中 国 船 东 互 保 协 会
CHINA SHIPOWNERS MUTUAL ASSURANCE ASSOCIATION

地址:中国　北京市朝阳区五里桥一街一号院 12 号楼　邮编:100024
Add:Building No. 12, Courtyard No. 1, Wuliqiao No. 1 Street, Chaoyang District, Beijing, P. R. China. PC:100024
Tel:0086 10 59223500　Fax:010 59621611(Claims) 59621612(U/W)

Carriage of Coal Cargoes from Kalimantan, Indonesia - Self Heating and Requirement to Survey (re-issued)

Sept. 2013

Dear Sirs,

The Club issued Circular No.10/2010 "Carriage of Coal Cargoes from Kalimantan, Indonesia - Self Heating and Requirement to Survey" in 4th August, 2010. Member can refer to that Circular for relevant background information.

Background

The Club has recently been advised by consulting scientists and engineers Dr J H Burgoyne and Partners (International) Limited that the number of incidents involving the self-heating of coal cargoes loaded in Kalimantan (Indonesian Borneo) is increasing. In the past two years Burgoynes have dealt with twenty-three such cases, ten of which have taken place in the last three months.

Low rank (geologically immature) coal, such as loaded off Kalimantan, is particularly susceptible to self-heating and may spontaneously combust if loaded at a temperature in excess of 55° C. Shippers and local suppliers have sometimes delivered coal to vessels off Kalimantan at a temperature close to this figure. Coal awaiting shipment is often stored in barges close to the anchorage areas where it may be exposed to strong winds and rain. Such conditions may promote self-heating, and barges containing coal with a temperature exceeding 55° C have sometimes been encountered.

However, not all operators appear to be aware of the risks and some vessels have only identified the problems after the cargo has been loaded. Once on board it is not easy to remove the coal due to the lack of discharging facilities in the region.

Mandatory Notification

In accordance with the Club' s bye-laws, Members are required to notify the Managers before agreeing to carry a cargo of Kalimantan coal to ensure that they are full acquainted with the risks beforehand and so that any concerns regarding the contractual terms of carriage may be addressed.

In particular Members should consider incorporating an express right in all such contracts to inspect the cargo ashore and in barges prior to shipment, to reject cargo which is too hot or otherwise unsafe and to have heating or unsafe cargo removed from the vessel. Members may also seek to preserve rights of indemnity against other parties in case they incur liability or loss as a result of shipping a self-heating coal cargo.

Survey Requirements

Members are also required to appoint a surveyor at the load port to provide assistance to the Master.

The surveyor should be instructed to check that no significant self-heating problems are evident, confirm that the coal is suitable for loading, verify that all arrangements aboard the vessel are satisfactory and ensure that the measures for testing cargo space gas concentrations and cargo temperatures are in order and meet the applicable provisions of the International Maritime Solid Bulk Cargoes (IMSBC) Code. The instructions should also require the surveyor to assess the apparent condition of the cargo and make suitable recommendations to the Master as to whether the mates receipts and bills of lading should be claused.

Failure to fulfil either of these requirements may prejudice cover.

IMSBC Code

The International Maritime Solid Bulk Cargoes Code contains a comprehensive entry regarding the carriage of coal. Although some of the requirements are summarised below, Members should refer to the IMSBC Code itself for full details and ensure that the provisions are strictly followed.

Cargo Declaration

Although there are many good shippers and mining operations in Kalimantan, it is reported that not all are providing adequate cargo declarations. Some of the declarations have been found to misrepresent the cargo by either stating that the cargo is Category A (a reference to the 1990

version of the Code of Safe Practice for Solid Bulk Cargoes meaning it does not self-heat or emit methane) whilst others provide no details on the self-heating or methane emitting properties of the coal.

SOLAS Chapter VI and the IMSBC Code state that the shipper should provide the master or his representative with appropriate information sufficiently in advance on the properties of the cargo and recommendations regarding its safe handling, stowage and carriage so that the necessary precautions can be taken. In particular, the IMSBC Code requires the shipper to provide, in writing, the moisture content, sulphur content and particle size of the cargo, and information on whether it is liable to self-heat or emit methane, or both. A "Form for Cargo Information for Solid Bulk Cargoes" may be used for this purpose, an example of which can be found in Section 4 of the IMSBC Code. The master should insist that the shipper provides a cargo declaration that is consistent with the requirements of the IMSBC Code and should not load the cargo without it.

