear more.

Diesel Engines and Air Quality

Diesel engines - MAJOR environmental and public health concern

- Oxides of Nitrogen or NO_x;
- Fine particulate matter
- A complex mixture of **volatile chemicals**
(carcinogens or respiratory damaging agents)

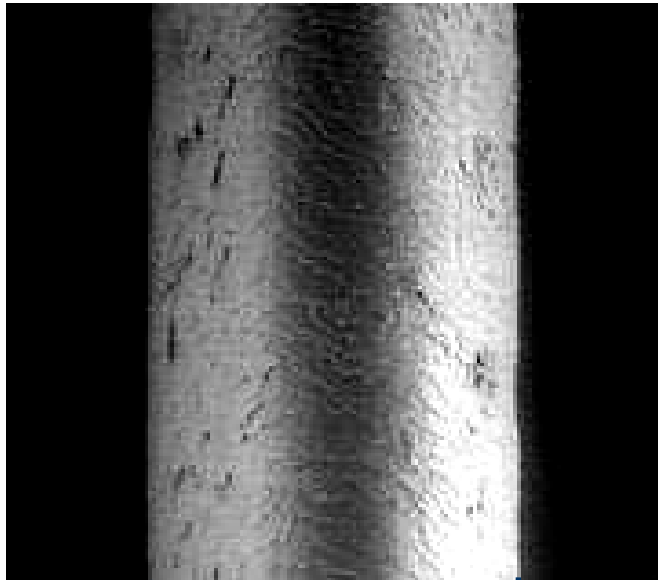


Downtown LA, 4/29/2004

Source: MSNBCmedia.msn.com

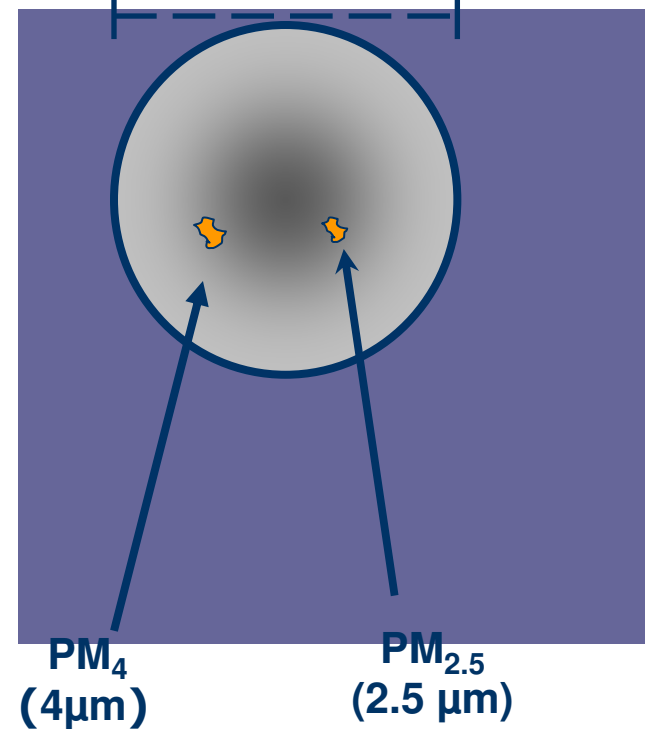
What are Fine Particles?

A complex mixture of extremely small solid particles and drops of liquid in the air

