

# Technical Bulletin

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## CAT fines: Filter modifications reduce risk of engine damage

Most Auramarine onboard fuel handling systems such as HFO and MDO feeder/booster units are equipped with auto-backflushing filters, located typically after the feeder (also called supply) pumps.

Due to the forthcoming IMO 2020 regulations, ships are required to utilise low sulphur fuels more frequently or continuously. The majority of these fuels will be 0.5 S% LSHFO or 0.1 S% distillate fuels (DMA/DMB/DMZ). Alternatively, 3.5 S% HFO together with scrubbers, or LSHFO can be used. HFO and LSHFO are residual fuels and as result of their production process, a considerable amount of *catalytic fines* - also known as cat fines - remain in the fuels, with even the latest ISO 8217 marine fuel standard specifying levels of up to 60ppm concentration. Cat fines are very small particles that are a consequence of refining process known as catalytic cracking. They have been found to cause severe abrasive wear in engine components if not removed by a fuel treatment system.

For this purpose, main and auxiliary engine manufacturers have already recommended a maximum acceptable level of cat fines entering the engines as 15ppm for short periods, while - apart from other measures - recommend for safety reasons a 10 mic absolute fine-filter to be installed before the engine (*reference: MAN Service Letter SL2017-638/DOJA*). Studies have even shown that 6 micron filtration removed majority of the cat fines found in the fuels.

### Filter modification is necessary

To provide proper engine protection, we can recommend to explore whether the current system arrangement allows the replacement of existing filters with fine filters. Another possibility is to add a second (fine) filter in front of the engine. The choice depends on the current system arrangement on board. Fine filters are available starting from 6 micron.

### How to proceed?

Please contact Auramarine Lifecycle Services at [after.sales@auramarine.com](mailto:after.sales@auramarine.com) to receive more information about:

- an analysis of your current system's ability to cope with cat fines
- suggestions for the best possible technical options to prevent cat fines -related risks. In certain cases the existing system has restrictions that call for a re-evaluation of the whole fuel handling process due to space constraints or for control system issues.
- modification design, including upgraded specifications (with filters starting from 6 micron)
- support in incorporating the modified items into your existing control systems

Yours sincerely,

**Auramarine Lifecycle Services**



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