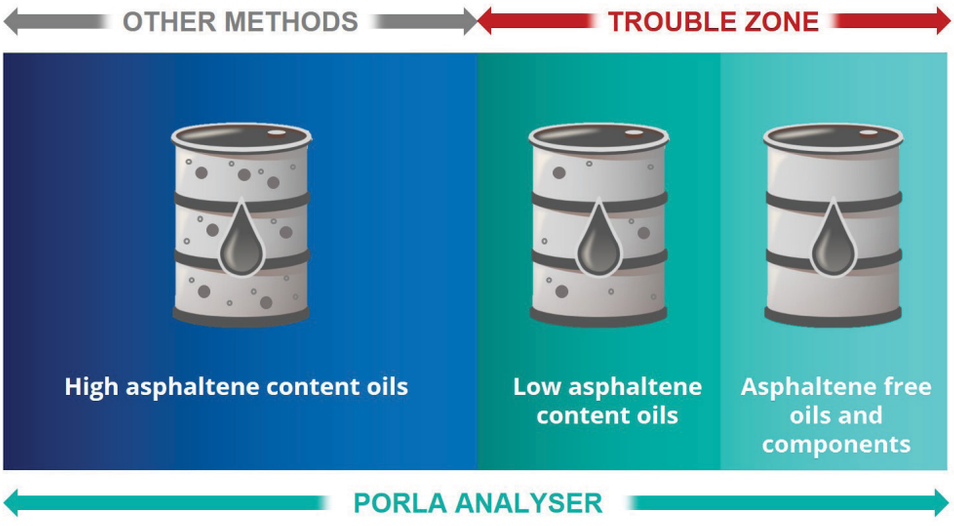
# PORLA fuel analyser for the marine industry

Proven technology provides safety at bunkering processes and ensures reliable business


## Understanding your fuel

The Porla analyser is the result of co-development with a major Finnish oil refining company, as well as many other refineries and industry professionals. It complies fully with ASTM standard D7112.
As an important part of Auramarine's portfolio the product is further developed together with clients, resulting in enhanced reliability, easier user experience and full customer support.

With the multitude of existing and newly developed ultra low sulphur fuels (ULSFO), properties such as stability, compatibility and mixing properties need to be taken into account. This may also be the case for other fuels, including biofuels. By taking a proactive approach and embracing technology, problems related to these properties can be avoided.




## Auramarine provides the solution

Auramarine's new Porla analyser is an easy, reliable and fast analysis instrument that ensures stability - when mixing fuels - and compatibility with the recommended mixing order. This proven technology provides safety at the bunkering process and helps to avoid unintended maintenance and reduce downtime.

Auramarine's Porla analyser is designed for testing fuel combinations where at least one of the fuels must contain asphaltenes. The analyser makes it possible to measure lower asphaltene content than other comparable analysers available in the market. Very often, fuels with low asphaltene content are subject to stability and compatibility issues, and clogging of asphaltene in the oil, which can cause severe problems and even engine failures on board.

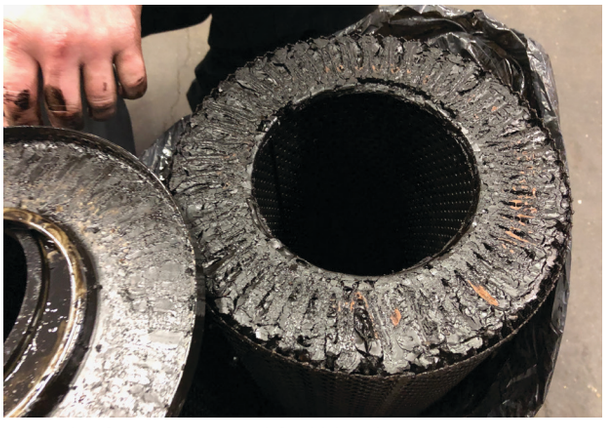
Such accurate asphaltene content analysis for low asphaltene content fuels is essential when the fuel sulphur content goes from 3,5% down to 0,1%. The analyser is suitable also for high asphaltene content fuels analysis.

## Technical details:

| | | |
|---|---|---|
| Operational Specifications | Measurement ranges | 1-7 P-Value (stability value)<br>0-100% Solvent Equivalent |
| | Detection limit of asphaltenes | 0.05% |
| | Measurement temperature | 20 - 80 ºC |
| | Sample carousel | 4 positions, with sample heating |
| | Analysis duration | Clearly non-compliant combinations are detected in minutes. Normally full cycle takes approx. 45 minutes and borderline cases up to 90 minutes. |
| Utilities | Electric power | 110 or 230 V, 50/60 Hz |
| | Solvents | Paraffinic and aromatic solvents |
| Physical Specifications | Weight | 35 kg |
| | Dimensions | H 440 mm, W 535 mm, D 400 mm |
| Sample Specifications | Sample size | 20 - 40 g of fuel directly from tank or other storage |

## Properties

- Automatic fuel oil analyser
- The system enables proactive testing of fuel compatibility
- Determination of stability and compatibility parameters In (insolubility number) and SBN (solubility blending number)
- ASTM test method D7112 since 2005
- Ability to use different paraffinic and aromatic solvent combinations
- The system will self-clean at the end of each test procedure

