

Does ISO 8217 cover the ignition qualities of fuels?

Ignition and combustion qualities of bunker fuel are parameters that need special consideration. Specific energy is a key indicator as to how cost effective the bunker fuel is, and combustion/ignition parameters are important factors.

As fuel combustion is an extremely fast process it has always been difficult to study in detail. This has now changed with a new test method recently developed by the Energy Institute, IP 541/06, to look at combustion and ignition characteristics of fuel.

An inter-industry task force, overseen by CIMAC, has also been set up to provide ignition/combustion data for engineers, engine manufacturers, shipowners and the bunker fuel industry to work with.

Ignition quality does not fall under the auspices of ISO 8217: 2005(E), and claims of poor ignition quality have been on the increase over the past few years. There have been instances where fuel buyers have purchased fuel that complies with ISO 8217, only to find that the fuel caused engine damage because of poor ignition quality.

Medium speed engines in particular are more sensitive to a long ignition delay and a long combustion period, especially on low load operation. These may result in a change of process temperature / exhaust temperature and increased deposits on exhaust valves and piston rings. In addition, there could be excessive wear of cylinder liners due to increased thermal loads on the liner. In slow speed engines this is less of a problem as there is more time for combustion to take place.

Blending of fuels to meet the SECA requirements of Annex VI to MARPOL 73/78 has also contributed to poor ignition /combustion qualities in bunker fuel. In high sulphur fuels between 20% and 30% may be cutter stock. In low sulphur fuel the percentages may be split equally. This can lead to ignition/combustion issues, as well as compatibility problems.

Blending is a complicated procedure due to the huge variations in fuel content, and there are many parameters to take into account, including ignition/combustion, compatibility and the dangers of abrasive catalyst fines.

In the future, it is predicted that ignition/combustion parameters will be included in revisions of ISO 8217.

