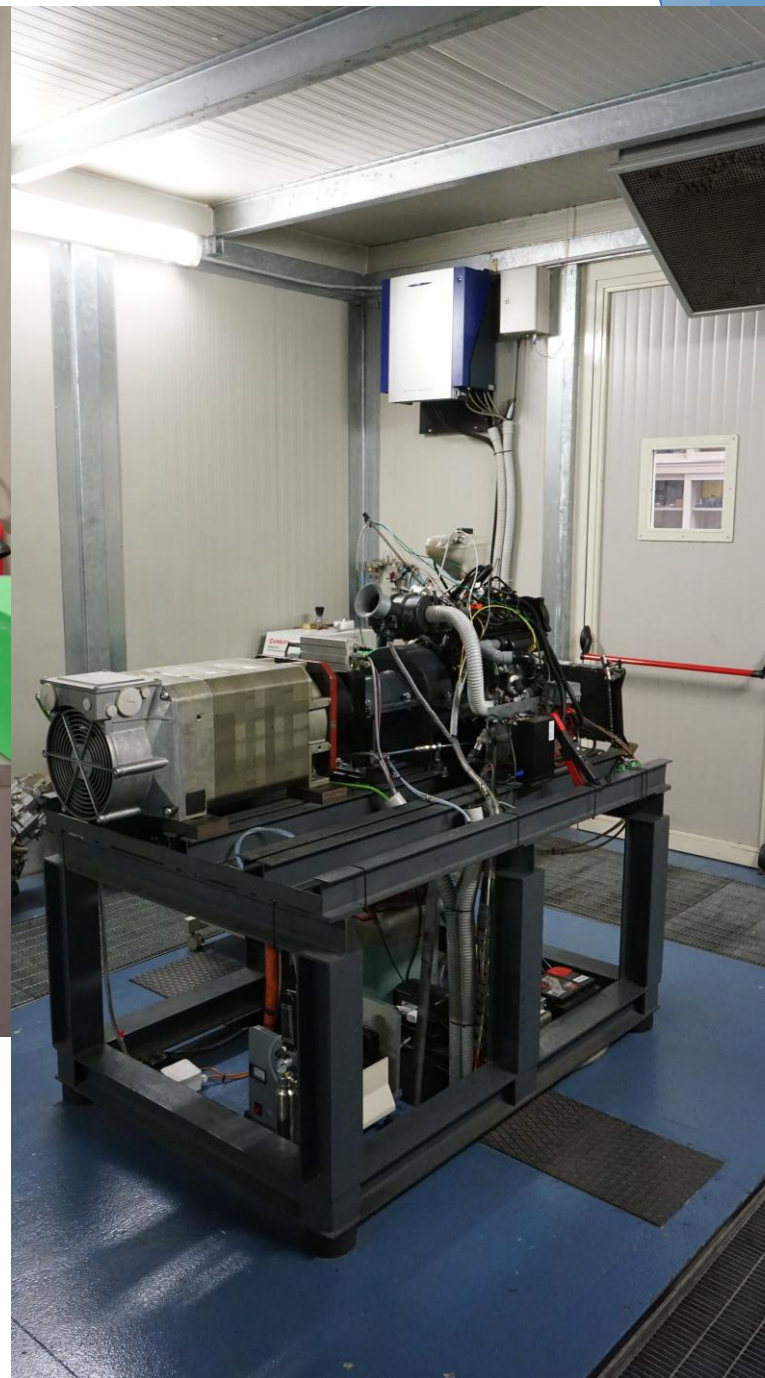
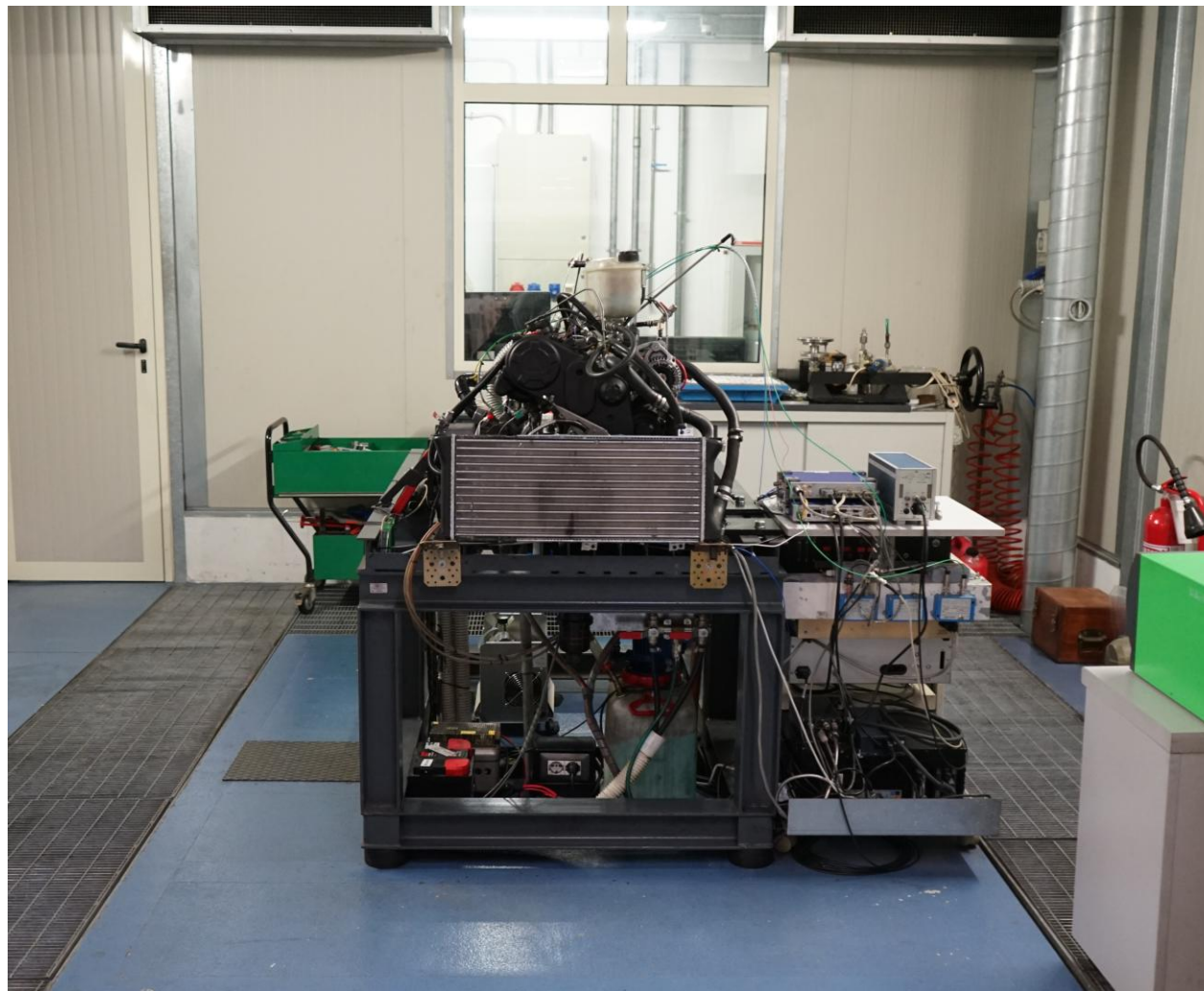


EXPERT PANEL FOR POLLUTING EMISSIONS REDUCTION EXPAPER 2026

Caratterizzazione delle prestazioni ed
emissioni di combustibili rinnovabili
alimentati in purezza e in blend con
biodiesel da diversi feedstock

