

Iron ore fines loaded at Indian ports

In view of the anticipated onset of the South-west Monsoon season members are reminded of the risks associated with carriage of iron ore fines with moisture content in excess of the Transportable Moisture Limit (TML).

The concerns of the club and IG are reflected in IG Circular '[India – Safe Shipment of Iron Ore Fines from Indian Ports](#)' published 14 December 2010.

The club has produced loss prevention briefings on [cargo liquefaction](#) and [iron ore fines](#) to provide members with more information.

On 27 August 2010 the Indian Directorate General of Shipping issued Merchant Shipping Notice No. 9 of 2010 - Safe loading, stowage, carriage and discharging of iron ore fines on ships from Indian Ports in fair and foul season - reg.

The Notice sets out the Directorate's position on the carriage of iron ore fines and lists the requirements for ships, ship operators, shippers and terminals. The requirements of MSNs 31 and 34 of 2009 (these can be found below) are still in force and should be strictly adhered to. The notice also reiterates the Master's overriding authority to delay or cease loading where there may be doubt as to the characteristics of the cargo.

Members will also note the requirement for Port State Control Inspections of all vessels loading iron ore fines, concentrates and similar cargoes.

[Please click here for a copy of Merchant Shipping Notice No. 9 of 2010.](#)

[Merchant Shipping Notice 31 of 2009](#) - Safe loading of solid bulk cargo with special reference to Iron ore fines from Indian ports - outlines the nature of problems experienced and identifies the relevant statutory and recommendatory procedures that should be implemented by the ship, shipper and port terminal to reduce the likelihood of repeated occurrence.

[Merchant Shipping Notice 34 of 2009](#) - Additional safeguards for safe carriage of solid bulk cargo especially Iron ore fines from Indian Ports - identifies further examples of poor practice by shippers and port authorities and encourages ships' masters to exercise their authority as outlined in National and International law, and [Merchant Shipping Notice No 18 of 2009](#).

17 June 2010: In view of the onset of the Monsoon season New Mangalore Port and Mormugoa Port (Goa) have each issued circulars in connection with the loading of Iron Ore cargoes at these ports. Both make reference to the use of surveyors to assist the Master

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[Click here](#) for the Mormugoa port circular.

[Click here](#) for the New Mangalore port circular.

13 October 09: The Directorate General of Shipping has issued a circular dated 1 October 09 on the subject of loading iron ore fines cargo, following recent heavy rainfall in the Goa and Karnataka regions.

Masters are reminded to exercise due caution, particularly when the moisture content may have changed subsequent to initial testing by shippers.

The circular also refers to the additional testing required by the IMSBC Code section 4.5.2. when loading takes place during rain or immediately after a period of rainfall when the cargo moisture content may have increased.

[Click here](#) for the circular - Loading of Iron ore fines.

6 October 2009:

Following recent incidents experienced by vessels loading Iron ore fines at Indian ports, the Directorate General of Shipping has issued the following Merchant Shipping Notices.

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Masters are further encouraged to verify the moisture content of Iron ore fines when in doubt **before** and during Iron ore loading procedures.

Recent correspondence indicates that following the publication of the above notices, local port authorities now require an independent cargo moisture analysis report from a surveyor appointed by the ship before granting clearance from the port.

11 September 2009: Liquefaction of Iron Ore Fines Loaded in India

Over the last fortnight there have been 3 separate, extremely serious, incidents involving vessels loaded with these cargoes.

- LOST - 30 August the HODASCO 15 sank off Malaysia whilst carrying iron ore fines from Calcutta to China.

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- LOST - 09 September the BLACK ROSE sank shortly after departing from Paradip with a cargo of iron ore fines onboard. Sadly, the Chief Engineer of the vessel is reported missing.
- LISTING - 10 September the VINALINES MIGHTY developed a list off Paradip after loading fines at that port and is returning to port.

Whilst the cause of these incidents is still uncertain it would be prudent to assume that liquefaction of iron ore fines was involved.

We would reiterate that Members should exercise **EXTREME CAUTION** when fixing to load iron ore fines from India during the monsoon season. Experience has shown that the current testing and certification regime for these cargoes may be inadequate and reliance on shipper's certificates alone should be avoided.

