

# JAPAN P&I NEWS

No.851-16/10/07

*To the Members*

Dear Sirs,

## Philippines- Liquefaction of Nickel Ore (2)

Please let us refer you to our circular no.12-005 and Japan P&I News no.780, "Philippines – Safe Carriage of Nickel Ore Cargoes".

During rainy season from November to April in the Philippines, it is required to take more precautionary measures for the issues of liquefaction of nickel ore exported from the Philippines. Particularly, far more care should be taken for cargoes exported from Surigao located in the Southern Philippines, where is the most popular location for loading nickel ore as well as prominent rain-fall areas. As it is too risky to simply accept the cargo certificate for water contents issued by a mine's individual standard, it is advisable for shipowners to obtain independent samples for analysis and results prior to the vessels' arrival in order to ascertain that the cargo is fit for loading by judging from Flow Moisture Point and Transportable Moisture Limit governed by an international code, the IMSBC. If the Members would like to carry out a survey at a loading port, please do not hesitate to contact us for such an arrangement.

We provide you with guidance from local P&I Correspondents, Pandiman Philippines, Inc. Your kind attention again to the problem and cautious manners would be appreciated.

The circular in question was made by Pandiman Philippines Inc. It is not meant that our Club recommend particular companies to be appointed.

Yours faithfully,

**The Japan Ship Owners' Mutual Protection & Indemnity Association**

Claims Department

Tel: +81 3 3662 7222

Fax: +81 3 3662 7225

E-mail: [claims-dpt@piclub.or.jp](mailto:claims-dpt@piclub.or.jp)

Website: <https://www.piclub.or.jp>

Attachment: Information provided by Pandiman Philippines, Inc.

2016  
1st October

# ALON

## Ocean Wave

### ***PANDIMAN PHILIPPINES Inc.*** P&I Correspondent in the Philippines

Topics of interest relating to the Philippine Maritime Industry and Shipping

#### **WARNING OF WET NICKEL ORE CARGO IN BULK FROM SURIGAO PHILIPPINES**

**WE CURRENTLY STRONGLY RECOMMEND THAT ANY VESSEL INTENDING TO LOAD NICKEL ORE IN THIS AREA THAT PRIOR TO THE VESSELS ARRIVAL THAT INDEPENDENT SAMPLES FOR ANALYSIS AND RESULTS ARE OBTAINED**

Due to current frequent rain in the area of Surigao, Mindanao, we have a very high number of vessels wherein our attendance on board to monitor the loading of nickel ore is causing concern. Further that our advice the cargo is unsuitable to load in line with the IMSBC is not being considered.

This has resulted in situations locally at the loading mines where our surveyors have been seriously threatened for rejecting barges. That Masters of vessels despite advice not to load cargo do so. Where a ship owner and there club have insisted that a cargo undergo independent analysis then the cargo has been found with a significantly higher moisture content than hat declared on the Shippers declaration for Transportable Moisture Limit (TML) and Moisture Content.

The consequences of a nickel ore cargo liquefying can be catastrophic



Pandiman Philippines Inc.  
Pandiman Building  
General Luna Street  
Intramuros  
Manila

Tel: 527 7831 to 40

Email [mis@pandiman.com](mailto:mis@pandiman.com)

Visit us at  
[www.Pandiman.Com](http://www.Pandiman.Com)

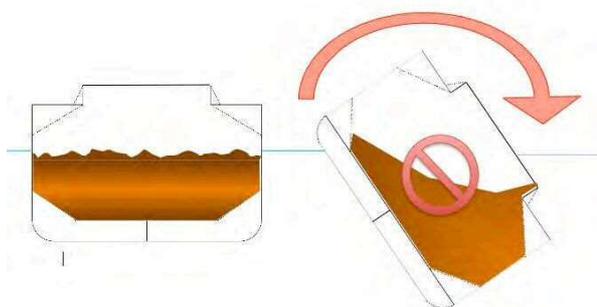


## Loading of Nickel Ore Surigao, Philippines, concerns of cargo being beyond TML

Pandiman Philippines Inc., and its Surveying company Survey Specialists Inc, when appointed to attend a vessel by the owner and their P&I Club are not there to load the vessel. The role of the attending surveyor

Nickel ore, when the moisture content is above the TML, the Transportable Moisture Limit the cargo can liquefy with catastrophic results. The liquefaction of a nickel ore cargo is not like free-surface effect of a liquid but is when due to vibration and movement a solid now acts like a liquid, it is a dynamic shift. The effects of liquefaction is so dramatic that in discussions with sole survivors of two vessels we undertook search and rescue in the South China sea of two bulk carriers, their Handy-Max vessels rolled over and capsized in less than 30 seconds.