Ornella Chiavola - Erasmo Recco

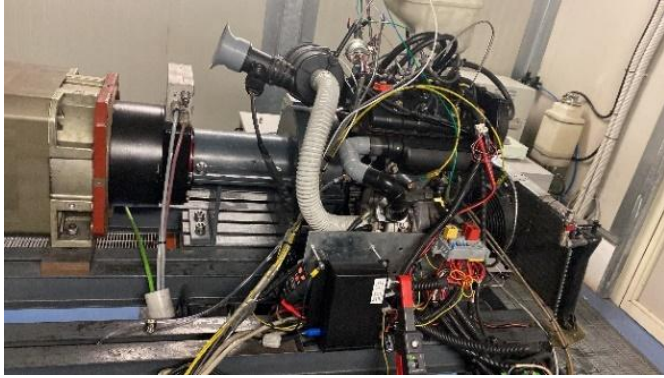
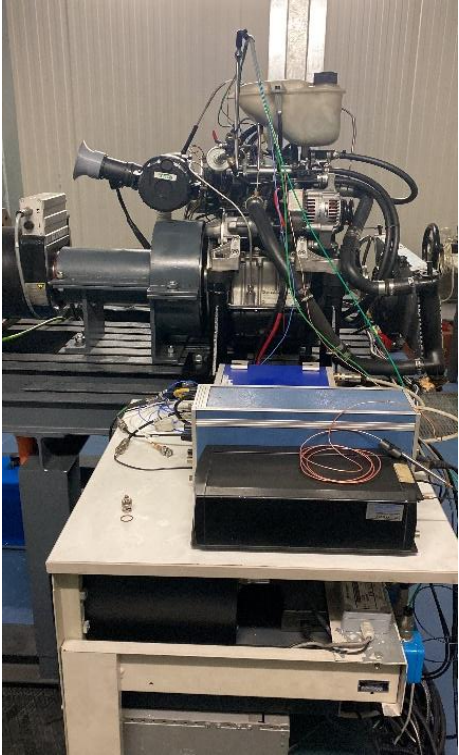


EXPAPER 2026 – 22-23 Aprile – Univ. ROMA TRE

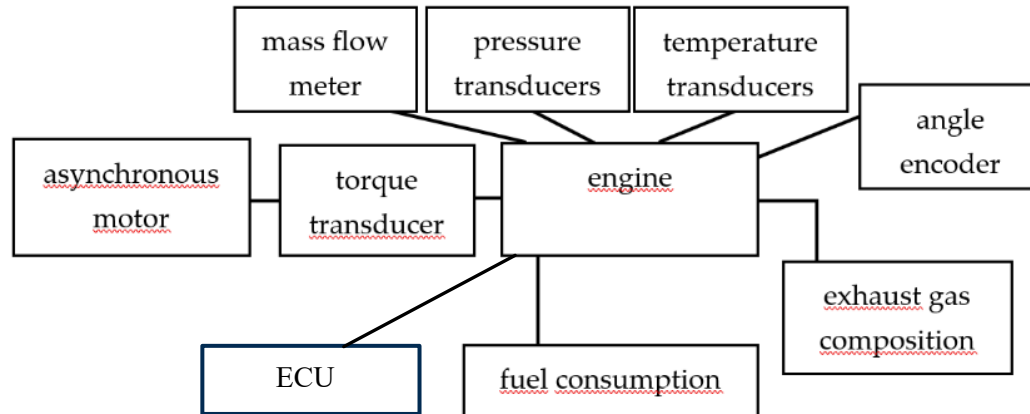




EXPAPER 2026 – 22-23 Aprile – Univ. ROMA TRE

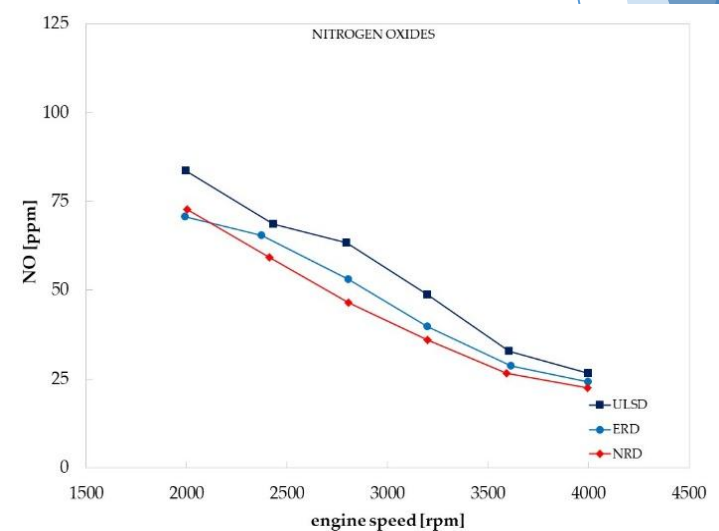
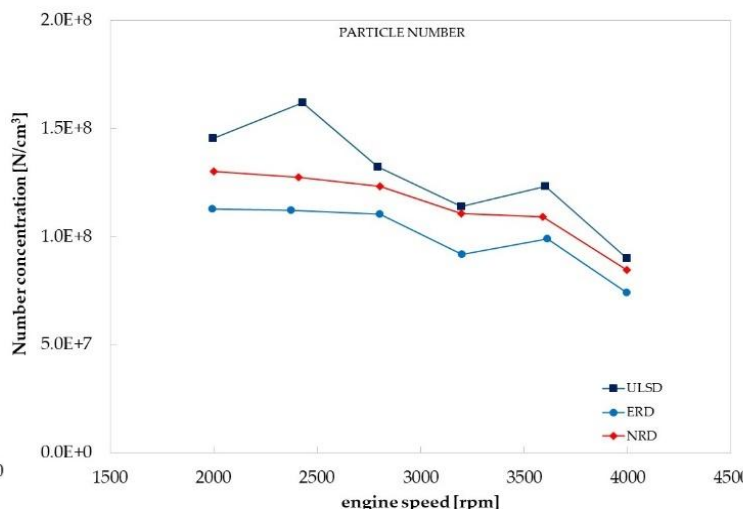
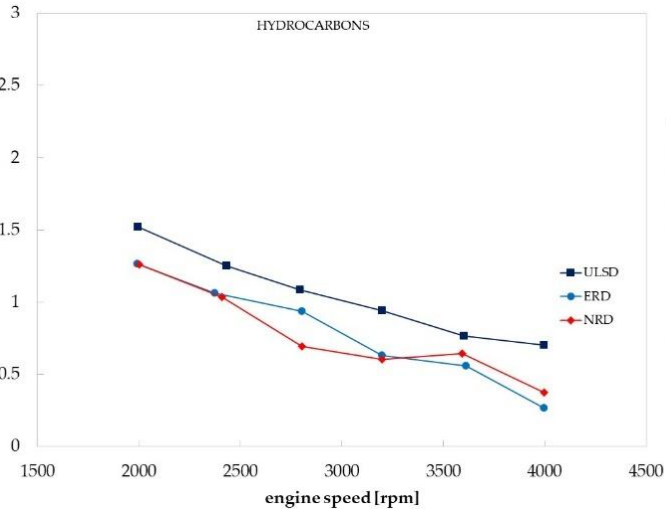
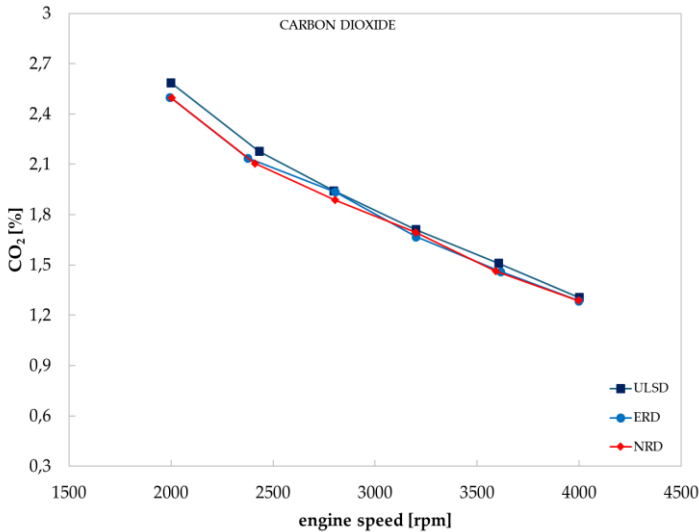
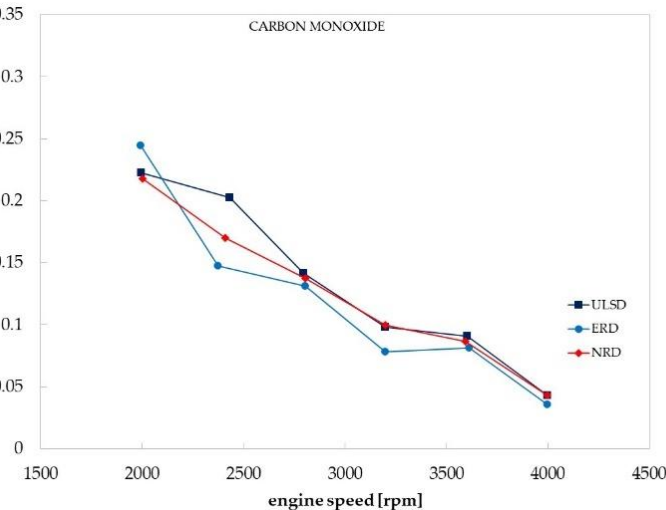


