In the 15 months to February 2012, four very serious incidents involving carriers transporting nickel ore resulted in a combined loss of 66 lives. These figures, plus significant Chinese import activity, has rightly caused the shipping industry to increase its awareness of and regulatory focus on hazardous mineral ore cargoes.

The cause of these tragedies is liquefaction, which can lead to cargoes shifting during transit, causing the ship to list and other cargo to shift or break free. If multiple shifts occur and cargo does not return to its original position there is a real risk of capsize and loss of life.

Given these risks, everyone needs to understand the rules. If care is taken and safety regulations are adhered to, cargo, vessels, and lives can potentially be saved.

There is a wide variety of cargoes that can potentially liquefy in transit, but unprocessed mineral ores present a particularly dangerous combination of risk factors and account for a large proportion of recent casualties. Indeed, Intercargo describes mineral ores as “the world’s most dangerous cargo”.

The most common are iron ore fines, mainly exported from India, and nickel ore, which is mainly exported from Indonesia, the Philippines, and New Caledonia. The physical composition of unprocessed ores can vary from pit to pit and from country to country, so it is not only these countries that present a risk. But in tropical countries climate and standard practices such as transporting minerals in open lorries can increase moisture levels in these cargoes.

SOLAS and the International Maritime Solid Bulk Cargoes Code (IMSBC) are regulations that have been in place for years to ensure that only cargoes with sufficiently low inherent moisture content are loaded and shipped. But implementing an adequate testing regime can be difficult. Moreover, a lack of knowledge, expertise, or will among shippers of such cargoes – many of which are small operators – can mean safety requirements may not be met.

There have been concerns, for instance, that emerging export hubs like Guatemala lack sufficient cargo handling and testing experience to be sure of cargo safety.

The potential of liquefaction and the risks this poses for ships that carry such cargo mean that owners and insurers need to work together to mitigate these risks.

Owners risk losing their cover during an incident if they do not identify and accurately inform their insurer of the nature and characteristics of the cargo they will be carrying. Inaccurate declarations and certificates from shippers still appear to be one of the main problems of transporting cargoes liable to liquefy.

The transport of any dangerous cargo must be in adherence with the IMSBC Code, which, although it might seem overly cautious, provides appropriate guidelines given the potentially disastrous consequences of liquefaction.