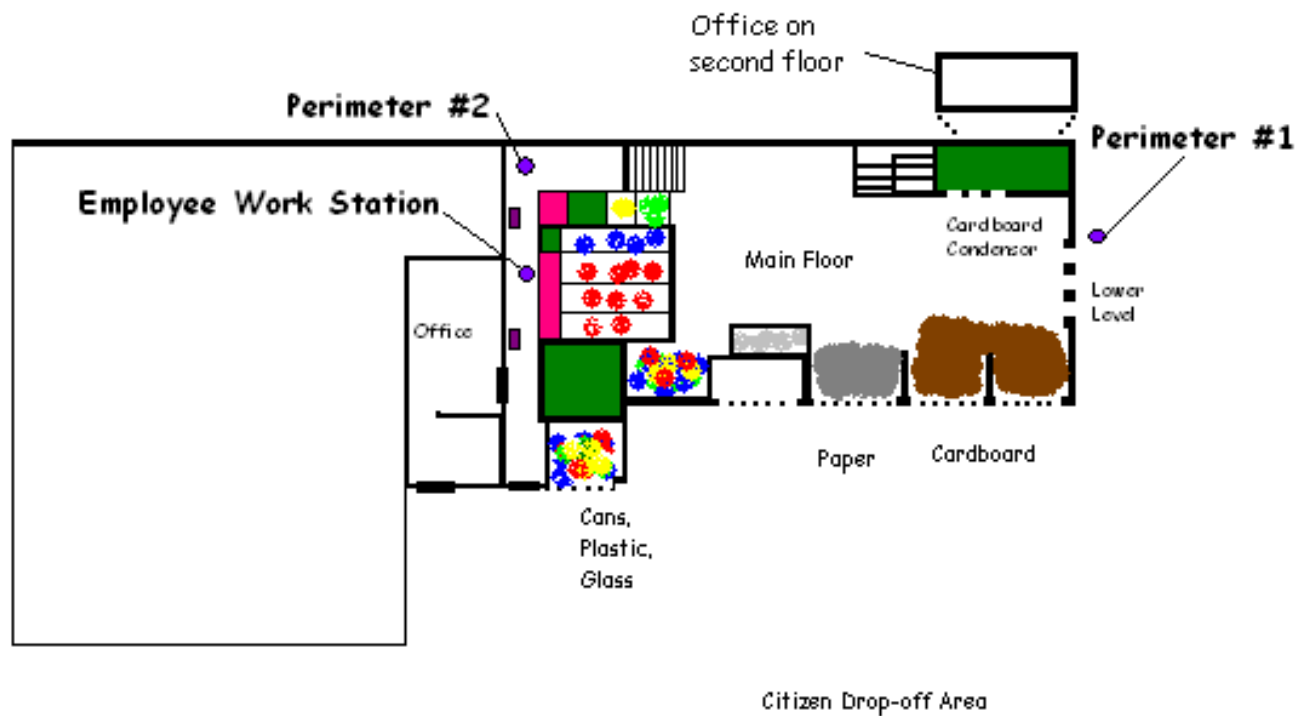


Human Hair (45 - 130 μm diameter)

Hair cross section ($\sim 70 \mu\text{m}$)



