



Ref. T3/1.01

DSC/Circ.13
14 October 2003

INCIDENT INVOLVING TRANSPORT OF ILMENITE CLAY

1 The Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC), at its eighth session (22 to 26 September 2003), considered an investigation report submitted by Finland on **M.V. MARIA VG** which developed a list of 20^o at sea due to liquefaction of a cargo believed to be ilmenite sand.

Following investigation, the cargo was revealed to be Ilmenite Clay and also that the master had not followed the procedures as laid out in SOLAS chapter VI.

2 The Sub-Committee's attention was drawn to the conclusion of the investigation that:

- .1 the cargo was too wet, almost saturated (pore space filled with water) and the measured **moisture contents varied between 39%-46%**. This clearly exceeded the assumed average moisture status of about 28%. The estimate was based on post production reviews and it did not include the moisture increase caused by rain in the open storage field;
- .2 the water content of the cargo clearly exceeded the **Transportable Moisture Limit (TML) value of 22.7%**, determined for this investigation. The TML value had never been determined from the part of the shipper, although one transport had been aborted due to excess moisture. The practice in the shipping did not correspond to the normal practices of the Code of Safe Practice for Solid Bulk Cargoes (BC Code) issued by IMO;
- .3 the Master of the ship did not for his part request a report of the actual moisture content of the cargo or the TML value for the cargo;
- .4 the cargo condensed during the loading and transportation – the water in the pores was pushed upward in the cargo – causing liquefying of the top part of the cargo into a mass fully saturated with water – which may have been affected further by the pore pressure caused by the water pushing upwards;
- .5 the density of the waste concentrate contributed to the condensation process; and
- .6 the liquefied pressurized slurry could shift in the hold almost like a liquid.

3 It is therefore recommended that in transporting such cargoes, particular attention should be paid to the following:

- .1 the manufacturer/shipper of a new product transported in bulk should provide additional information in the form of a certificate on the moisture content of the cargo and its TML, as required by SOLAS VI/2.2 of SOLAS;
- .2 the cargo shall fulfil the assessment of accessibility of consignments for safe shipment as outlined in section 4 of the BC Code; furthermore, cargoes, which may liquefy, should be tested prior to loading in accordance with section 8 of the BC Code;
- .3 a certificate of the moisture content of the transported cargo and of the acceptable TML value shall accompany the cargo;
- .4 the Master of the ship is responsible for ensuring that he receives cargo fit for maritime transportation, i.e. he shall require a certificate of the moisture content of the cargo and of the fact that the TML value has been determined and that it is correct; and
- .5 liquefying cargoes should be stored and transported under conditions that prevent more water from seeping into the cargo as a result of rain or during the transportation.

4 Member Governments are invited to bring the above information to the attention of shipowners, ship operators, companies, shipmasters, shippers and all other parties concerned, requesting that appropriate action be taken in accordance with the provisions of the relevant IMO instruments when transporting such cargoes.
