



JAPAN P&I NEWS

外航組合員各位

中国—MEG のオフスペッククレーム防止のための推奨措置

近頃、米国のヒューストン港およびポイントコンフォート港で MEG（モノエチレングリコール）を積載した船舶の多くが、中国の荷揚げ港においてアルデヒドの含有量に関するオフスペッククレームが発生する事態に遭遇しています。

アルデヒドとアセタールは、MEG の生産過程で発生する副産物ですが、製造過程の不安定性等により、積荷前に完全に除去することが困難な場合があります。これらは通常船舶/陸上タンク内部にて均一に分布しないため、同一のタンクであってもサンプルが採取された時期が異なると、異なる試験結果が出る場合があります。また、貨物を積載する前にアルデヒドが完全に除去されていたとしても、航海中にアセタールがアルデヒドに変化することもあります。一般的にアルデヒドの含有量の測定方法には ASTM E 2313 が使用されていますが、この試験ではアセタールの含有量を測定することはできません。また、試験でアルデヒドが検出された際には、脱アルデヒド樹脂を用いて荷役前に除去されますが、この方法でアセタールを除去することはできません。

上記を考慮し、積荷港で受け取る陸上タンクのサンプルに加えて、荷送人と共同でサーベイヤーを起用し、別途陸上タンクの上層、中層、下層からそれぞれサンプル採取を行うことを推奨します。また、船上マニホールドからのサンプル採取は荷役開始時だけでなく、30分～1時間おきに継続して実施することを推奨します。

中国のコレスポンデント Oasis P&I Services Company Limited から詳細な情報を入手しましたので、ご参考に供します。

以上

添付資料：Oasis Circular No.2307



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Subject: Suggested measures in preventing off-spec claims of MEG (Mono Ethylene Glycol) cargo due to excessive aldehyde content

Recently a number of vessels which were loaded with MEG cargo from Houston and Point Comfort ports of U.S. encountered off-spec claims in respect of aldehydes content at discharging ports in China. Based on our experiences, we have prepared this circular for the reference of owners who carry this type of cargo.

Main cause of off-spec claims of MEG cargo

Aldehydes (e.g. formaldehyde and acetaldehyde) and acetals are by-products of MEG cargo generated during the production process. However, they may be difficult to be removed completely before loading due to instability in the production process or failure in process control.

Besides, usually aldehydes and/or acetals are not evenly distributed in the load port shore tank due to low osmotic pressure caused by their low concentration and large capacity of ship's tanks/shore tanks, among others. It is not uncommon that samples taken from the same cargo tank at different time give different test results and the MEG cargo which was tested off-spec in cargo tanks is subsequently tested on-spec in shore tanks after discharge.

Two typical off-spec scenarios and how they developed

1. One typical scenario is that only aldehydes are produced during the cargo production process. Samples passed the test before loading but cargo turn out to be off-spec at the discharging port.

As aldehydes are not distributed evenly in the shore tank, the cargo surveyor could have taken samples of sound cargo from shore storage tank by chance. The cargo

would then be loaded onboard after passing the sample test, which indicates the cargo being loaded is sound cargo.

During a long voyage, the cargo would experience rolling and pitching in the cargo tanks and aldehydes would be distributed more evenly during this period, so that samples taken at discharging port may fail in passing the test due to off-spec of aldehydes content.

2. Another typical scenario is that aldehydes have been completely removed before loading on board, but could still be found at discharging port and cargo turn out to be off-spec.

Aldehydes and acetals can be simultaneously produced during the production of MEG. Acetals are a sort of relatively unstable chemical substance with tendency to convert into aldehydes if hydrolysis condition is satisfied.

The test method "ASTM E 2313" is commonly used by manufacturer in determining aldehydes content in MEG cargo. However, it could not detect acetals content. If aldehydes are detected, it would be completely removed by way of "de-aldehyde resin" before shipment by manufacturer, but acetals cannot be removed in the same way.

After being loaded on board, acetals would gradually convert into aldehydes during the voyage due to its unstable nature, which results in off-specification of aldehydes content upon arrival at discharging port.

Suggestions to ship owners

1. Given the above, apart from shore tank samples (usually running samples) delivered by the cargo surveyor at load port, we suggest additional separate samples are taken jointly with the shipper's appointed surveyor from upper, middle, and lower levels of shore tanks before commencement of loading operation. This would more accurately reflect the actual condition of the cargo to be loaded.

2. In addition to the routine cargo samples drawn at the ship's manifold at the beginning of loading operation, additional samples are suggested to be drawn from ship's manifold at intervals of 0.5 -1 hour throughout the whole loading process. The sampling time shall be accurately tagged on each sample by an independent surveyor.

3. If there is any doubt about the condition of the cargo, please consult an experienced chemist as soon as possible.

We hope the above is of assistance. If there is any query, please feel free to contact us at oasis@oasispandi.com any time.

Best regards,

Oasis P&I Services Company Limited