A picture speaks a thousand words;



A person can not, by visual inspection alone of a cargo of nickel ore determine that it complies with the specific parameters of the International Maritime Solid Bulk Cargoes Code. (IMSBC).

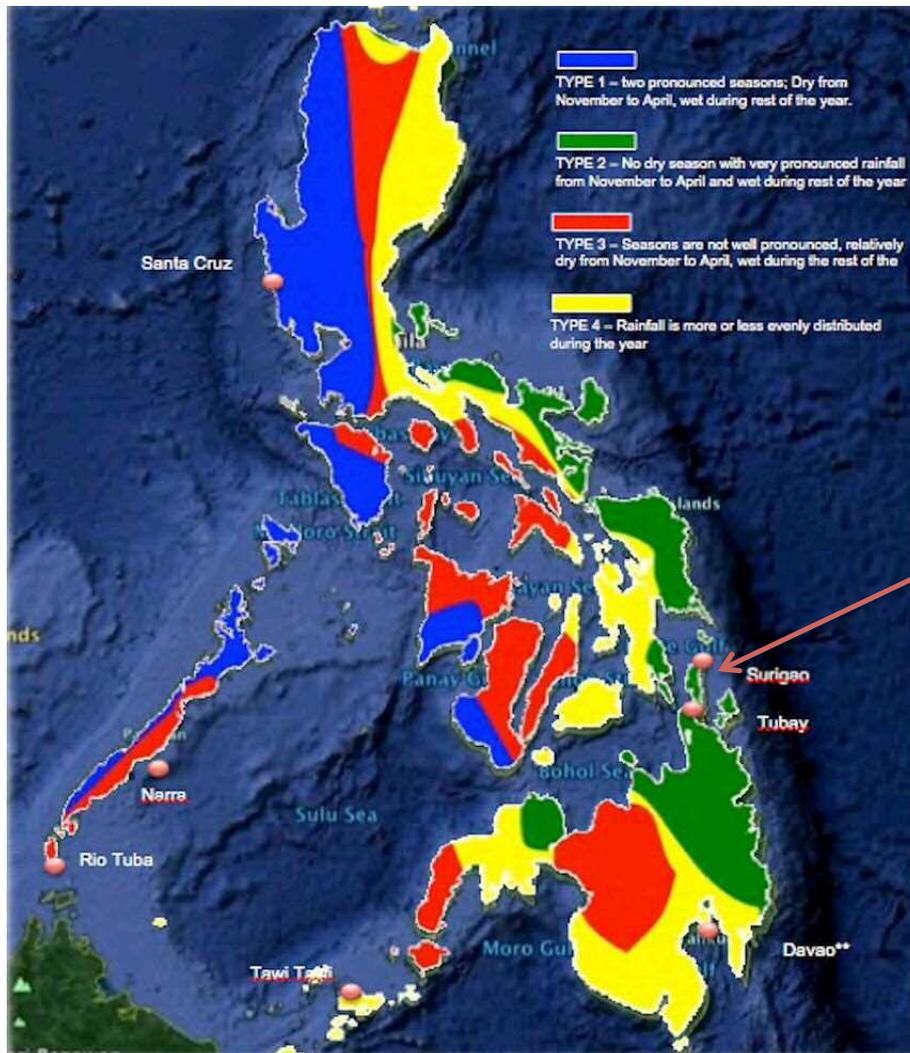
A person by conducting certain rudimentary tests in the field through observations can advise on concerns that a cargo appears to show obvious signs of high moisture and that a cargo should under go independent analysis for Moisture and FMP

To load a vessel is an owners decision in conjunction with the Master of the vessel which under his command he has full responsibility for the safety of the crew and the vessel. If the decision is made to load the vessel based on the certificates issued by the shipper and the local mine, then experience where samples have been tested by independent laboratories shows that these have been in some considerable error. The documents supplied to vessels prior to loading normally are not accompanied with details of the parameters of the testing of the nickel ore samples or protocol utilized.

