

100% CUMMINS HHP ENGINES APPROVED FOR R100 RENEWABLE DIESEL



WHAT IS RENEWABLE DIESEL?

Renewable diesel, also known as paraffinic fuel, is a low carbon biofuel produced from processing waste lipids, such as vegetable oils, tallow or used cooking oil.



HYDROTREATED VEGETABLE OIL (HVO)



**USED BY
CUMMINS FOR
TESTING PURPOSES**



**THE MOST READILY
AVAILABLE RENEWABLE
DIESEL**



UNDERSTANDING RENEWABLE DIESEL BLEND VS. UNBLENDED

Operators can choose to use unblended renewable diesel or mix with conventional diesel at any proportion.



WHY RENEWABLE DIESEL?



90% **REDUCE NET GHG
EMISSIONS BY UP
TO 90%***

50% **UP TO 50% REDUCTION
IN PARTICULATE MATTER
TAILPIPE EMISSIONS**



**ONLY 1-2% POWER
LOSS EXPECTED
WITH R100 HVO**

10X **CAN BE STORED UP
TO 10X LONGER THAN
STANDARD DIESEL**



**NOT IMPACTED BY
BACTERIAL GROWTH
AND OXIDATION ISSUES**



**MAINTAINS
PERFORMANCE
IN COLD WEATHER**



**DROP-IN REPLACEMENT
FOR TRADITIONAL DIESEL**

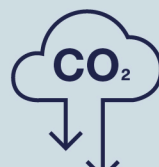


UNDERSTANDING RENEWABLE DIESEL'S GHG EMISSIONS

* Any renewable diesel that meets the EN15940 standard can be used in Cummins engines, but exact carbon reduction measurements vary. Here's why:



WELL-TO-WORK CARBON INTENSITY



WELL-TO-TANK

Carbon intensity coming from the production and distribution of the fuel



Emissions dependent on **how** the fuel is produced and distributed



Up to 90% net greenhouse gas (GHG) emissions reduction possible, dependent on fuel supplier

TANK-TO-WORK

Carbon intensity from burning or consuming fuel



"Tailpipe" emissions similar to conventional diesel



WHAT CUMMINS ENGINES ARE COMPATIBLE?

K/QSK19	K/QSK38	K/QSK50	QSK23	QST30
QSK45	QSK60	QSK78	QSK95	V903
ACE				

All engines currently in the field can be used with HVO at any percentage with no engine modifications required.