

# Casualty Information

Ship Type: Any    Size (GRT): Any    Year of build: Any

## Immersion suits Ingress of water due to deteriorated glue

### Course of events

During survey for renewal of the Safety Equipment Certificate it was observed leakage on some of the immersion suits. The zipper had become detached from the suit in various places (see fig.1). The same was found at the connection of gloves to the suit. The immersion suits were estimated to be less than 10 years old.

### Extent of damage

The damage was in this case restricted to the number of damaged immersion suits. However, the life sustaining properties in an emergency would be reduced significantly, as leakage would reduce the thermal protection and also affect the floating position in a negative way.

Figure 1: Deteriorated immersion suit with partly no connection between the suit and the zipper.



### Probable cause

The glue connecting the gloves and zipper to the suit might have aged and lost its function.

### Lessons to be learned

#### *Lifetime varies widely*

The rate and severity of deterioration of an immersion suit may vary widely and depends on the construction, storage conditions and the extent of use. Leaky immersion or anti-exposure suits do not fulfil requirements in SOLAS Ch.III, Reg.34 and the LSA Code.

#### *Maintenance*

- All life-saving appliances shall be maintained on-board in accordance with instructions. The maintenance of immersion suits should include verifying the watertight integrity of the suits (SOLAS Ch.III, Reg.20.3 and 36).
- IMO has issued guidelines recommending that each suit is subject to an air pressure test every three years, and more frequent for suits over ten years of age, in order to ensure adequate strength and watertightness of seams and closures. (IMO MSC Circular 1114 dated 25 May 2004)

#### *Monthly inspection on board*

- Monthly inspection of life-saving appliances shall be carried out on-board by using a check list to ensure that they are complete and in order. (SOLAS Ch.III, Reg.20.7 and 36)
- IMO has issued 'Guidelines for monthly shipboard inspection of immersion suits and anti-exposure suits by ship's crews'. (IMO MSC Circular 1047 dated 28 May 2004)

#### *External support*

If competence or equipment for certain parts of maintenance or testing is lacking on-board, support from maker's representative or a qualified service company should be requested.

#### *Retroactive regulations in SOLAS*

From 1st July 2006 it is required that there will be an immersion suit for every person onboard all cargo ships. Exemption from this may be granted for ships other than bulk carriers constantly engaged on voyages in warm climates. Ref. amended SOLAS Ch.III, Reg. 32, Paragraph 3. This requirement was adopted by IMO on 20 May 2004 (Resolution MSC 152 (78)). For existing ships the requirement will apply from first safety equipment survey on or after 1st July 2006.

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The purpose of Casualty Information is to provide the marine industry with 'lessons to be learned' from incidents of ship damage and more serious accidents. In this way, DNV hopes to contribute to the prevention of similar occurrences in the future. The information included is not necessarily restricted to cover ships classed with DNV and is presented, without obligation, for information purposes only.

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