

## Petroleum and Petrochemical Bulletin

### **SAMPLING UNDER RESTRICTED OR CLOSED CONDITIONS (STATIC SAMPLING)**

**Bulletin 08-01  
Rev. 4 - 0**

International standards recommend that a number of samples are required to prepare a “representative” sample suitable for the determination of quality. These standards recommend flow proportional In-line sampling equipment (dynamic sampling) as the preferred method for obtaining samples. However, such equipment is not widely available and most samples are drawn manually from vessels and shore tanks (static samples).

Environmental and safety regulations generally require vessels to operate under restricted or closed conditions with samples drawn through vapour lock systems.

Equipment for sampling under restricted or closed conditions can be effective but is subject to operational constraints.

The problems experienced by our members in working with this equipment impact on operations, particularly where the cargo is non-homogeneous. Some of the more commonly experienced problems are:

1. Significant additional time is required for sampling, particularly for vessels with multiple tanks, to allow repeated fitting, operation and removal of the equipment.
2. The diameter of most vapour lock systems is restricted to 50mm (2”) and may limit the volume of sample which can be drawn in a single operation.
3. The design of most sample containers is such that the level of the sample inside the container cannot be determined. This limits the ability to draw “All Levels” or “Running” samples in accordance with the standards.
4. The design of the equipment often allows only zone or spot sampling. Additionally, most systems are limited to one sample container which must be used repeatedly, leading to potential contamination during the sampling process.
5. The cleanliness of the vapour lock and standpipe is usually unknown and it cannot be cleaned while in use. This can result in contamination of the sample (e.g. FAME in aviation fuel, chlorides in methanol).
6. The absence of an international standard regarding the type of vapour lock fitting has resulted in many different types and sizes in operation, sometimes preventing the use of the inspection company’s own equipment. Where third party equipment has to be used, it may not be clean or in a serviceable condition.

#### Revisions/Reaffirmations

Rev. 0 March 2002  
Rev. 1 March 2009  
Rev. 2 July 2015  
Rev. 3 October 2019  
Rev. 4 May 2023

These problems and their consequences may be reduced where principals, inspection companies and other interested parties are aware of any restrictions in advance, and have the opportunity to react accordingly. Therefore:

- a) Members should notify their principals as soon as possible if the available sampling equipment is considered unable to draw samples that comply with published standards or principal's requirements. Alternative procedures or methods may then be agreed. Some analysis methods require specific sampling procedures and where these cannot be applied principals should be advised.
- b) Where the nature of the cargo and/or the configuration of the closed or restricted systems onboard are such as to materially affect the ability to draw samples in accordance with published standards or principal's requirements, principals should, following appropriate safety assessments, consider seeking permission to perform sampling using open and unrestricted methods. This may involve moving the vessel out of any "restricted" area or port.
- c) When sampling clean products or chemicals, special attention should be given to the cleaning of standpipes and fittings. This to ensure the removal of residues, which may subsequently become entrained in samples as particulates or contaminants, leading to unnecessary quality failures.

Where cargoes are known, or are suspected to be, non-homogeneous, drawing of additional spot samples to determine any variation in quality is recommended. All associated analysis results should be reviewed and considered, particularly when the analysis results are to be used for custody transfer purposes.

Due to additional sampling constrains, TIC Council members reserve the right to inform their principals to discuss alternative measures, and to add appropriate statements and disclaimers to reports and certificates.

Note 1: Attention is also drawn to TIC Council Bulletin 99-2 *Sampling and Testing of Cargoes Blended on Board Marine Vessels*.

*Note 2: Measurement and* sampling of cargoes using closed or restricted equipment is addressed by API MPMS Ch17.11/EI HM52.

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