Beware cargoes which may liquefy not listed in the IMSBC Code

Gard is aware of a number of cases involving cargoes which may liquefy that are not listed in the International Maritime Solid Bulk Cargoes (IMSBC) Code as Group A cargoes and therefore not declared as such by shippers.

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Group A consists of cargoes which may liquefy if shipped with a moisture content in excess of their Transportable Moisture Limit (TML). In two of the instances the cargoes liquefied endangering the lives of the crew. Fortunately, there were no fatalities, although in one case the vessel sank posing risks to the environment.

Gard encourages owners to make their crews aware of Appendix 3, Article 2 of the IMSBC Code, which states that "*Many fine particle cargoes, if possessing a sufficiently high moisture content are liable to flow. Thus any damp or wet cargo containing a proportion of fine particles should be tested for flow characteristics prior to loading*."

Cargoes not listed as Group A cargoes

The above is relevant also to cargoes not listed in the Code as Group A cargoes. The IMSBC is not a comprehensive database of all commodities that may be carried on ships. When fixing bulk cargo, owners should also be aware of the IMSBC provisions for dealing with cargoes not listed in the Code

Furthermore, some cargoes in the Code may not be categorized as Group A because they are typically dry, with descriptions such as "dry" or "dusty", despite having properties of a Group A cargo when the moisture content is higher. In such cases the same provisions apply.

Gard also continues to see cases giving rise to liquefaction concerns for Group A cargoes listed in the Code. Recently owner members of Gard have discharged back to shore cargoes that were found to be unsafe at the time of loading, including Group A iron ore fines and fluorspar.

Cargo of soil from a landfill

The vessel was transporting over 1,900 tonnes of soil, not listed in the IMSBC Code, from a landfill. During the voyage, the vessel was exposed to wind and waves causing the cargo to behave more like liquid cargo. The vessel listed and the five crew members were rescued before the vessel eventually sank. The authorities ordered the removal of oil from the wreck, which was otherwise not considered to pose a danger to navigation. The case was the subject of an investigation by the Norwegian Safety Investigation Authority (NSIA). The NSIA considered it likely that there was moisture in part of the stockpile and thereby in the soil that was taken on board. .

See this English summary and video (with subtitles) from the NSJA.

Cargo of calcium carbonate

In another case, the vessel developed a list shortly after leaving load port. Fortunately, the crew were able to get the ship to a sheltered anchorage. Upon inspection the cargo had mostly levelled and there was water on top of it. Salvors removed the free water and the vessel was towed to a nearby port where the cargo was discharged.

The cargo in this case was Calcium Carbonate, which is not specifically listed in the IMSBC Code. Limestone, which is also calcium carbonate, is listed as being a Group C. Calcium Fluoride, Calcium Sulphate and Calcium Carbonate mixture is identified on page 493 of the 2022 version of the Code as being Group A.

The cargo had been stored on the quay as an open stockpile, subject to snow showers before and during loading. The Chief Officer inspected the stockpile and noted that the consistency was between clay and sand and that it was partly frozen. After checking the Code and seeing that the cargo was not listed, the Master requested further information from charterers and was advised the cargo was not dangerous. No can tests were therefore conducted by the crew prior to loading. Can-tests performed on the cargo after the incident, and therefore after free water had been removed from the top of the stow, indicated the "possibility of flow" as described in Section 8 of the IMSBC Code.

The shippers confirmed that the cargo had not been tested for flow characteristics. Laboratory testing of cargo samples later confirmed the cargo to be Group A and unsafe for carriage. It had a moisture content over 30%, exceeding both the TML of 24% and Flow Moisture Point (FMP) of 26.7%. The TML of a cargo which may liquefy is set at 90% of the FMP and is the maximum moisture content of the cargo which is considered safe for carriage. It is determined by test procedures, approved by a competent authority, such as those specified in paragraph 1 of appendix 2 of the IMSBC Code. Particle size distribution (PSD) analysis also revealed the material to entirely consist of particles less than 2mm.

IMSBC Code provisions for cargoes not listed in the Code

Section 1.3 of the IMSBC Code provides instructions for dealing with cargoes not listed in the Code. It starts with a requirement for the shipper to obtain acceptance from the competent authority at the port of loading. The IMO maintains a list of contact names and addresses of the offices of designated national competent authorities responsible for the safe carriage of grain and solid bulk cargoes.

"1.3.1 If a solid cargo which is not listed in appendix 1 to this Code is proposed for carriage in bulk, the shipper shall, prior to loading, provide the competent authority of the port of loading with the characteristics and properties of the cargo in accordance with section 4 of this Code Based on the information received, the competent authority will assess the acceptability of the cargo for safe shipment.

1.3.1.1 When it is assessed that the solid bulk cargo proposed for carriage may present hazards as those defined by group A or B of this Code as defined in 1.7, advice is to be sought from the competent authorities of the port of unloading and of the flag State. The three competent authorities will set the preliminary suitable conditions for the carriage of this cargo."

Gard's experience is that these provisions are not easy to put into practice. We understand that proposals are being formulated to improve the so-called Tripartite Agreement.

Members experiencing commercial pressure to load an unlisted cargo without this acceptance are encouraged to contact the Club.

Shippers must use the Bulk Cargo Shipping Name (BCSN)

Section 4.2.2 of the IMSBC Code requires the shippers to use the BCSN when the cargo is listed in the Code. Shippers sometimes use trade names instead of the BCSN which may misleadingly suggest that the cargo is not listed. Trade names should only be used as secondary names in addition to the BCSN. This provides certainty to the Master, who can then confirm that the properties listed in the Code under the provided BCSN align with the cargo presented for shipment. If the Master notices that the cargo does not meet the description in the Code, the Club should be consulted without delay. Appendix 4 of the Code may assist in identifying the relevant schedule for listed cargoes.

If shippers provide cargo documents for solid bulk cargoes without a BCSN, Members are advised to ask them to provide the correct BCSN or the acceptance from the competent authority in accordance with section 1.3. As always, Gard encourages Members to contact the Club if they have any questions, difficulties or concerns about the safety of a cargo to be shipped.

Know your cargo

Knowing the cargo the ship is being asked to carry and understanding its properties and the risks it presents well ahead of loading is an essential safety control. This is especially the case if the crew is unfamiliar with the cargo. In one of the above cases an experienced master could not recall carrying a Group A cargo previously during his career. In both of the above cases, the crew were extremely fortunate to survive unharmed.