Cylinders	2
Displaced Volume	440 cc
Bore	68 mm
Stroke	60.6 mm
Compression ratio	20:1
Rated torque @ engine speed	21 Nm @ 2000 rpm
Rated power @ engine speed	8.5 kW @ 4400 rpm
Injection system	common rail





MY Renewable Diesel produced by NESTE Oil via the NEXBTL™ technology (NRD) HVOlution produced by ENI via the Ecofining™ technology (ERD) [.../kW]



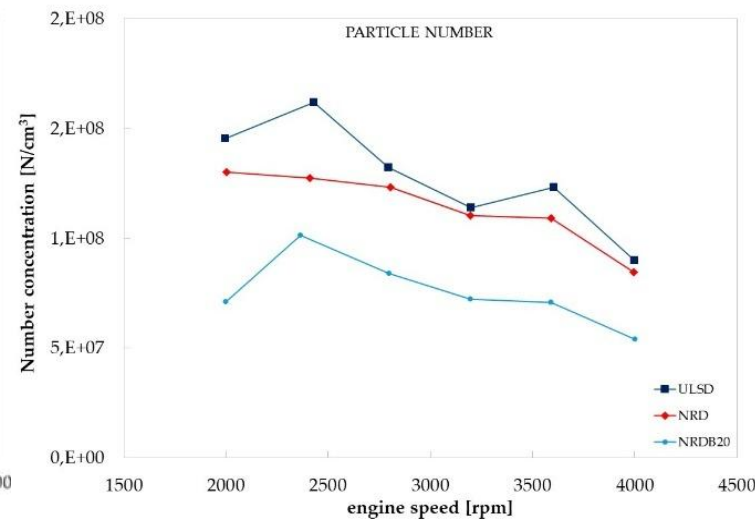
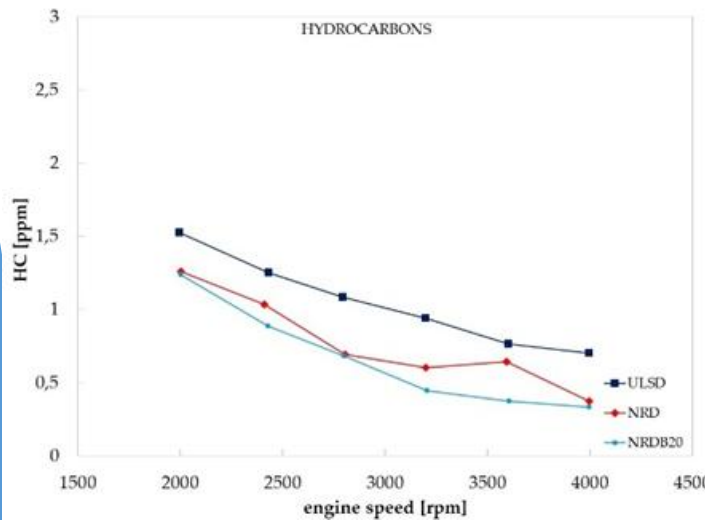
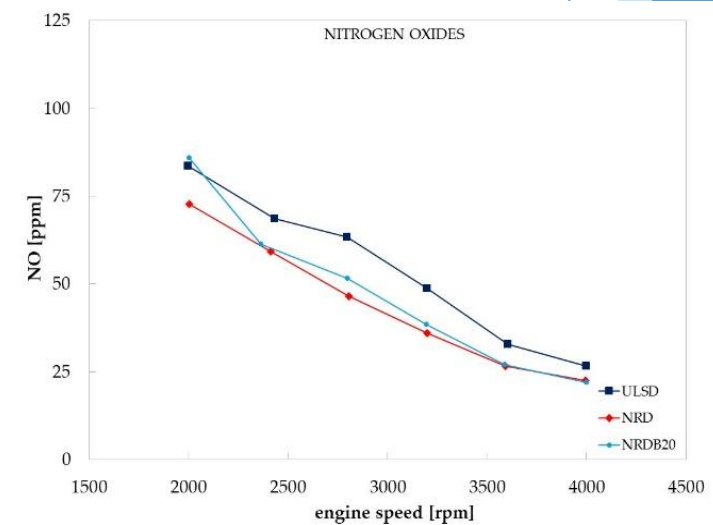
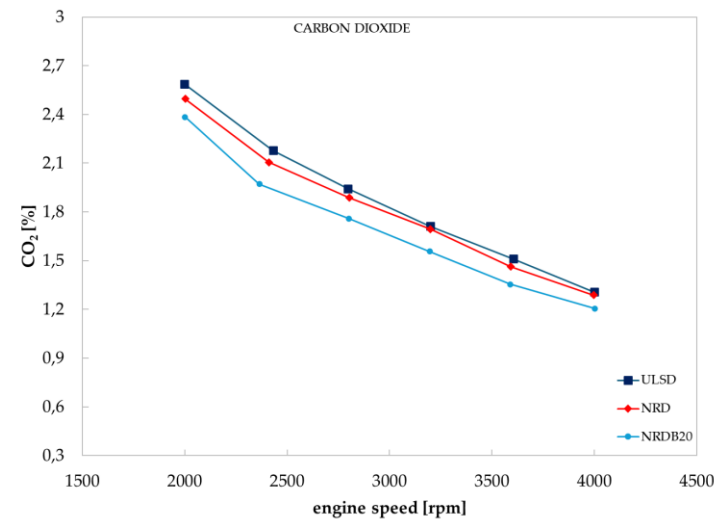
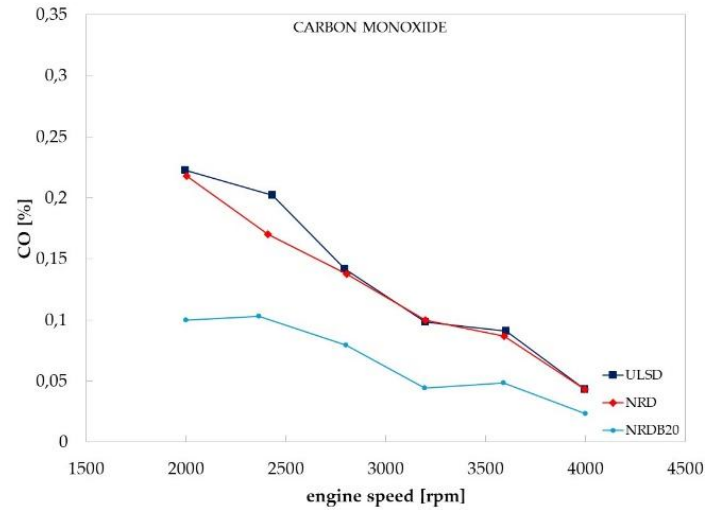
Property	Ultra-Low-Sulfur Diesel	Renewable Diesel, ERD	Renewable Diesel, NRD
Density [kg/ m³ at 15 °C]	830	770	780
Lower heating value [MJ]/kg]	43.1	44.3	44.4
Viscosity [mm²/s at 40 °C]	3.5	2.6	3.2
Cetane number	52	79	>70

Chiavola, O.; Matijošius, J.; Palmieri, F.; Recco, E. Engine and Emission Performance of Renewable Fuels in a Small Displacement Turbocharged Diesel Engine. *Energies* **2024**, *17*, 6443.

