

Date: January 14, 2015
Subject: Information regarding engine operation with low sulphur fuels
Engine type: all

Caterpillar confidential: green

MaK engine operation with new low sulphur fuels available on the market

Many fuel oil suppliers are offering new fuel types to meet future market demand when new emission limits in SECAs / ECAs areas related to MARPOL Annex VI come into effect. These are called "hybrid gas oil", "vacuum gas oil", "ULSFO" (ultra low sulphur fuel oil), "eco marine fuel oil", HDME, etc.

With regard to our Service Information No. 0005com we would like to give additional information to operators when such low sulphur fuel oils shall be used in MaK engines.

Basically, all low sulphur fuel oils on a mineral fuel oil basis can be used in MaK engines as long as the limits for distillate fuel DMX, DMA, DMZ, DMB, heavy fuel RMA up to RMK as stated in the engine manual chapter "Operation Media" are respected. No short-term negative effects are expected. The fuel must not be harmful for the engine. We urgently recommend checking fuels on board for incompatibilities before mixing them. It is possible that the mixing of fuels of different origins leads to coagulation / sedimentation and causes filter clogging and / or viscosity regulator irregularities. Where necessary, please request fuel oil storage information from your fuel oil supplier.

Due to different fuel viscosities @15°C the viscosity controller still might be required to meet the max. fuel injection viscosity of 12 cSt. At longer low part load operation on MGO the fuel temperature must not exceed 50°C to avoid sticking injection pumps due to gassing fuel. The minimum fuel injection viscosity is 1.5 cSt.

When changing the fuel oil quality from HFO to MDO the viscosity regulator will take care that the engine receives the right fuel injection viscosity. Due to today's fuel systems a complete change over takes some time. Please take care that the fuel temperature gradient is not higher than 7 K/min.

Please note that we do not have experience with all low sulphur fuel types available and, therefore, cannot accept responsibility for issues that might occur when using such fuels. Especially possible long-term effects of operation with new low-sulphur fuels on engine components are not known.