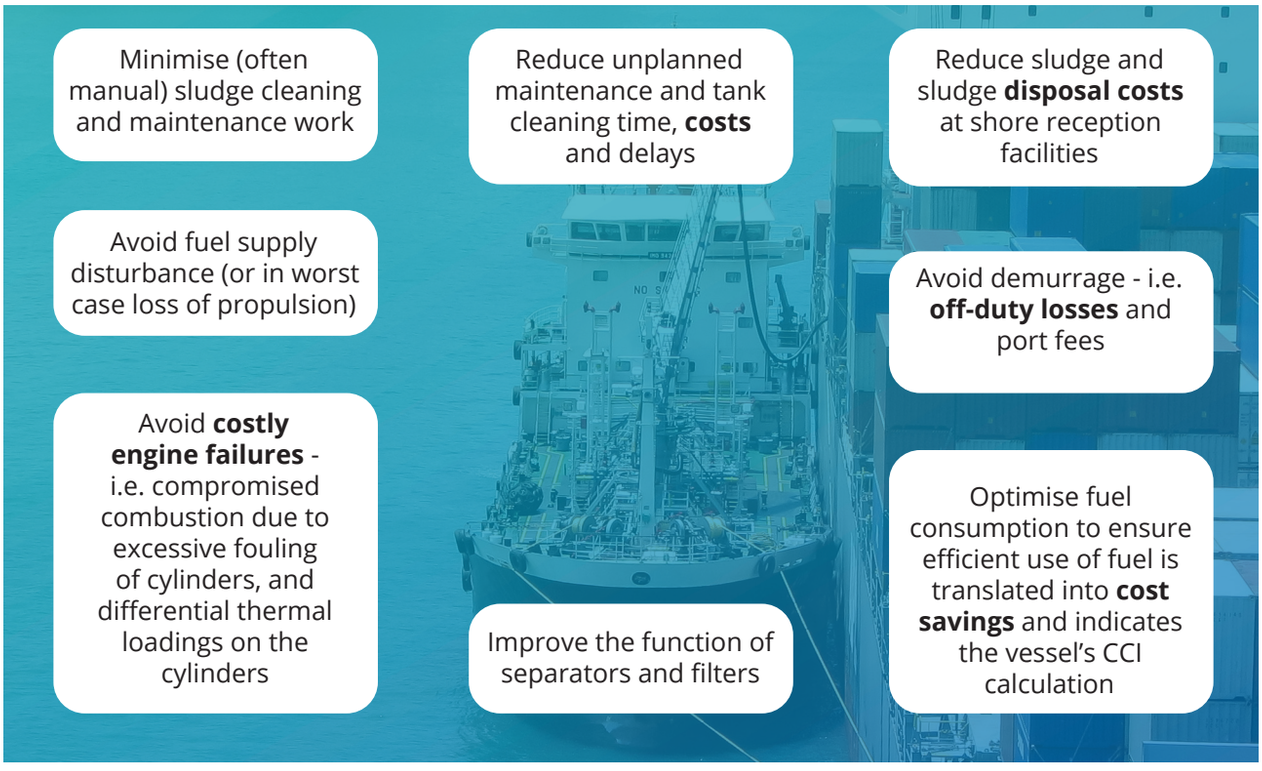


A result of non-optimised fuel blending

## Advantages

- Provides peace of mind and eliminates costs and delays caused by non-compatible or bad bunker
- Auramarine's Porla analyser allows users to check the the compatibility and stability of the fuel in the tank and any new fuel introduced before bunkering
- The solution can be used for blending optimisation of different fuel oils
- User-friendly sample preparation and automated analysis to reduce user time and minimise errors
- In fast screening mode, the system can determine optimal running parameters for unknown samples
- The system reduces the amount of sludge and related disposal costs

## Proactivity pays off



## Accessories and maintenance

Auramarine provides users a complete range of consumables needed to operate the Porla system, ensuring repeatable and reliable results.

Please contact Auramarine to find out the recommended replacement intervals for your Porla analyser parts. We provide prisms, pumps, solvents, sample bottles, sample containers. Scales are also available.

You can benefit from our technical support and sample analysis services are available upon request.

In addition, it is possible to opt for an analyser unit maintenance contract.

## Definition of parameters

Porla analyser analyses the following values, including the important P-value (stability):

- P-value, define state of peptisation of asphaltenes in oil
- Pa, peptizability of asphaltenes
- Po, peptisation power of oil medium
- FR5/1 or xylene equivalent, measure of oil aromaticy, the smaller the value, the more aromatic is the oil
- FRmax, flocculation ratio at infinite dilution
- Xmin, paraffinic solvent consumption of pure oil
- IN, insolubiity number, the higher the bigger precipitation risk
- $IN_{mix}$, is the highest IN of components of the blend
- SBN, solubility blending number, ability of oil to keep asphaltenes in solution, the higher value the lower precipitation risk
- $SBN_{mix}$, volumetric average of SBNs of blend components

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**For futher information, please contact:**

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