MY Renewable Diesel produced by NESTE Oil via the NEXBTL™ technology (NRD)

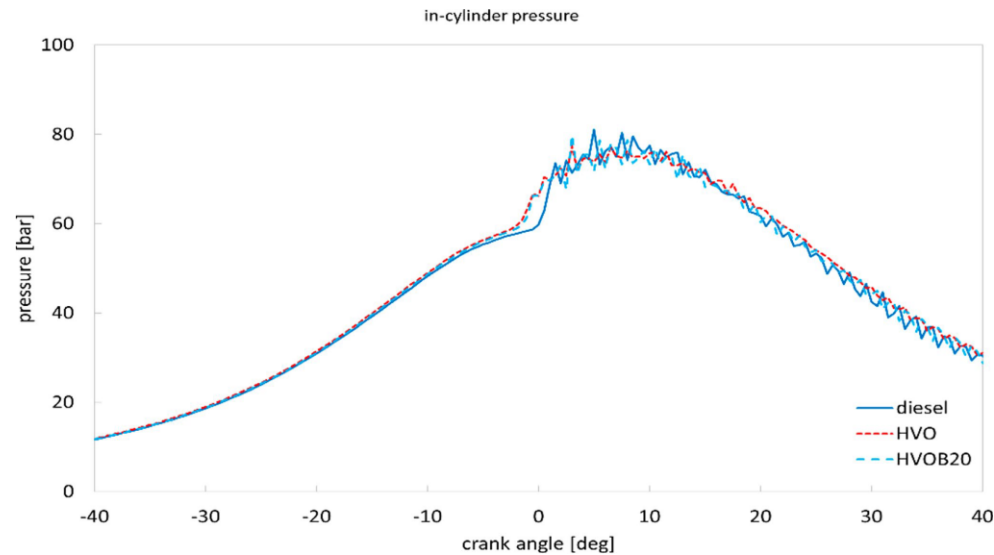
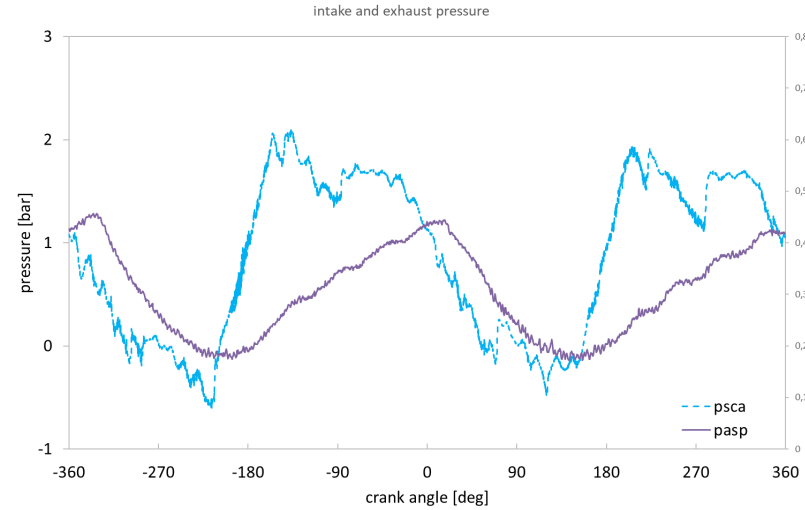
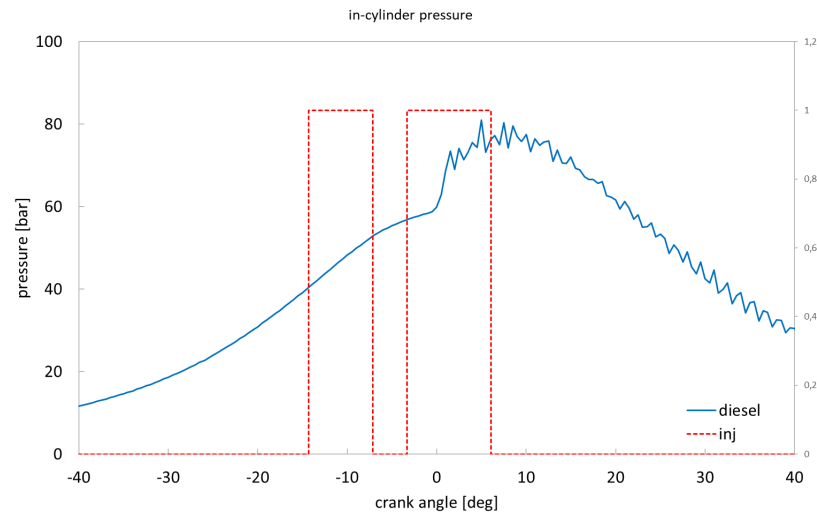
MY Renewable Diesel + Biodiesel from animal fats and waste cooking oil (NRDB20)

[.../kW]

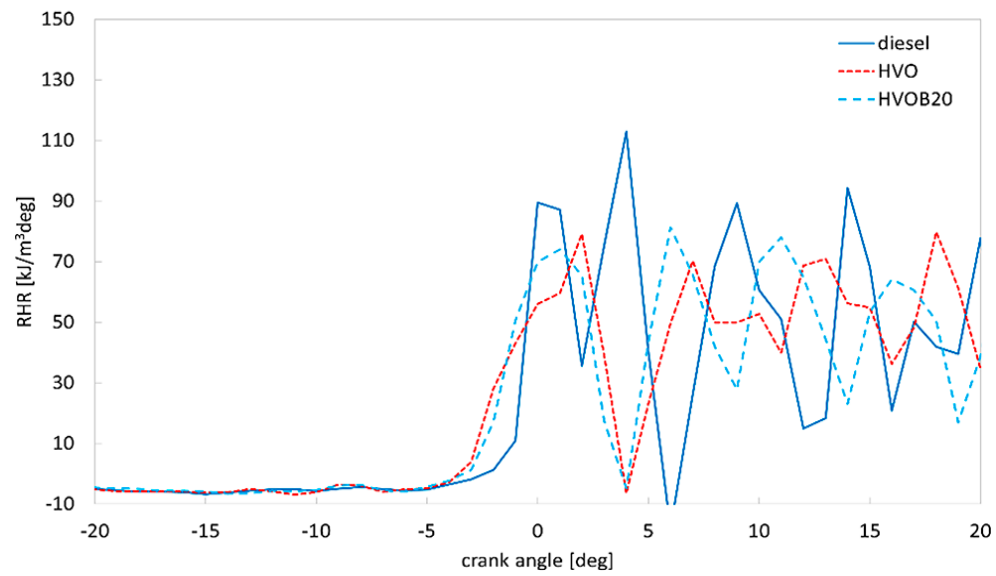


HVOlution produced by ENI via the Ecofining™ technology (ERD)

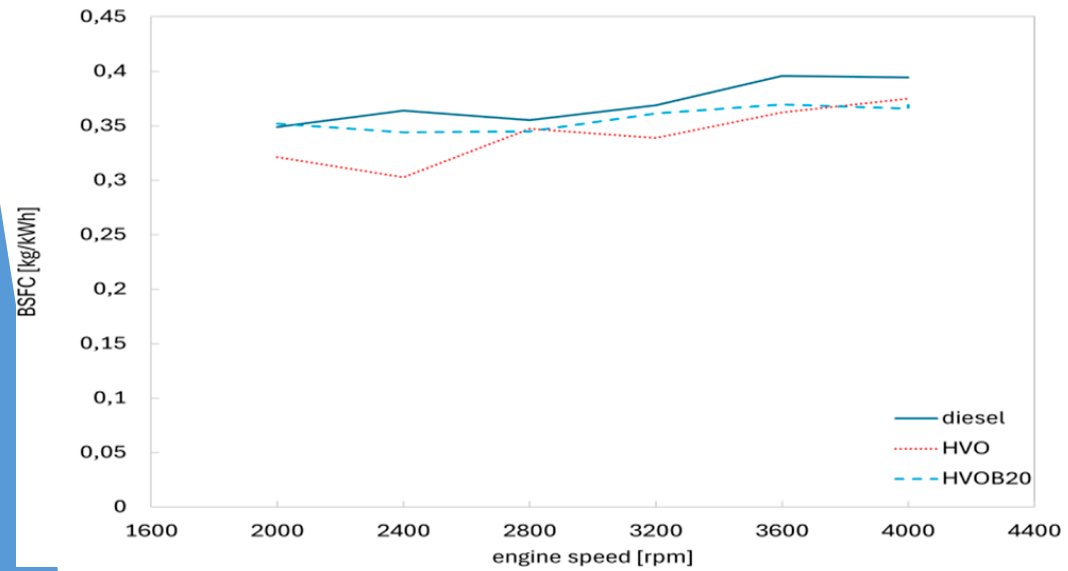
HVOlution + Biodiesel from animal fats and waste cooking oil (HVOB20)



