

DIESEL HCCI DEVELOPMENT AT CATERPILLAR

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Implementation of a practical homogeneous charge compression ignition (HCCI) engine has numerous technical challenges. Among these are proper mixture preparation, controlling combustion phasing and cylinder pressure rise rates, and expanding the operating range to higher loads. Methods to control combustion phasing include managing inlet manifold temperature and pressure, exhaust gas recirculation rate, and injection timing. Recent progress on part-load HCCI operation using diesel fuel will be given.