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TECHNICAL PAPER TB011-1107-2

# Leveraging in-line blending technology to become a dominant bunker supplier

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The bunker market has seen significant rises in feedstock and final product prices that has put pressure on the quality of bunkers and increased competition amongst suppliers. Further pressure from MARPOL to ensure and validate the quality and quantity of fuel is also forcing suppliers to re-consider the fundaments of their business model.

Many forward thinking and entrepreneurial suppliers see this as an opportunity to gain commercial advantage and are streamlining their operations to ensure the flexible delivery of high quality and certified products.

In future these companies will become the dominant players in the bunkering market. They will have operations that can more quickly deliver a comprehensive range of products using a wider variety of feedstock than their competitors. Their bunkers will be of a guaranteed quality, will fully comply with the regulations and be produced at the highest margin. In addition, their infrastructure will be optimally structured to meet future market demands. While this may seem obvious to those already using this business model, the challenge moving forward is to determine how bunker suppliers can use technology to achieve this competitive position.

This article focuses on the use of advanced control in-line blending technology as the heart of an optimally profitable fuel oil supply operation.

In-line blending has been around for years in various guises but the older technology never delivered its promise because traditional systems did not accurately measure or control either the volume or the quality of the bunkers at reference conditions and therefore could NEVER produce an accurate blend.

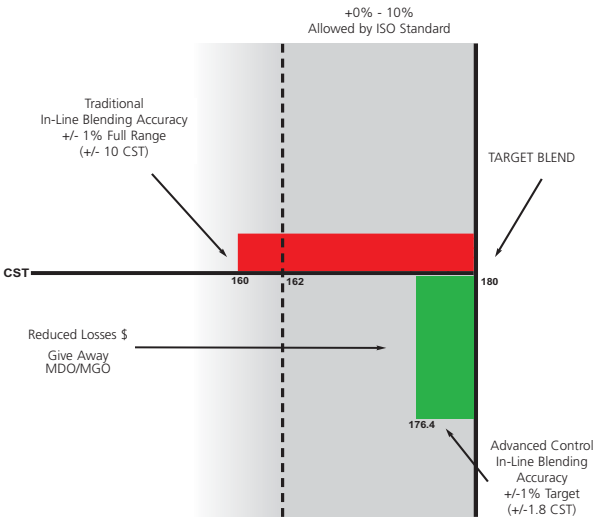
Over the last five years advanced control in-line blending technology has proven to flexibly deliver products, on specification at the lowest cost. This can be achieved with a significant reduction in operating costs and a simultaneously auditable guarantee of quality. Advanced blender control systems in conjunction with developments in mixing, analysis (viscosity, density and sulphur) and improved expertise in the integration of measurement and control equipment have enabled a quantum leap in the application of in-line technology for bunker blending.

*Barge mounted in-line blender with viscosity control*

The accuracy of advanced control blending systems is based on three primary parameters:-

1. The representivity and repeatability of the measurement used to 'optimise' quality. For bunkers this is normally viscosity, density and more recently sulphur.
2. The capability of the control system to store and, issue corrective commands and respond to changes in the process conditions.
3. The correct integration of all the measurement components in the field (meters, analysers, mixing system) with the control system to deliver optimal performance, provable quality and volumetric measurement.

Traditional viscosity measurement and control only delivers an accuracy of +/- 1% of the calibrated range of the viscometer. In bunkering a viscometer measuring 60-500cst (at 50C) is likely to have a calibrated range of approx 1000cSt. 1% of this is 10cSt. The ISO bunker specification calls for viscosity of +0 and -10%. Based on this 'offset specification) a +/-10cSt error causes an error of up to 20cSt in a compliant blend (as shown below). When blending 180cSt this results in a viscosity of 160cSt with significant 'give-away' of MDO/cutter.




An advanced viscosity measurement and control system uses a controlled and stabilised mixing and temperature environment to guarantee a viscosity measurement and control accuracy of +/-1% of the actual (target) viscosity. This reduces the potential error from 20cSt to 3.6cSt (+/-1.8cSt) when blending 180cSt and delivers a saving in excess of $5 a tonne. Blending a 176.4cSt (instead of 160Cst) reduces the MGO/MDO usage in the blend by nearly 2%.

Fuel certification can be provided by the blender control system. The only parameter of interest for a Bunker Delivery Note (BDN) that cannot be accurately calculated (provided feedstock is compatible) based in the ratio of the feedstock is the viscosity and this is a key measurement and control parameter for an advanced control blender. Each feedstock BDN/certificate is used (in real-time) by the blender to both calculate and/or limit key parameters (such as sulphur) to ensure the quality of the blended product. This data is used by the blender control system to produce a BDN for the batch once complete.

The batch quality is certified using a flow proportional, representative sample. While a manual spot sample will provide verification of a point in the transfer, an automatic, flow proportional sample is the only way to guarantee a truly representative sample to validate the batch quality and blending process.

With the increasing availability of higher sulphur base stocks, there is a significant increase in the number of operators investing in multi-stream blending for bunker applications. This enables them to use compatible high and low sulphur heavy base stocks along with viscosity and density cutters to optimise both the quality and production costs for the fuel.

What is clear is that the 'ghost' of old, traditional, and poorly performing in-line blenders (both by design and installation) can now be put to rest PROVIDED sufficient care is taken to engage with the manufacturer of the blending system to understand the REAL VALUE and RETURN ON INVESTMENT that an advanced control in-line blender can deliver for bunkering operations.

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