

# Impact of RME on Nanoparticle Emission

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## Tested fuels blends with RME :



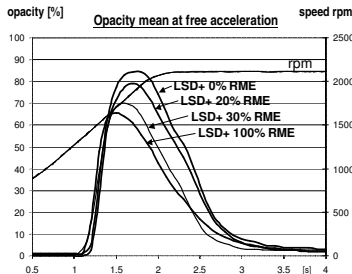
### Chassis dynamometer:

1. Diesel (S < 50 ppm)
2. Diesel + 15% RME
3. Diesel + 50% RME
4. Diesel with CRT
5. Diesel + 15% and CRT
6. Diesel + 50% and CRT



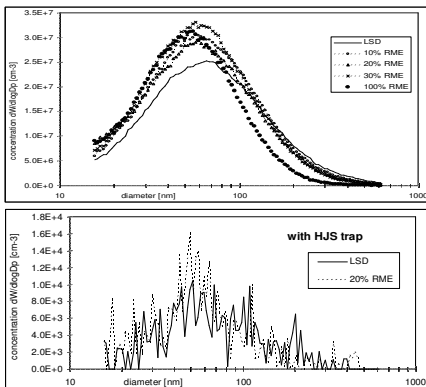
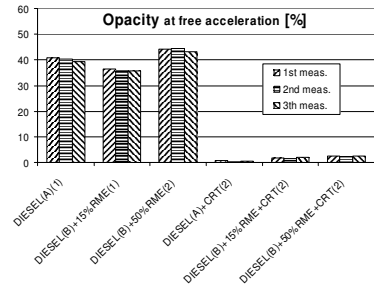
### Engine dynamometer:

1. Diesel fuel (S < 10 ppm)
2. Diesel + 10% RME
3. Diesel + 20% RME
4. Diesel + 30% RME
5. 100% RME
6. Diesel + 20% RME + CRT



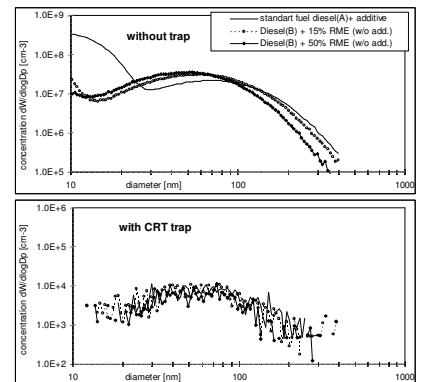
## Opacity

Smoke emission: noticeably diminished black smoke and opacity, both steady-state and transient conditions, improving with larger RME content.



## SMPS

Particle size distribution: consistent curtailment of particles larger than 80 nm but some increase, at all operating states, of particles smaller than 80 nm.



## OVER RESULTS

CO & HC:	contradicting other publications, no significant improvements by RME at any operating conditions.
PM:	minor influence at higher loads but big increase at low-loads when using 100% RME.
EC share of the PM:	significantly less than for diesel fuel, decreasing with increasing RME-content.
OC share of the PM:	much more than with diesel fuel and increasing with RME content.
PAH:	little influence with RME blends but 100 % RME shows a distinct increase of PAH-concentration and total PAH emission in particular at high engine loads.
DPF:	The filtration efficiency and the operating response of the CRT traps are unaffected by blending RME into the Diesel fuel.
Fuel consumption:	Insignificant effect of small RME content. Higher blends and 100% RME cause more specific fuel consumption g/kWh, due to RME's lower calorific value.