

## **E9** Earthing and bonding of cargo tanks/ process plant/piping systems for the control of static electricity

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E9.1 The hazard of an incentive discharge due to the build-up of static electricity resulting from the flow of liquids/gases/vapours can be avoided if the resistance between the cargo tanks/process plant/piping systems and the hull of the ship is not greater than  $10^6$  ohm.

E9.2 This value of resistance will be readily achieved without the use of bonding straps where cargo tanks/process plant/piping systems are directly or via their supports, either welded or bolted to the hull of the ship.

E9.3 Bonding straps are required for cargo tanks/process plant/piping systems which are not permanently connected to the hull of the ship, e.g.

- a) independent cargo tanks;
- b) cargo tanks/piping systems which are electrically separated from the hull of the ship;
- c) pipe connections arranged for the removal of spool pieces.
- d) wafer-style valves with non-conductive (e.g PTFE) gaskets or seals.

E9.4 Where bonding straps are required, they should be:

- a) clearly visible so that any shortcomings can be clearly detected;
- b) designed and sited so that they are protected against mechanical damage and that they are not affected by high resistivity contamination e.g. corrosive products or paint;
- c) easy to install and replace.

E9.5 Checks should be made on the resistance to ~~earth~~ the hull of the ship during construction of the ship and at subsequent major surveys, supplemented by visual inspection during annual surveys.

### Note:

1. Revision 1 of this UR is to be implemented for ships contracted for construction on or after 1 January 2014.

2. The "contracted for construction" date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of "contract for construction", refer to IACS Procedural Requirement (PR) No. 29.

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