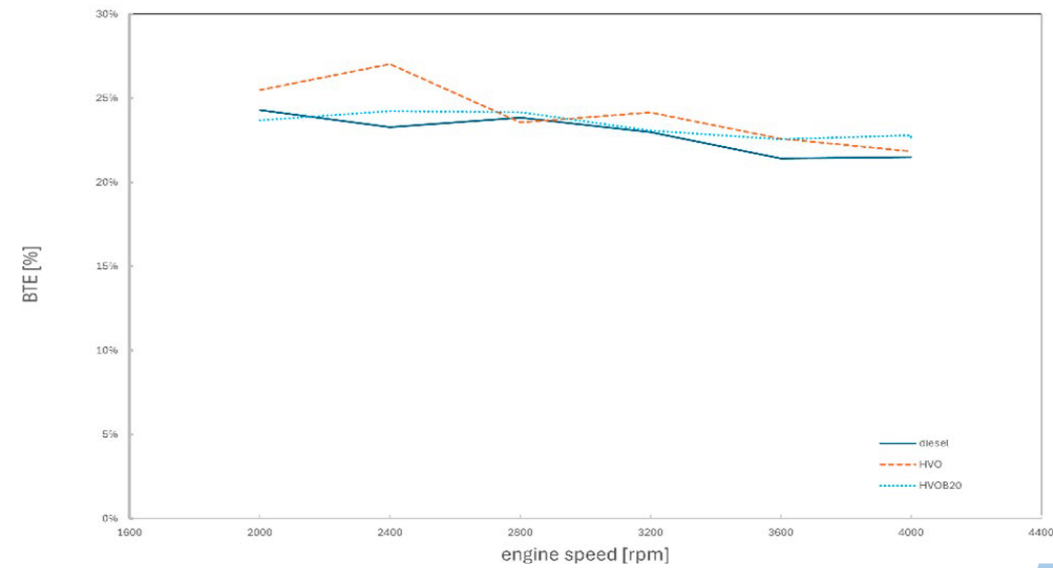
rate of heat release

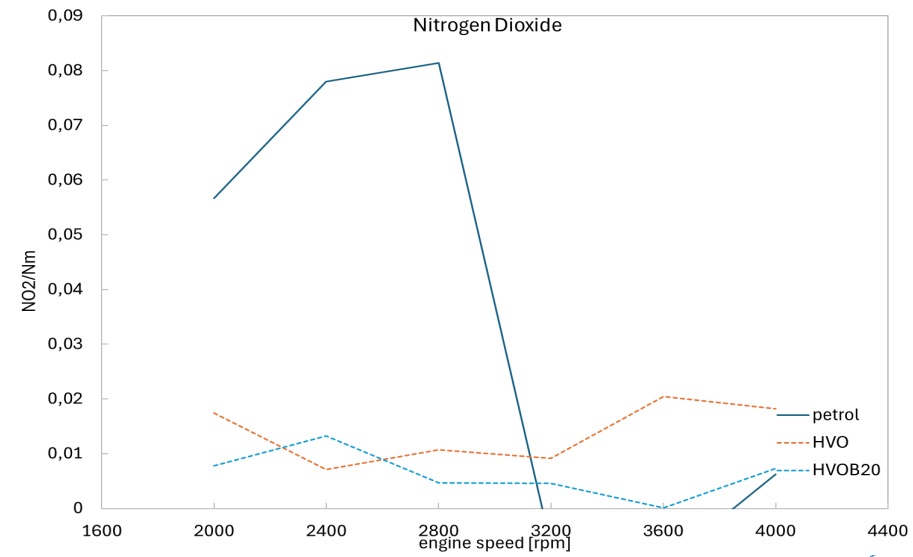
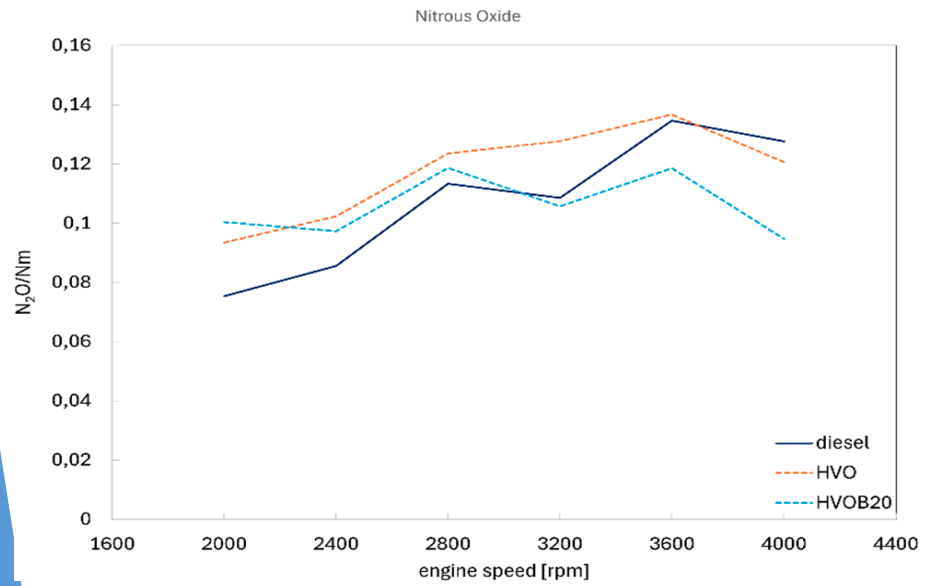
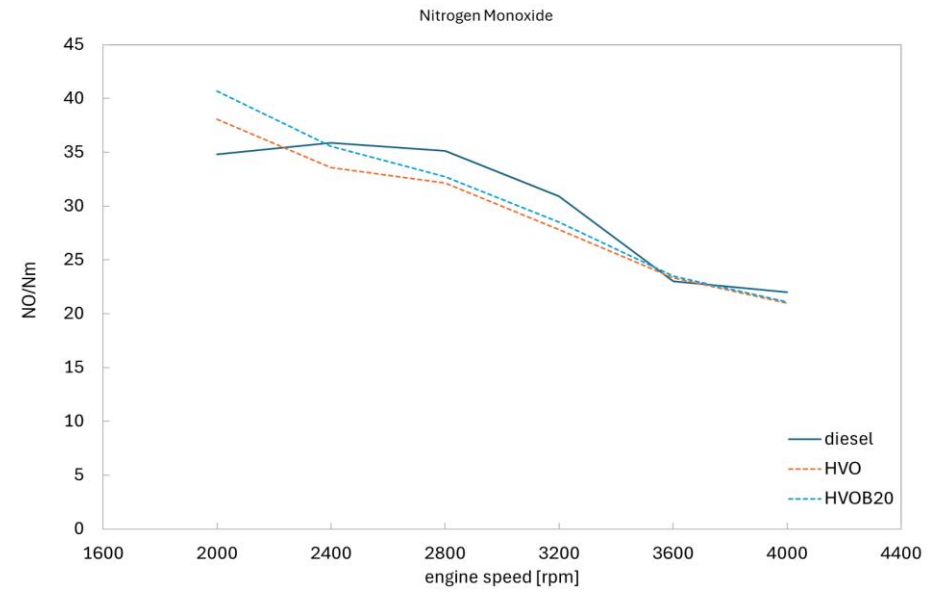
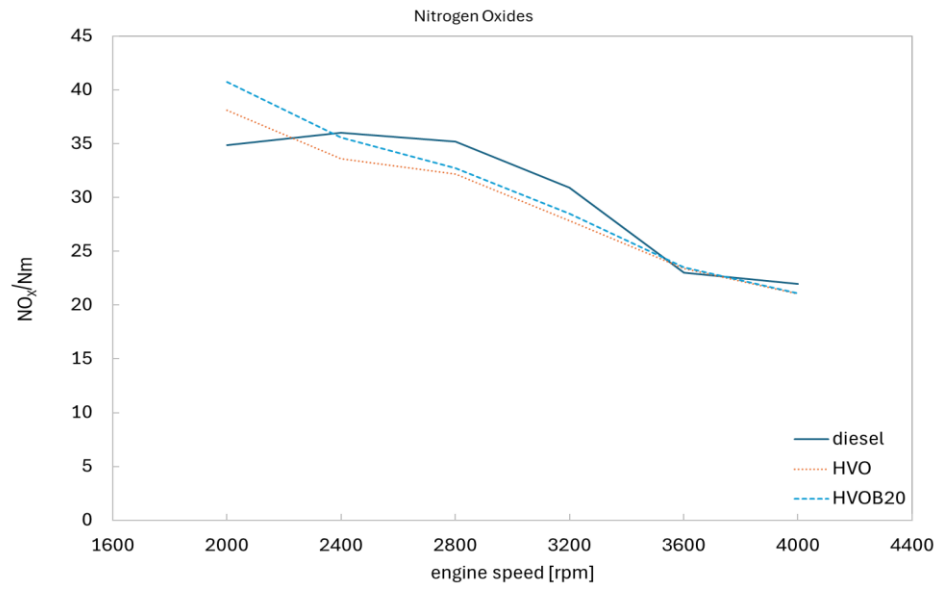


