

# CatGuard® - the next generation CatGuard® from Nanonord

Nanonord's CatGuard® HFO cat fines measurement technology has just got better. With a more compact design and added options, it comes also at a significantly lower total cost of ownership.

CatGuard® comes with the same patented NMR measurement technology as its predecessor at its core. It is significantly more compact and is more robust. It is furthermore even simpler to install.

## The CatGuard® technology solution to cat fine damage

CatGuard® technology from Nanonord uniquely enables near-real time measurement of cat fines in fuel. Cat fines are highly abrasive remnants of silicon and aluminium oxide used as catalysts in the refining of crude oil which are retained in Heavy Fuel Oil (HFO).

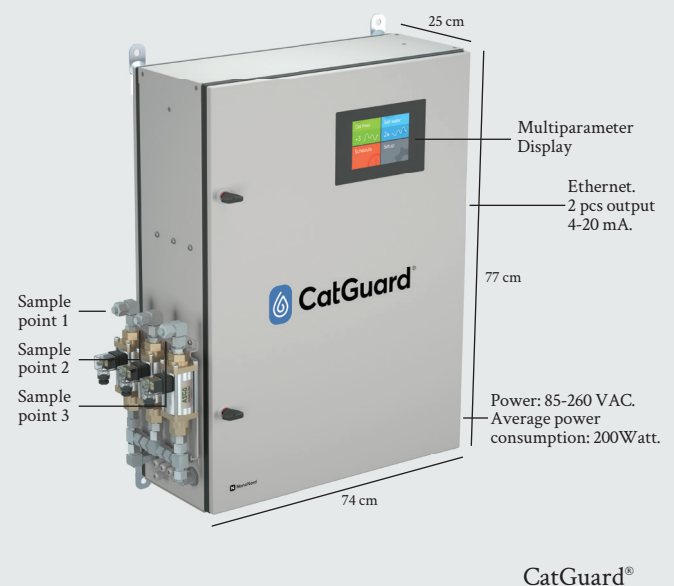
The level of cat fines in HFO may be up to 80 ppm according to industry standard ISO8217. Engine manufacturers specify a maximum of 15 ppm in engine fuel.

Separators (centrifuges) used in an optimal way to clean HFO before combustion are capable of cleaning fuel. In practice however, given the previous absence of any direct measure of what is happening in the separator, average separator efficiency has been in the region of 60% too low to reliably and consistently reduce cat fines to an optimal level.

Deployment of CatGuard® transforms crew purifier management from a black magic art to scientific process control. Typically this enables reduced average cat fines levels in fuels entering the engine from 15 to 20 ppm to between 3 and 7 ppm. With information from CatGuard® on cat fine levels before and after the purifier process, crews are encouraged and enabled to much better manage purifier temperature control, flow rate and capacity as required due to different sizes of cat fine particles and type of HFO, and clean the purifier if necessary.

"New technologies have just been introduced in the market and we in CIMAC Working Group, Fuels Group, are convinced that this new method of measuring cat fines in the cleaning process will revolutionise the operation of the engines in the future."

Kjeld Aabo CHAIRMAN, CIMAC WORKING GROUP, FUELS GROUP



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With better purifier management overall, combustion chamber wear has been reduced by up to 50%. Further, the threat of rapid and catastrophic engine damage by cat fines attack, an insidious invisible threat on all vessels burning HFO, has been brought under control.

## CatGuard® System specification

- Cat fines precision: 5ppm @ 4 hours
- Cat fine spike precision: 20 ppm @ 15 minutes
- 3 sample points
- Power usage: 85-260 VAC/200 Watt peak
- Ethernet, 2 pcs output 4-20 mA
- Relays for exceeded limits and system diagnostics
- Size: 77x74x25 cm
- Weight: 70 KG

## Fuel cleaning checklist