Loading and Carriage Requirements

In order to avoid problems of self-heating during the voyage and possibly while loading, the temperature of the cargo should be checked beforehand. Although not required by the IMSBC Code, an infra-red thermometer is an ideal tool for this task. Infra-red thermometers are relatively inexpensive and easily obtainable, and their use is recommended. The instrument may be used to "scan" the surface of the cargo prior to and during loading, allowing the master to be alerted if the temperature readings are found to be high. Vessels should also reject cargo exhibiting clear signs of self-heating such as barges containing smouldering coal.

During loading the holds should be sealed if a delay of more than an hour is anticipated. On completion of loading the cargo should be trimmed reasonably level to the boundaries of the cargo hold to prevent the development of fissures. Fissures increase the surface area of the cargo exposed to the air and thereby the risk of self-heating. Each hold should be closed immediately on completion, and hatch sealing tape may be applied to the hatch covers as an additional precaution. Only natural surface ventilation is permitted, limited to the absolute minimum time necessary to remove any methane which may have accumulated. Any vents that lead below the level of the cargo should be sealed as the introduction of air into the body of the cargo may promote self-heating.

The IMSBC Code states that personnel should not enter the cargo holds during the voyage due to the presence of methane and the possible hazards of toxic carbon monoxide gas and the depletion of oxygen if the cargo starts to self-heat. If it is essential to enter a hold, self-contained

breathing apparatus must be worn and enclosed space entry procedures followed.

For bulk cargoes such as coal which are liable to emit toxic or flammable gas or lead to the depletion of oxygen, the IMSBC Code and SOLAS Chapter VI require the ship to carry an Administration approved gas detector. The gas detector must be capable of measuring levels of methane, oxygen and carbon monoxide inside the holds without having to enter them. Gas detectors must be regularly serviced and calibrated in line with manufacturers' recommendations, and ships' personnel should be trained in their use. The IMSBC Code also requires vessels carrying coal to be provided with a means of measuring the pH values of cargo bilge samples.

Since coal emits carbon monoxide gas if it begins to self-heat, monitoring the amount of carbon monoxide inside a cargo hold is the most effective method of detection. Sampling points should be fitted to both sides of each cargo hold, either to the coaming or to the hatch covers, to ensure flexibility in the event of heavy weather. As far as practicable the same sampling points should be used when testing the atmosphere inside the cargo holds to ensure consistency.

The IMSBC Code also recommends that the ship monitors the temperature of the cargo in the holds from external locations during loading and while on passage, although the development of a hot spot in the coal may not be detected unless a temperature probe is located nearby. All gas detector and temperature readings should be recorded while loading and during the voyage.

Under normal conditions each cargo hold should be sampled daily and surface ventilation should be stopped at least four hours prior to sampling. If the carbon monoxide level is found to exceed 30 ppm, samples should be taken twice daily. If the readings exhibit a steady rise over three consecutive days or reach 50 ppm, a self-heating condition may exist. In such an event the cargo hold including the ventilation arrangements should be completely sealed.

The IMSBC Code further advises that the master should contact the company immediately if it appears that the cargo has started to self-heat. In addition the shipper should be notified and the Club should be informed as it may be necessary to appoint an expert to assess the situation and provide additional advice.

Such information should include:

- *Identity of the cargo spaces involved; monitoring results covering carbon monoxide, methane and oxygen concentrations*
- *If available, temperature of the cargo, location and method used to obtain results*
- *Time gas sample taken (monitoring routine)*
- *Time ventilators opened/closed*
- *Quantity of coal in hold(s) involved*
- *Type of coal as per cargo information, and any special precautions indicated on information*
- *Date loaded, and ETA at intended discharge port (which shall be specified)*
- *Comments or observations from the ship's master*

In the event of a fire, boundary cooling of the affected holds should commence immediately and the master should consider heading towards the nearest port. Again, the Club should be notified without delay as the attendance of an expert may be necessary.

In the event of any queries, please contact the Claims or Loss Prevention department.

This Circular replaces Circular No.10/2010 which has been cancelled.

Yours faithfully

China Shipowners Mutual Assurance Association