



MDEC – Roundtable Forum – October 7th 2011

Advanced Engines and Fuels

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Review

- 2011 MDEC conference explored the health effects of diesel emissions, its toxicology and monitoring methods.
- Discussion around the technologies and advances to address concerns.
 - Engine Mechanics and technology approach
 - Fuel Additives
 - Biofuels
 - Lubrication oils

Engine Mechanics and technology approach

- Engine manufacturers working on integral designs for Tier 4 certifications.
- Highly dependent on electronics and sensors to function efficiently
- Integrated solution more compact but comes with a much higher initial price tag than engine only.
- Older product can be “updated” with aftermarket product but cannot be certified and requires additional management controls.
- Hydrostatic drives becoming more popular in order to find more real estate for the larger engine package.

Fuel Additives

- Search for additives that claim reduced fuel consumption.
- Some companies make a serum additive claiming 1% reduction used successfully (tug boats)
- Possible neg. side effects as additives can be abrasive due to metals being used.
- EPA reluctant to approve anything with metals and UGM requires only EPA approved fuels to be used. Canada federally regulates additives.

Biofuels

- B80 tried but results in reduced maintenance periods (250 hrs → 100 hrs).
- More susceptible to variation.
- Mercedes Benz reverting back to B7 for Tier 4
- Advantage of BioDiesel disappear with aftertreatment (from an emissions standpoint)
- Some evidence also suggesting biodiesel emissions more toxic.

Lubrication oils

- SJ4 oils will have to be used for next generation engines.
- With DPF's the low ash oil is needed and older engines will also need to use this oil.
- Changes in engines, oils and fuels have contributed significantly to ensuring the smooth running of the systems.