



Singapore TR 56 – Custody Transfer Requirements for LNG Bunkering

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TECHNICAL REFERENCE
LNG bunkering
– Part 2 : Requirements for custody transfer



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The National Metrology Center (NMC) in Singapore has stated that, at the moment, VSL in the Netherlands has taken the lead in LNG bunkering. “Much will depend on their tests”.

I contacted Menne Schakel (VSL) to inquire about current VSL capabilities to evaluate analyzers measuring LNG in the liquid phase, as I was unaware of any such capability, other than that being developed as part of the EMPIR LNG III and earlier projects. He stated:

“The testing capability of LNG-composition measurement will soon be available, however it is not there yet. The commissioning and subsequent testing will likely take place in January-February 2019.”

In a response I received from Jianrong Li, she stated that, due to excessive costs and the industry acceptance of the Effectech cryostat capability, “our management has decided not to build the liquefier designed in LNG III-Task 2.1. Alternatively we will carry out some other activities using the existing liquefier and some extra activities.”

According to the plan, we will perform all the commissioning tests in the next few months. After that we will run tests with LNG with the samplers and vaporizers. In that stage, I would like to run test with Raman probe to measure the LNG composition (then we can have a comparison with the GC measurement results).

ISO/TC 28/SC 4/WG 17 ISO/WD 23306

Specifications of liquefied natural gas as a fuel for marine applications (DRAFT)

4 Application and sampling

This document specifies the required properties for fuels at the time and place of custody transfer. Samples for quality verification may be taken in any location agreed between the parties.

The sampling of LNG liquid phase provides the sample for the determination of LNG composition while the sampling of LNG gas phase provides the sample for the determination of the (instantaneous) composition of LNG in its homogenous vaporised form in storage tanks.

The sampling of LNG for analysis shall be carried out in accordance with the procedures given in ISO 10715 (sampling of gas phase LNG), ISO 8943 (sampling of liquid phase LNG) or an equivalent national standard. Where specific sampling requirements are documented in the referenced test methods, these shall be adhered to.

Before proceeding to the LNG sampling it is very important to check the compatibility of the materials used in each part of the sampling system with LNG.

The sampling temperature must be recorded (especially for sampling in the gas phase) because it is important not only for the measurement of gas volumes, but also for the determination of the composition of the LNG as depending on the sampling temperature indeed some compounds/contaminants may be in the gaseous, liquid or solid phase (see Annex B).

The methods shown in Table 1 are methods applicable to gaseous samples: therefore in the case of liquid phase sampling LNG, before carrying out the analysis, the sample must be gasified.

Note: ISO/TC 193 is working on a method to directly analyze LNG in liquid phase.

Regardless of the mode chosen for LNG sampling, the gaseous/regasified sample of LNG to be sent to the analysis must be "conditioned" at the temperature indicated in the method itself or at room temperature, in the absence of indications in the method the sample before being analyzed must be brought to room temperature.

Questions

