

## Hot work for Bureau Veritas

Tanker newbuildings dominated world orderbooks over the last year, with a rush for double-hull vessels following the sinking of the Prestige last year.

French classification society Bureau Veritas (BV) took a substantial market share, especially in high technology vessels, and also published new guidelines to help owners through the complex maze of choices which face them when contracting a newbuilding.

Significant orders for BV included a vlcc for Chinese owner Sea Fortune, two vlccs for Ming Wah to be built at Japan's Universal yard, and a panamax crude oil tanker for Formosa Plastics, but it was at the more sophisticated end of the tanker scale that BV took most orders, says the company.

The National Iranian Tanker Company chose BV to class a three plus two series of 35,000 dwt oil/chemical tankers IMO Type III to be built at Mipo, and Italy's D'Amico chose BV to class two 45,800 dwt product tankers to be built at STX in Korea.

Turkish yards took a major share of the world chemical tanker order book, and BV was chosen to class twelve chemical carriers of different sizes for Turkish owners. BV again demonstrated its skill with very hot cargoes by taking orders to class three asphalt carriers, two for UK's Sargeant Marine in Croatia and one for Petronav in China. BV is a leading player in the market for specialist tankers for hot cargoes like asphalt, coal tar and creosote, and all these are getting hotter. Temperatures in the range of 200°C to 250°C are now common. These temperatures impose huge thermal stresses on tankers, leading engineers to decide. The best way to avoid fracturing of the structure is to use independent cargo tanks.

The tank supports of independent cargo tanks have to absorb the temperature difference between the cargo load and the ship's structure. Furthermore the supports have to be able to allow the expansion of the cargo tank and to support the tank while absorbing the forces generated by the vessel's movement.

On many of these ships BV works closely with Netherlands-based BEELE Engineering, which has developed the ULEPSI tank supports. They consist of a plate of ULTEM glass filled rigid plastic measuring which is capable of carrying a load of 300 kN at a temperature of 175°C.

Underneath the ULTEM plate, a plate of silicon rubber is placed to bring the temperature down to around 100°C.

A plate of EPDM rubber underneath the silicon plate, reduces the temperature further to below 70°C.

Twelve years experience has proven that ULEPSI tank supports are virtually maintenance free, says a BV spokesman. Maintenance costs on the structure of the tank have also been reduced substantially.

BV has also recently issued guidelines for Tankers aimed at helping the technical staff of shipowners managing new construction projects. The guidelines identify the main structural design factors of any newbuilding project and guide the managers through the choices that face them and the rules that govern those choices.

The guidelines are developed from structural design studies carried out on typical tankers, and cover the steel grades, spacing of primary supporting members and ordinary stiffeners and design of transverse bulkheads.

The governing factors are reviewed, in the light of strength and regulatory considerations including selection of design loading conditions, ultimate strength of the hull girder, fatigue of structural details and strength of the crossing arrangement between different structures such as longitudinal and transverse bulkheads. There is detailed advice on drawing up specifications.