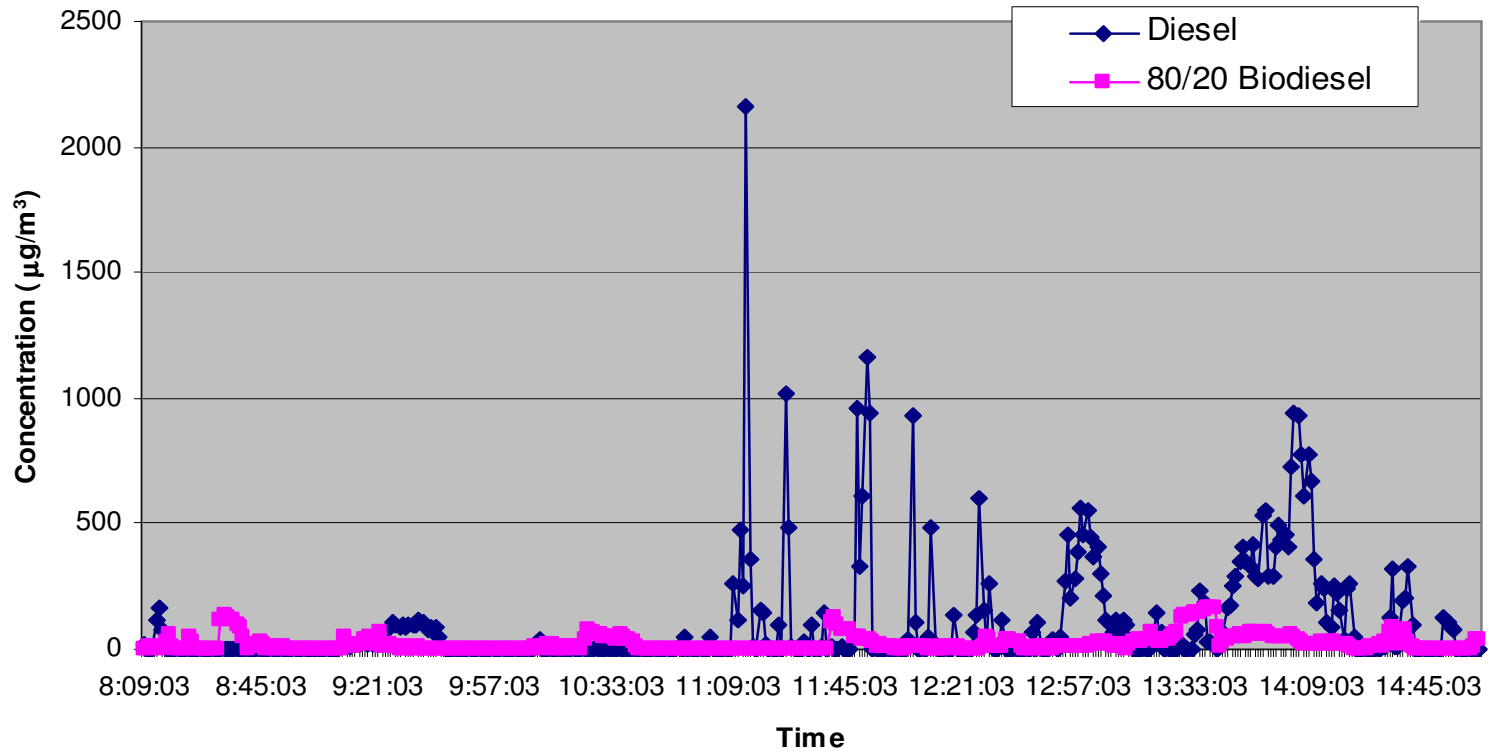
City of Keene Recycling Center



MUNICIPAL FACILITY

Health effects-Study at Keene RC

Perimeter #1, PM_{2.5} Concentrations, Keene Recycling Center



Biodiesel and Warranties!

- **John Deere Clarifies Position on Use of Biodiesel**
- ***Engine Models through Tier 3/Stage III A Can Use B20 Biodiesel Blends***
- While 5 percent blends (B5) are preferred, biodiesel concentrations up to a 20 percent blend (B20) in petroleum diesel fuel can be used in John Deere engines through Tier 3/Stage III A models, including all non-emissions-certified engines. Biodiesel blends up to B20 can be used only if the biodiesel (100 percent biodiesel or B100) meets ASTM D6751 (U.S.), EN 14214 (EU) or equivalent specification. Biodiesel users are strongly encouraged to purchase biodiesel blends from a BQ-9000 Certified Marketer and to source from a BQ-9000 Accredited Producer, as certified by the National Biodiesel Board. Certified Marketers and Accredited Producers can be found at www.bq-9000.org.



How is Biodiesel in cold weather ?

Keene had many weeks of below zero temperatures and performance was not compromised. The key to good cold weather performance is to make sure that the Bio portion of the biodiesel is winter blended.

Biodiesel and the environment.

- Are we really helping the environment?
- Use of Biodiesel in the Cities 68 trucks and equipment means 417 tons of CO₂ is eliminated each year it is used.

BIODIESEL IN KEENE

- It is working and Keene has cleaner air because of it.
- Contact Info:
srussell@
ci.keene.nh.us



Keene & Biodiesel

- The Day B-20 was put in the tank in the City we reduced our dependency on Foreign oil by 20 Percent !!!!!!!

AND Biodiesel B-20

- IS THE RIGHT THING TO DO!

Biodiesel and cold weather

- ***Biodiesel Antigels “Power Service” statement on biodiesel:***
- Biodiesel fuel is a type of diesel fuel made from soy or reprocessed vegetable and/or animal cooking oils. Biodiesel is typically blended with No. 2 diesel fuel in percentages ranging from 2 percent to a maximum of 20 percent. Biodiesel immediately and seamlessly transforms a diesel fleet into a cleaner-burning, alternatively fueled fleet without added investment in infrastructure. However, cold-weather operational problems have limited its use during winter months. Power Service Arctic Express Biodiesel Antigels eliminates the cold-weather operational problems associated with the use of diesel fuels containing up to 20 percent biodiesel (B20).

B-20 and its fuel characteristics

- No loss of power
- Increase in fuel mileage reports of 1 to 2 additional miles per gallon running B- 20
- With proper fuel additive no problems with gelling reported.
- Warranties are not voided despite all the rumors
- Manufacturers warranty their parts and workmanship
- not FUEL!

Biodiesel – Keene NH-It's use!

So what equipment uses B-20 in Keene?

- 2004 Holder is running on B-20 and the operators like it!



And the question is: Can you burn B-100 ?

Just ask Keene State College and their answer is a resounding YES!. In warm weather they use B-100 in all their equipment on campus. Best thing they ever have done for CLEAN AIR!