We would strongly advise Members to engage the services of a suitably qualified and experienced surveyor to assist the Master in determining the suitability of the cargo to be loaded.

22 July 2009: Liquefaction of Iron Ore Fines - New Mangalore and West Coast of India:

A vessel loaded with iron ore fines at New Mangalore foundered on 17 July 2009, fortunately with no loss of life. There is speculation that the vessel foundered due to liquefaction of the cargo which was reportedly rejected by a previous vessel.

In general iron ore fines produced for shipment from New Mangalore and the West Coast of India are stockpiled in the open. With the onset of the South West Monsoon very heavy rain falls on the stockpiles.

Iron ore is listed in the International Maritime Solid Bulk Cargoes Code(IMSBC Code) as a Group C cargo and as such is not considered likely to liquefy but should be trimmed to reduce the likelihood of shifting. Iron ore concentrates containing a proportion of small particles are known to liquefy and are therefore listed as Group A cargo. All of these cargoes require to be documented in accordance with the requirements of SOLAS chapter VI regulation 2 - Cargo Information. This requires the following details be provided by the shipper *prior* to loading;

- stowage factor
- trimming procedures
- likelihood of shifting, including angle of repose and any other special properties

Additional information required for cargoes that may liquefy includes a certificate stipulating;

- the moisture content and
- the transportable moisture limit (TML).

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A cargo with a moisture content exceeding the TML is more likely to shift as a result of liquefaction and should therefore not be loaded unless the vessel is specifically designed for this purpose. Both values must be provided on the certificate. Significantly, this additional information is not restricted to concentrate cargoes alone and should also be provided for *"other cargoes that may liquefy"* described as those with *"a sufficient proportion of small particles and a certain amount of moisture"*. This includes some cargoes of iron ore fines. Another indication that iron ore fines may be liable to liquefy is their use in the production of iron concentrate (sinter feed) and iron concentrate (pellet feed) both of which are regarded as Group A cargoes under the IMSBC Code.

It has been reported that often the moisture content stated on the certificate given by shippers bears no resemblance to the moisture content of the cargo at loading. Members fixed to load such cargoes in South West India should exercise **extreme caution**. Members may wish to engage the services of suitable surveyor to assist the Master in determining the suitability of the cargo to be loaded.

[Click here](#) to view recent examples of iron ore fine cargoes put forward for loading on the West Coast of India. Members attention is also drawn to:-

- [Press release on cargo documentation](#)
- [Signals article on cargo documentation](#)
- [Signals article on liquefaction](#)
- [Click here for the IMO recommended cargo information form](#)

Please refer below for additional information regarding cargo liquefaction kindly provided by Brookes Bell.

3 May 2007:

Locating surveyors for nickel ore cargoes being loaded at mining projects located in remote areas of

- New Caledonia
- Philippines
- Indonesia

can prove difficult at short notice particularly because

- there may be a shortage of suitably qualified surveyors and
- flight travel may be restricted

This can mean that surveyors cannot reach the ship in time to conduct a pre-loading survey - a situation that may lead to delay. Members with ships nominated to load this commodity are advised to contact the Association as soon as possible for assistance in appointing suitable surveyors.

[Click here to view can tests, bulkhead splashing, and nickel ore in cargo hold.](#)

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20 September 2006:

Following recent reports of cargo liquefaction consulting scientists at Brookes Bell have provided the following information for shipowners:

- Every cargo that contains moisture and at least some fine material should be queried prior to loading and should be tested if in doubt.
- Shippers must certify the transportable moisture limit (TML) and the moisture content of the cargo before start of loading. No cargo should be accepted for loading without valid certificates.
- TML is defined as 90% of the flow moisture point (FMP). The difference is intended as a safety margin to protect against uncertainties in testing.
- The FMP is absolutely critical which means that the smallest excess of moisture can cause liquefaction.
- If the actual moisture content at any location in the cargo is greater than the FMP then the cargo can liquefy at any time without warning.
- If the master has doubts about the testing procedure and appearance of the cargo then he should conduct a 'can' test as described in the BC Code section 8.3.

[Click here to see an example of a can test before testing](#)

[Click here to see an example of a can test after testing](#)

Source:

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