brake specific fuel consumption

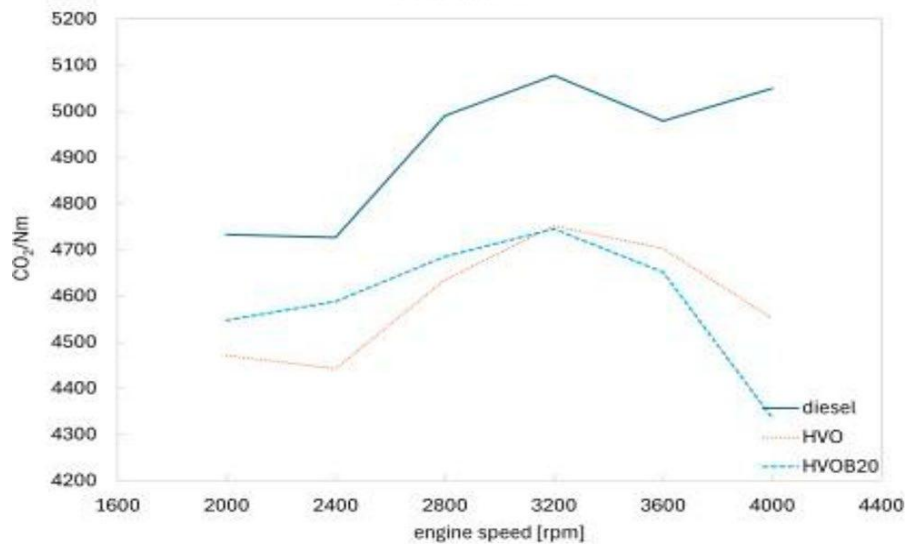


brake thermal efficiency

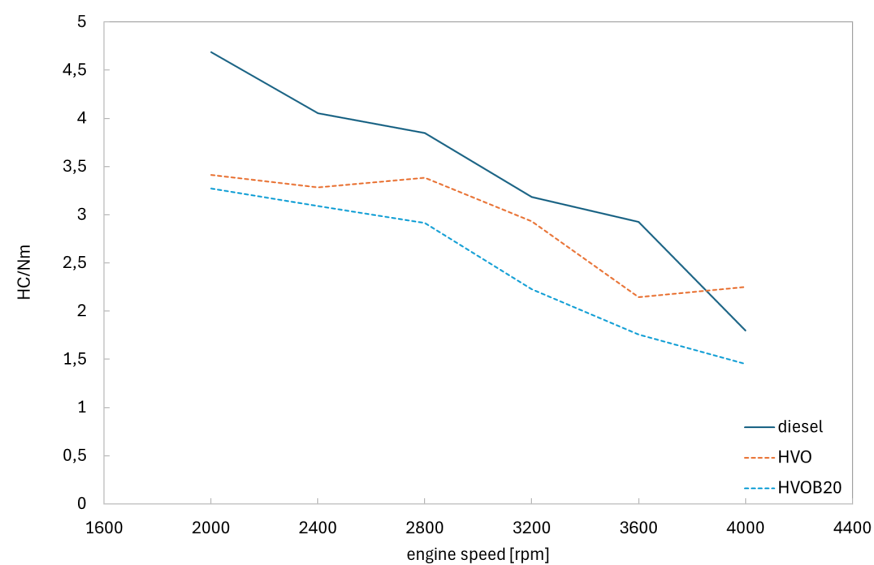




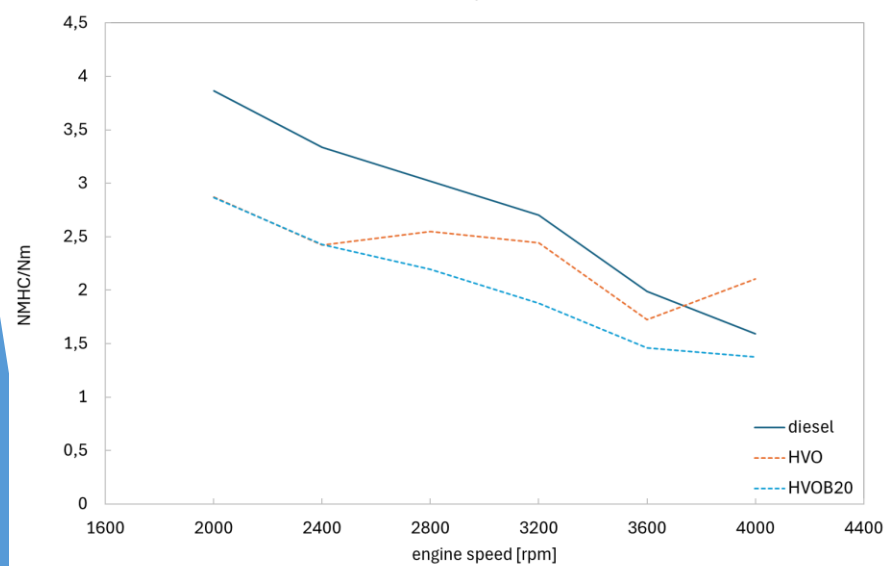