**WE CURRENTLY STRONGLY RECOMMEND THAT ANY VESSEL INTENDING TO LOAD NICKEL ORE IN THIS AREA THAT PRIOR TO THE VESSELS ARRIVAL THAT INDEPENDENT SAMPLES FOR ANALYSIS AND RESULTS ARE OBTAINED**



**Climate**



Surigao

TYPE 2 – No dry season with very pronounced rainfall from November to April and wet during rest of the year

There is a very common misnomer that there is a “Dry Season” for the loading of nickel ore from the Southern Philippines, this is not correct. It can rain anytime of the year and does, however there is far more pronounced rain-fall from November to April. This year we have seen a very wet period currently.

Current concern is that all cargo located in this area is wet because of heavy rain, is a cargo of nickel ore safe to carry, this can only be established through laboratory analysis and a scientific test to see at what moisture content the cargo will liquefy at.

This establishes the;

- FMP - Flow Moisture Point
- TML - Transportable Moisture Limit

The relationship is fairly straight forward; the FMP is determined in a laboratory and is the moisture content at which analysis of representative samples of the cargo will liquefy. The TML is calculated at 0.9 (90%) of the FMP or allows a safety margin of 10%.



These tests are governed by an international code, the IMSBC (Incorporated into SOLAS) which all ship owners and charters must comply with.

There are several Field tests to evaluate a cargo for concerns as to whether it is beyond the TML,

### The Can Test

This is a simple test and as the term implies (can test) a metal can is suitable, such as a coffee tin, paint tin (but must be clean). Take about 1 to 2 kg of the ore and place it in the tin, repeatedly slam the can the bulk code says 25 times, **if the ore remains the same** then there are no obvious signs of moisture, if it shows any signs of liquefying (very obvious will be where free water appears on top **or takes on a shiny flat appearance**) then the cargo should be **rejected and not loaded**.



A failed test – flat pancake appearance- - FAIL carry out laboratory analysis of cargo

A can test **should never be used as a basis alone to determine if a cargo is safe to load, that is extremely dangerous**, a can-test is a rudimentary field test to try and observe if there are obvious signs of moisture, it is not a method for loading a vessel. The only way to determine a cargo meets the IMSBC is through a laboratory analysis. Even cargo that can show no obvious signs of moisture in a can test will still fail an analysis when observed to Plasticise (see below) or Splatter as for this to occur the cargo is already beyond its FMP. Can tests have become even more unreliable in the Surigao area because of the high clay content of the product.

When we discuss “obvious signs of Moisture” this is not necessarily referring to actually seeing water, if water is clearly visible at any time this is “free water”

### Grab Test

This is when a sample of cargo is placed in the hand, the sample is compressed, if on opening the hand the sample retains its shape this is evidence of High moisture – FAIL carry out laboratory analysis of cargo



### Splat Test

A handful of product is thrown against a steel surface if any or all sticks to the steel, signs of moisture, if it sticks and stays, high moisture, all a FAIL - carry out laboratory analysis of cargo

### Splatter

Any sign of splatter in the hold, large or small this indicates high moisture – FAIL - carry out laboratory analysis of cargo



The safe carriage of the cargo is determined by the IMSBC

Section 4.3.1 – “Certificates of test” – “ To obtain the information required in 4.2.1 the shipper **shall** arrange for the cargo to be properly sampled and tested. The shipper shall provide the ship’s master or his representative with the appropriate certificates of test, if required in this code”.

**(The IMSBC Code now uses the word shall)**

Given the geography of the Philippines and intensity of tropical rain showers, coupled with the open stockpiling of the cargo exposed to the elements then very important (however we do not see it being enforced) is Section 4.5;

Section 4.5.2 – “**Interval between sampling/testing and loading for TML and moisture content determinations**”) “**Sampling and testing for moisture content shall be conducted as near as practicable to the time of loading. If there has been a significant rain or snow between the time of testing and loading check tests shall be conducted to ensure that the moisture content of the cargo is still less than its TML. The interval between sampling /testing and loading shall never be more than seven days.**”

Given that the IMSBC is part of SOLAS (Safety Of Life At Sea), the Master has every authority for the safety of the vessel and her crew to seek testing and clarification of the moisture content of the cargo.

For more details on Nickel Ore locations and loading in the Philippines we have a PDF document that can be emailed if required.

Andy Malpass  
Pandiman Philippines Inc.  
Manila

