Definition of oil moisture and soot offshore

ETN Air Filtration Meeting

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Soot in air filters- typical sourses

- Exhaust from:
- ✓Gas turbines
- ✓Diesel engines onboard the installation.
- ✓Diesel engines in vessels operating close to the installation.
- Flares

[All pictures from the Internet]

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Oil moisture in air filters- typical sources

- Vents from lubricating oil tanks, oil sumps and seals for rotating machinery:

✓Gas turbines

✓Compressors

✓Gears

✓Generators

✓Etc.

[1]

Oil moisture in air filters- typical oil types

- Gas turbines: Synthetic oil- Turbonycoil 600
- Compressors: Partly synthetic oil- Fuchs (Statoil) Turbway GT 32

Turbway GT 32: synthetic base oil in combination with selected additives

Oil from vents- typical concentration in air

- The contamination of oil in the ventilation air is normally in the range of 800 to 1200 ppm (parts per million) by weight [Halvorsen Group].

- Measured oil mist at exit from vents can frequently have a concentration of >1200 mg/m3 [1].

- Measured values in areas on offshore platforms often exceed 50 mg/m3 [1]. *This should not be interpreted as representative for continuous concentration level in the combustion air for a gas turbine.*

- Droplet size: 0,1-15 micron [1].

[1] Source: Fjerning av avdamping fra vent'er - Halvorsen Tec - presentation for Norsk Olje&Gass

Oil moisture- considerations for test standard

Oil type (synthetic, partly synthetic or mineral):

- Does it matter?
- Use both?
- Use the most negative one for filter performance?

Concentration (oil in air):

- Not critical for accelerated test?

Droplet size:

- < 15 micron?

Total volume to ingest in a filter/system:

- To be determined from testing prior to publication of the final standard?

Thank you for your attention.

Contact information

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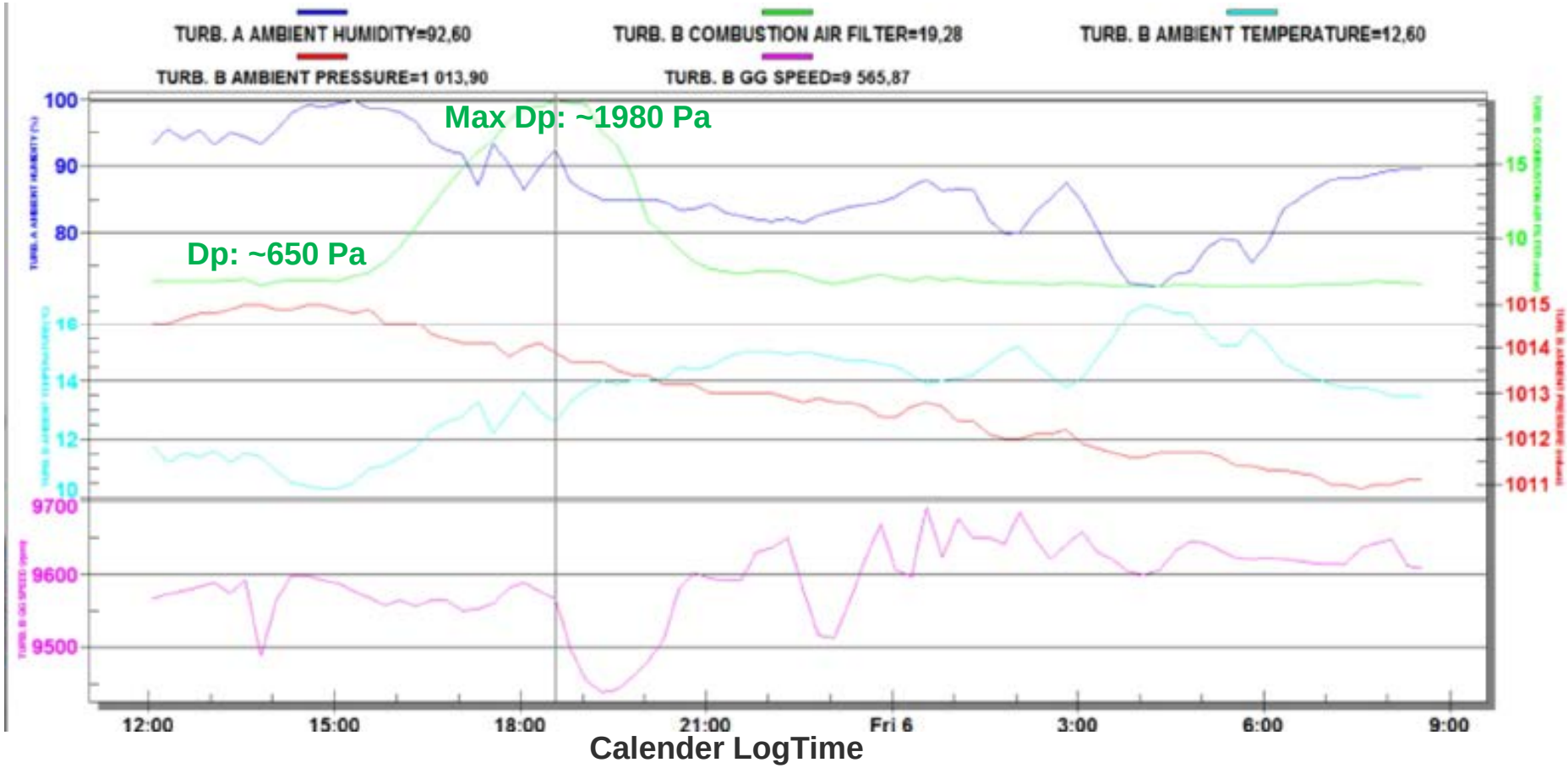
International standards

	EN779	ASHRAE 52.1	ASHRAE 52.2
Humidity	RH<75%	Outdoor air during dust-spot efficiency testing. Prevent fog, rain, sleet and snow from entering test duct.	20%<RH<65%
Salt	Not covered	Not covered	Dry KCl
Hydrocarbons	Importance of electrostatic forces	Not covered	Not covered

- The test conditions in the international HVAC air filtration standards for general ventilation differ considerably from what can be expected offshore.
- The test results do not provide a basis for predicting either operational filter performance or life.

Spiking of filter Dp during foggy weather



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