Carbon Dioxide



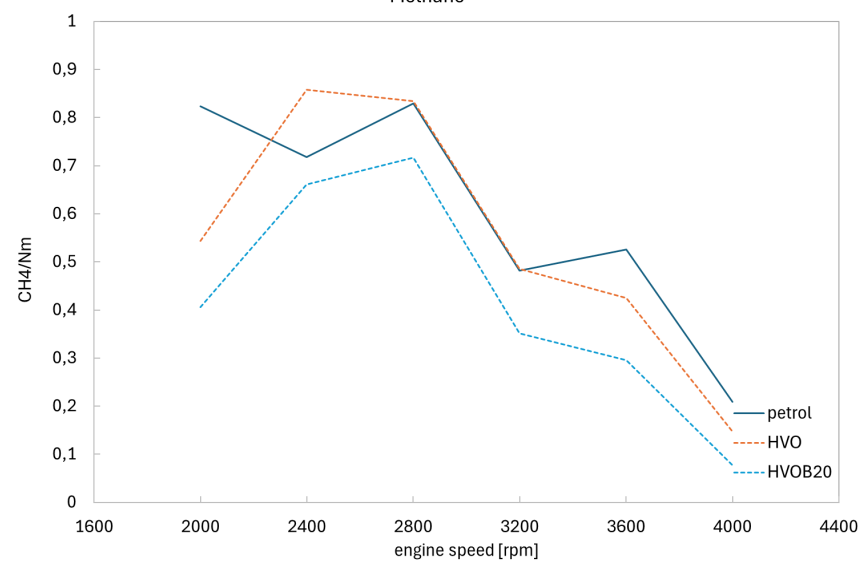
Hydrocarbons

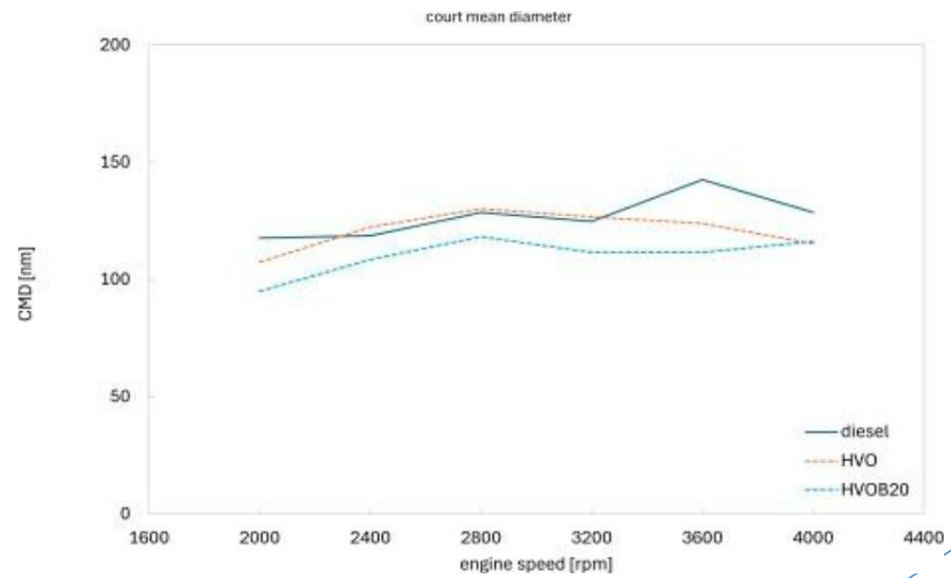
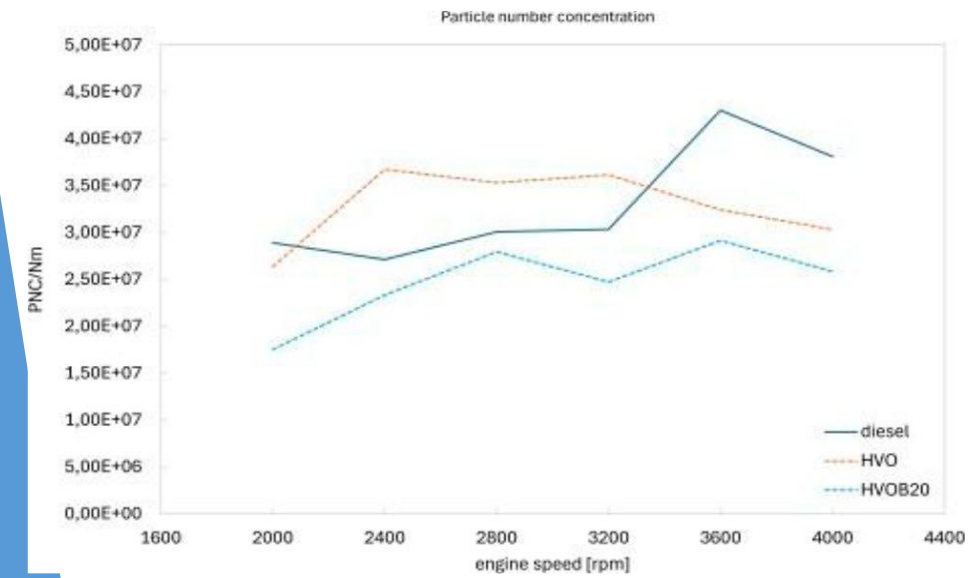
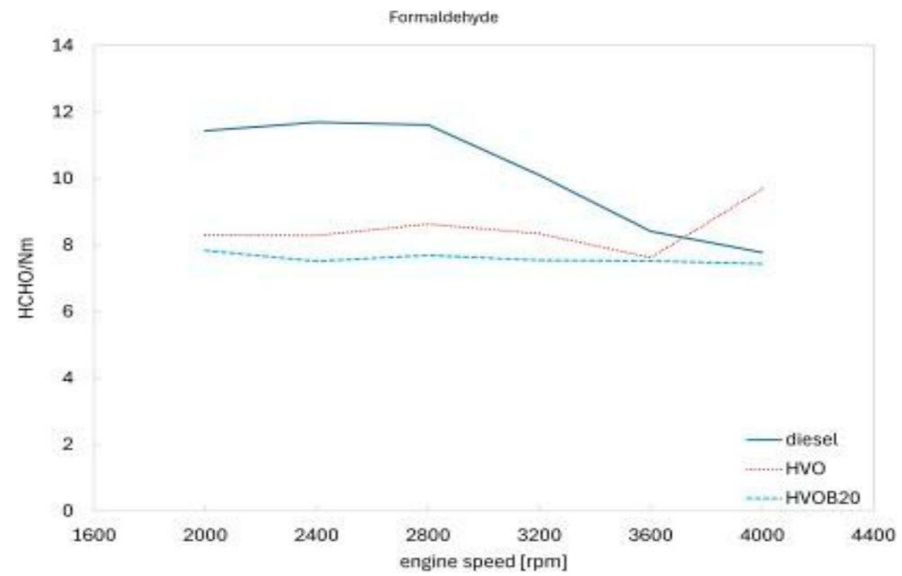


