

Brazil - liquefaction of bauxite cargoes

Gard has learned that several vessels have recently experienced cargo liquefaction problems after loading bauxite in the Amazon region in northern Brazil, apparently from terminals in Trombetas. To our knowledge, the exact causes of the incidents have not been reported so far, but it has been suggested that heavy rain in the region has led to an unusually high moisture content of the loaded bauxite. As far as Gard is aware, no serious consequences or casualties have resulted from the reported incidents, merely problems related to delays and extra costs in connection with the discharge operations.

Bauxite is a cargo which normally consists of lumps, with a relatively low moisture content. Due to these typical characteristics of the cargo, it is listed in the IMSBC Code as a Group C cargo: a cargo not liable to liquefy. Appendix 1 of the IMSBC Code describes bauxite as a cargo with moisture content between 0% and 10% consisting of 70%-90% lumps varying in size between 2.5 and 500 mm and 10%-30% powder. If any of the properties listed in Appendix 1 of the IMSBC Code are not met, the requirements of section 1.3 of the Code, "*Cargoes not listed in this Code*", should be followed.

Liquefaction of mineral ores resulting in cargo shifting and loss of stability has been a major cause of marine casualties for many decades. In cargoes loaded with too high a moisture content, liquefaction may occur without warning at any time during the voyage. Some cargoes have liquefied and caused catastrophic shifting of cargo almost immediately upon departure from the load port whilst others have liquefied after several weeks of apparently uneventful sailing. Members and clients loading bauxite from terminals in the Amazon region in northern Brazil should be aware of the potential costs/risks of carrying this cargo and ensure that it has been verified to be safe for carriage in accordance with requirements of the IMSBC Code. It is worth bearing in mind that seemingly safe cargoes can create dangerous situations.

For general advice Members and clients should also refer to Gard's compilation "[Cargo liquefaction](#)", which contains a collection of articles published by Gard over the years relating to the carriage of cargoes liable to liquefaction.