Permanent By-Pass filtration Unit for Turbine Oil

Study case: Turbine TG 3 , Output power 20 MW, Intake steam pressure 9.4 Mpa, Temperature of intake steam 535 °C, Oil : Turbine Oil Mogul TB 46, Tank volume : 8 000 l

Why to use Bypass Oil filtration: The By-Pass Oil Filtration unit extends the lifetime of the turbine system as well as extends the oil change interval and primary filter change interval.

How it works: It works through a secondary By-Pass filtration unit with own pump connected independently to the hydraulic system. It operates when the system is running without effecting the operation of the whole turbine system.

Benefits: Extension of Oil change interval (2-3 times less). Extension of Primary Filters lifetime (2-3 times longer). Removal of water and mechanical contamination (metal abrasion, silicates, dust, sand etc.). Slowdown of Oil degradation (acidity, antioxidant, TAN level). Cost savings related with buying less Oil and with reduction disposal of waste oil. Reduction in general wear and tear. Extending the lifetime of the whole system. Reduction in repair costs and downtime (up to 50%). Environmentally friendly conditions.

Make the Planet green again with less oil waste.

Contact: Filter Technik Slovakia s.r.o, Štrková 578/4, 01009 Žilina, Slovakia, European Union

Tel: +421415650278, email: info@filtertechnik.sk , www.filtertechnik.sk

Study case Turbine OIL in ENERGY PLANT

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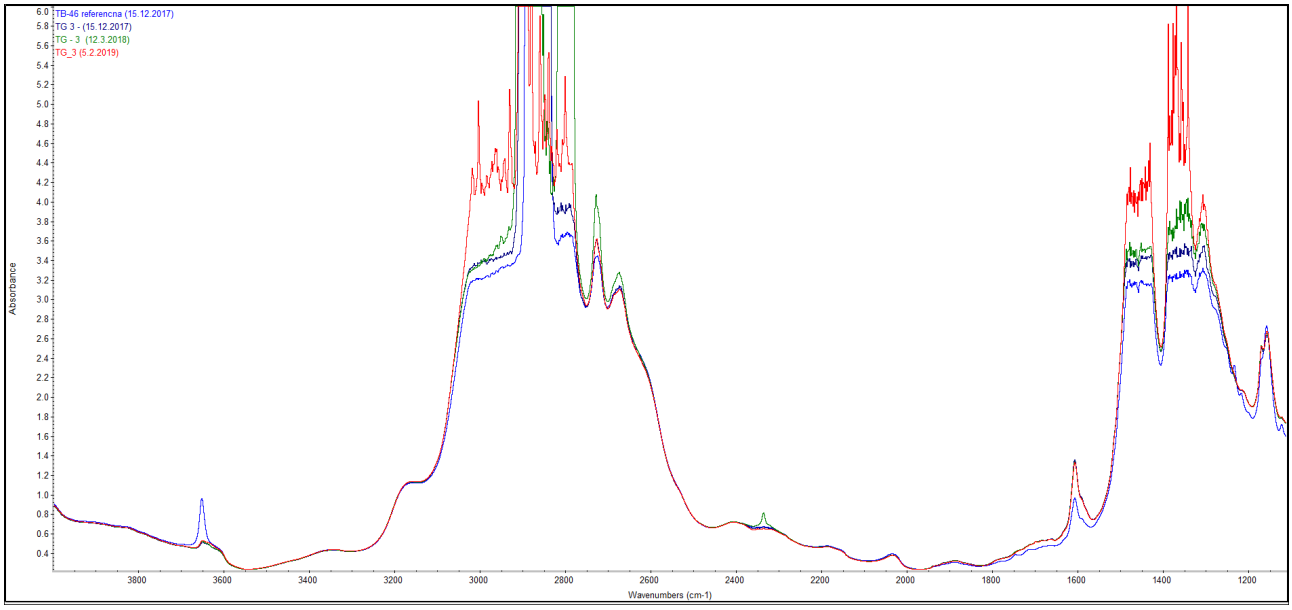
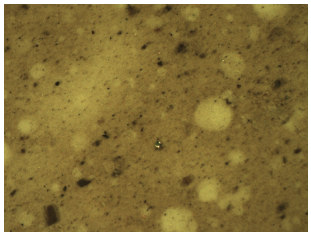
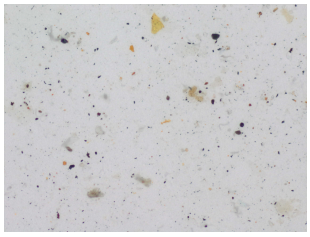
Parameter	**Reference oil** Mogul TB -46	**20.3.2017** Without filtration		**15.12.2017** With filtration	**12.3.2018** With filtration	**5.2.2019** With filtration	**Limit**
Viscosity at 40°C [mm²/s]	**46,33**	**49,18**		**47,63**	**47,65**	**47,66**	**±10 %**
Cleanness class NAS 1638	**NAS 8**	NAS >12		NAS 11	NAS 9	**NAS 7**	**NAS 5 -7**
Mechanical contamination [mg/l]	**2**	**172**		**12**	**5**	**1**	**-**
Water content [ppm]	**18,2**	**80,2**		**16,3**	**19,6**	**20,8**	**Max. 500**
TAN [mgKOH/g]	**0,10**	**0,15**		**0,13**	**0,15**	**0, 16**	**Max. 0,40**
Low-temperature phenolic antioxidant [% wt]	**0,31**	**0,10**		**0,09**	**0,10**	**0,11**	**Min. 0,05**
IR Spectrum oil degradation	**OK**	**LOW degradation**		**LOW degradation**	**LOW degradation**	**LOW degradation**	**-**

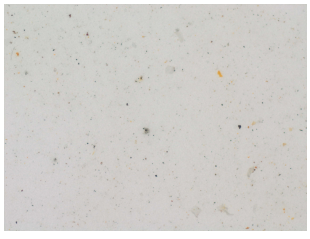




Without filtration
NAS > 12 (172 mg/l)
Varnish , metals , silica particles



With filtration
NAS 11 (12 mg/l)
Varnish , metals , silica particles



With filtration
NAS 9 (5 mg/l)
Varnish , silica particles

With filtration
NAS 7 (1 mg/l)
silica particles

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