ETEL REF. NUMBER: 19 – 5256, Supplement CODEWORD: Infinity TO 46

Job no. / Cons. no.	:	Examination ordered by	: FLUITEC
PSP element	: T.2310657.23	ETELC specimen no.	: CS 24750 & 24881
Machine type	:	IA consec. ref. no.	: IM 11085 & 11170
Component	: Oil system	Customer/installation site	: USA / Belgium
Examined material	: **Fresh oil sample**	Operating temperature	:

REMIT

FLUITEC USA / Belgium supplied a fresh oil sample called "Infinity TO 46" for suitability testing for use in MAN-ES turbomachinery. According to the data sheet, the product has excellent thermal resistance, with a low tendency to deposit film formation. For the suitability test of the fresh oil sample, in addition to the comparison of the manufacturer information with the MAN-ES lubricant requirements, selected lubricating properties, the additive balance and the oxidation protection as well as the thermal stability according to MAN-ES (in-house test) were tested.

Since an increased number of fines particles was found in the first oil sample and the air separation capacity was above the MAN requirements at 7 minutes (target: max 5 min), a second oil sample for a repeat test was immediately agreed between FLUITEC and MAN-ES.

SUMMARY / RESULT

Findings (Annex):

- The manufacturer's informations and the tested lubricating properties on both oil samples meet the requirements of the MAN-ES lubricant specification DocNo. 10000494596-Rev.02.
- The product is low-sulfur, contains a phosphorus-containing additive package and is free of organometallic compounds.
- The load carrying capacity of the EP-alloyed turbine oil (manufacturer specification FZG = 9) was confirmed to 11.
- According to the DP Voltametry, the product contains essentially aminic and phenolic antioxidants.
- With RPVOT values around 1200 to 1300 minutes the product has a sufficient oxidation resistance, according to which met the increased requirements according to DIN 51515 part 2 and MAN-ES.
- In the MAN-LTAT the turbine oil "Infinity TO 46" show a very good thermal resistance. The oils are still brightly colored up to 180°C and the deposit quantities are low on all experimental temperatures. The amount of carbon could not be detected in the laboratory short-term test or only in small quantities. In the laboratory short-time test at 180°C, it is still possible to detect aminic and phenolic antioxidants in the highly thermally stressed oil sample.

Results:

- "Infinity TO 46" has a good overall characteristic profile, fulfill the MAN-ES specifications and are therefore approved for use in MAN-ES plants with requirements on the load carrying capacity.
- Changes to the turbine oil formulation must be indicated to MAN-ES. With changing the product name the MAN-ES turbomachinery / approval expires.

Annex: Findings of examination

Copies to: FLUITEC - USA Livingstone; FLUITEC - Belgium Ameye; ETELC - Lefort; Circulation: ETEL - Dr. Herzog; ETELC – Tüch / Paukstadt

Unless agreed upon otherwise, the examined material will be kept for 3 months.

Prepared : 19/03/2019	ETELC - Lefort / Tüch / Paukstadt	Signature:
Released : 19/03/2019	ETELC - Lefort	Signature:

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