



Ship Type: All

Trade Area: Yugoslavia

## **Bulletin 64 - 09/98 - Debateable Testing Techniques for Comparison of Oil Samples - Bar - Yugoslavia**

We have recently been involved in an alleged oil pollution in Bar, Montenegro. Surface oil was seen around the ship's hull but the master was adamant the oil did not originate from the ship.

Samples from the ship's bilges and the overside oil were taken by the port authorities and three days later the master was presented with a certificate and some infrared (IR) absorption spectra of the sample. He was informed that the IR analysis confirmed that the two samples were "identical", indicating the ship to be at fault. A large fine was imposed.

We have been advised by our consultants that IR evidence of this nature is **NOT** a suitable scientific technique with which to verify the identity of separate samples of oil.

The IR technique records the frequencies at which infrared radiation is absorbed by the constituent molecules. Since oils of all types consist of carbon - carbon and carbon - hydrogen bonds within the molecule, **all oily substances give essentially similar infrared spectra**. In general, therefore the IR technique is incapable of being specific enough in oil spill cases of this type.

Should Members be presented with this sort of scientific analysis, we would recommend that it be challenged and a more suitable type of analysis used. We understand such comparisons should be undertaken using the technique of gas chromatographic/mass spectrometry (GC/MS).

Should Members require further advice, please contact the the Club ([Karl.lumbers@thomasmiller.com](mailto:Karl.lumbers@thomasmiller.com))

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