KISH P & I LOSS PREVENTION CIRCULAR KPI-LP-30-2012
(IBC code & Environmental + Special carriage control)

Requirements of the IBC code are to provide an international standard for the safe carriage, in bulk by sea, of dangerous chemicals and noxious liquid substances listed in chapter 17 of the Code.
The Code prescribes the design and construction standards of ships, regardless of tonnage, involved in such carriage and the equipment they shall carry to minimize the risk to the ship, its crew and the environment, having regard to the nature of the products involved.
Reiteration of some parts may be useful in the process of Loss Prevention. This circular deals with the Environmental Control issues.

Vapour spaces within cargo tanks and, in some cases, spaces surrounding cargo tanks may require to have specially controlled atmospheres.
There are four different types of control for cargo tanks, as follows:
►1- *Inerting:* by filling the cargo tank and associated piping systems and the spaces surrounding the cargo tanks, with a gas or vapour which will not support combustion and which will not react with the cargo, and maintaining that condition.
►2- *Padding:* by filling the cargo tank and associated piping systems with a liquid, gas or vapour which separates the cargo from the air, and maintaining that condition.
►3- *Drying:* by filling the cargo tank and associated piping systems with moisture-free gas or vapour with a dew-point of -40°C or below at atmospheric pressure, and maintaining that condition.
►4- *Ventilation:* forced or natural.

Where inerting or padding of cargo tanks is required:
A) An adequate supply of inert gas for use in filling and discharging the cargo tanks shall be carried or shall be manufactured on board unless a shore supply is available. In addition, sufficient inert gas shall be available on the ship to compensate for normal losses during transportation.
B) The inert gas system on board the ship shall be able to maintain a pressure of at least 0.007 MPa gauge within the containment system at all times. In addition, the inert gas system shall not raise the cargo tank pressure to more than the tank's relief-valve setting.
C) Where padding is used, similar arrangements for supply of the padding medium
shall be made as required for inert gas in A & B.
D) Means shall be provided for monitoring ullage spaces containing a gas blanket to ensure that the correct atmosphere is being maintained.
E) Inerting or padding arrangements or both, where used with flammable cargoes, shall be such as to minimize the creation of static electricity during the admission of the inerting medium.
Where drying is used and dry nitrogen is used as the medium, similar arrangements for supply of the drying agent shall be made to those required above. Where drying agents are used as the drying medium on all air inlets to the tank, sufficient medium shall be carried for the duration of the voyage, taking into consideration the diurnal temperature range and the expected humidity.

►Special carriage control conditions:

Special carriage control conditions refer to specific measures that need to be taken in order to either prevent a hazardous reaction. They include:
1- Inhibition: the addition of a compound (usually organic) that retards or stops an undesired chemical reaction such as corrosion, oxidation or polymerization;
2- Stabilization: the addition of a substance (stabilizer) that tends to keep a compound, mixture or solution from changing its form or chemical nature. Such stabilizers may retard a reaction rate, preserve a chemical equilibrium, act as antioxidants, keep pigments and other components in emulsion form or prevent the particles in colloidal suspension from precipitating;
3- Inertion: the addition of a gas (usually nitrogen) in the ullage space of a tank that prevents the formation of a flammable cargo/air mixture;
4- Temperature control: the maintenance of a specific temperature range for the cargo in order to prevent a hazardous reaction or to keep the viscosity low enough to allow the product to be pumped; and
5- Padding and venting: only applies to specific products identified on a case by case basis.

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