Non -Methane Hydrocarbons



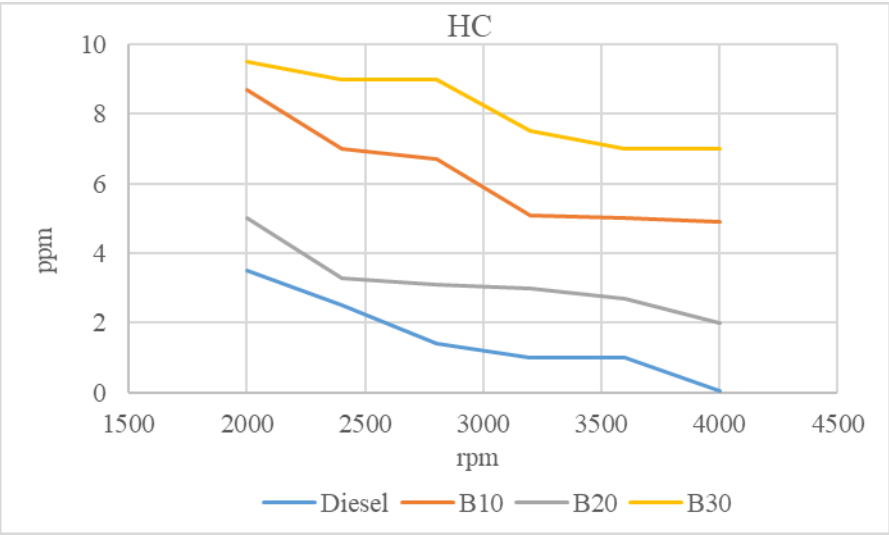
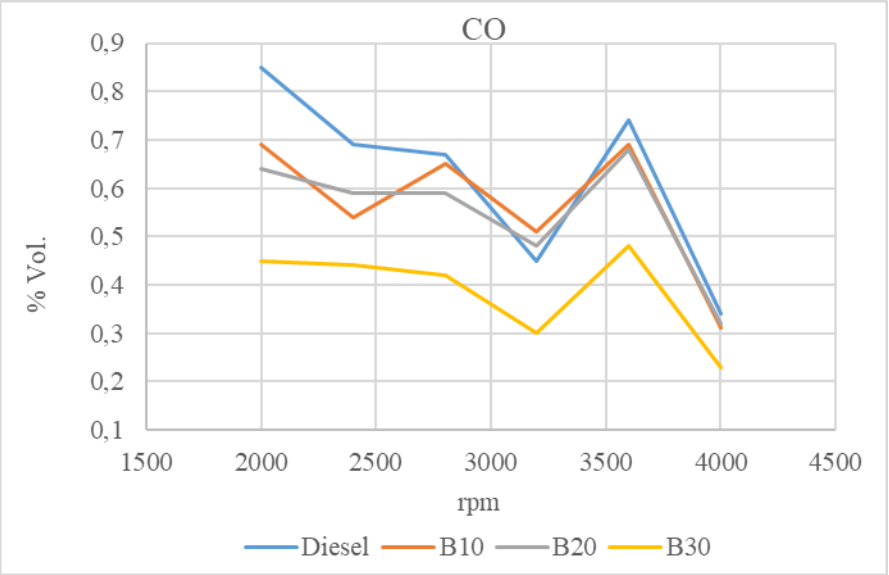
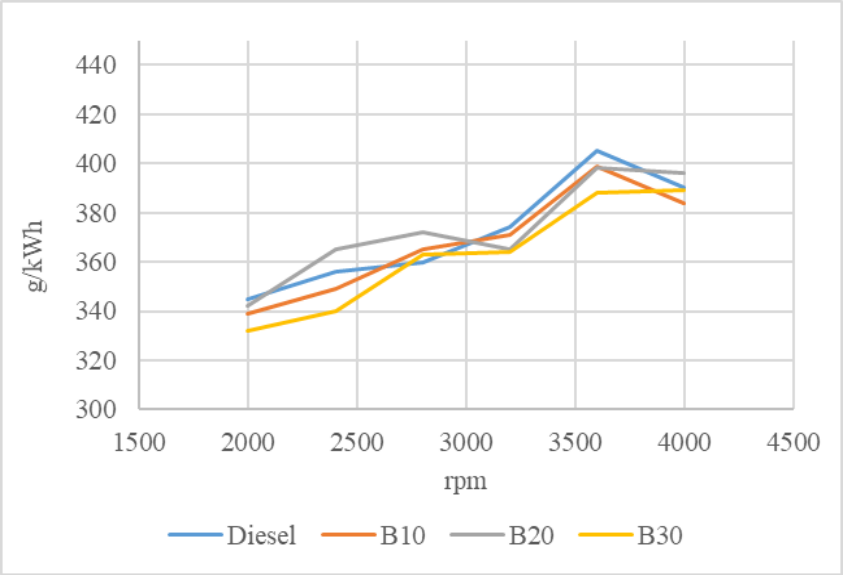
Methane





Petrol Diesel

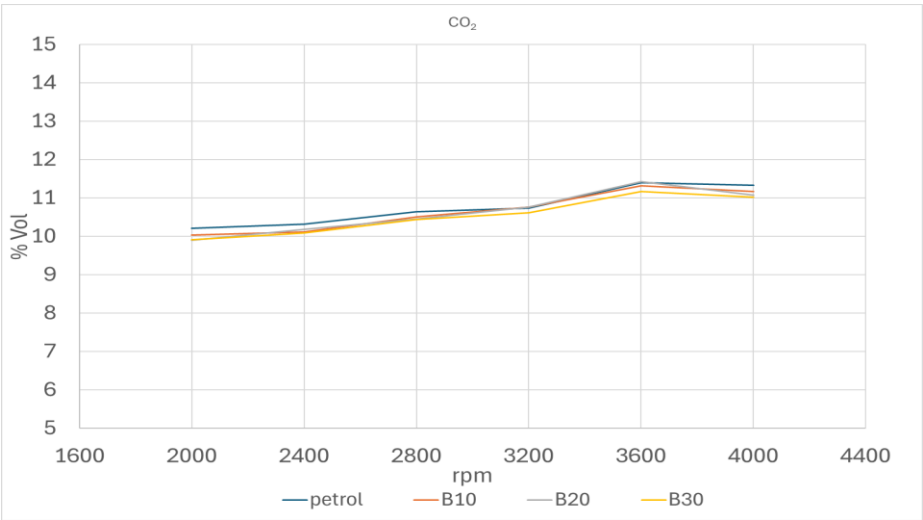
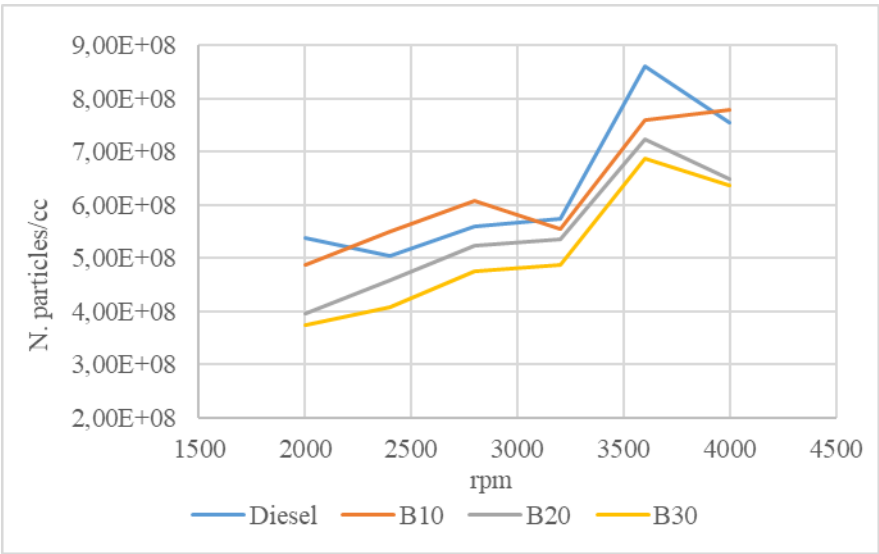
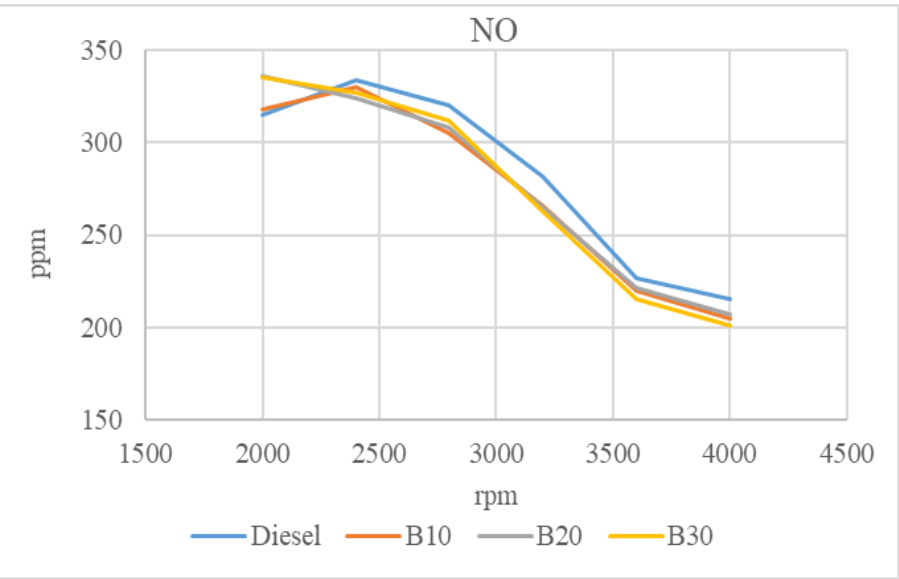
Petrol diesel + Biodiesel from urban sewage scum (B10, B20, B30)



Turning wastewater scum into high-quality biodiesel: an integrated and solvent-free circular approach

Petrol Diesel

Petrol diesel + Biodiesel from urban sewage scum (B10, B20, B30)



Turning wastewater scum into high-quality biodiesel: an integrated and solvent-free circular approach