

South African Maritime Safety Authority



Marine Notice No. 4 of 2009

Night time lookout – Photochromic lenses and dark adaptation

TO SHIPOWNERS, MANAGERS, OPERATORS, MASTERS, FISHING VESSEL OPERATORS, HARBOUR MASTERS, MEDICAL PRACTITIONERS, TRAINING INSTITUTIONS, SAMSA EXAMINERS AND PRINCIPAL OFFICERS

Summary

This notice brings to the attention of industry the findings of a recent accident investigation into a collision between a large ferry and a yacht where all hands were lost. It highlights the impairment of night vision when photochromic lenses are fitted in glasses worn by lookouts.

Background

Photochromic lenses are those which darken with exposure to strong light and lighten in dark surroundings. The accident investigation retained the services of the University College of London's Institute of Ophthalmology to report on photochromic lenses:

§ The report demonstrated that the light transmission of these lenses was significantly reduced as compared to ordinary coated and uncoated lenses, which would have decreased the likelihood of the wearer detecting navigation lights.

§ The report also asserted that an insufficient period of dark adaptation is likely to have been a significant factor in the lookout's failure to see the yacht earlier. It also identified significant white light pollution in the wheelhouse and the red filter from the chart table light had been removed, both factors which would have reduced the lookout's night vision.

On the basis of these findings, SAMSA recommends that photochromic lenses **should not be worn** by the Officer of the Watch or lookouts at night.

Dark adaptation

The Merchant Shipping (Safe Manning) Regulations, 1999 refer.

Annex 1, (Regulation 6), Watchkeeping Principles and Arrangements, Part 1 Principles to be observed in keeping a navigational watch;

17. The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.

Further guidance is given by the *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 95)*

With respect to taking over the Watch, section A/VIII, part 3-1, paragraph 19 states:

“The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.”

No suitable period for dark adaptation is stated, but research indicates that this period is typically 10 to 15 minutes. This needs to be taken into account in determining the watch-keeping regime for the vessel.

On some large vessels, crew with lookout duties alternate periods on the bridge with periods of safety checks and fire watches in other parts of the vessel, some of which will be brightly lit. On fishing vessels, the deck lights may be very bright and crew may come off the deck to take a watch. The same period of dark adaptation will be required every time the lookout returns to the bridge. In addition it is important that dark is maintained on the bridge; making full use of blackout procedures, ensuring that radars and console lights are dimmed appropriately and avoiding contamination from residual light and surrounding uncurtained areas.

Photochromic lenses

Photochromic lenses, even after being in the dark for an extended period and in their most translucent state, can reduce night vision significantly. They should not be worn for lookout duties at night.

Permanently tinted lenses

As it is for photochromic lenses, permanently tinted lenses are also not to be used for lookout duties at night.

Aids to vision

Regulation 17 of the *Merchant Shipping (Eyesight and Medical Examination) Regulations, 2004* states that:

“17. A person whose medical certificate indicates that an aid to vision or hearing was used for the purpose of being found fit must—

- (a) use the aid when performing duties as a seafarer; and
- (b) in the case of an aid to vision, keep at least two such aids while performing duties as a seafarer.”

Annex 1, Section 3, Item 16,

“In all cases where visual aids (spectacles or contact lenses) are required for the efficient performance of duties, a spare pair must be carried when seafaring. Where different visual aids are used for distant and near vision a spare pair of each must be carried.

The Eyesight Examiner will request to see the spectacles to ensure that one pair is neither tinted or photochromic. This will be noted on the examination report.

In the event that the candidate cannot produce spectacles that are not tinted or photochromic, the results of the eyesight test will be withheld until non tinted or non-photochromic spectacles are produced.

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Issued by and obtainable from:
The South African Maritime Safety Authority
161 Lynnwood Road
Brooklyn Pretoria

P O Box 13186
Hatfield 0028
South Africa

Tel.: +27 12 366 2600

Fax: +27 12 366 2601

E-mail: marinenotices@samsa.org.za

Web Site : www.samsa.org.za