Slagging problems depend on fuel quality
By using wood pellets of good quality troublefree combustion is obtainable. Combustion of wood pellets of poorer qualities or of fuel pellets made of other raw materials than pure wood may on the other hand induce ash fusions on the grid. Formation of slags will trouble the ash removal and prompt operation disturbances.

The problem occurs when the melting temperature of the ash is too low, not necessarily due to the amount of ash. A large ash content in the fuel however will increase the problem.

May the problems be predicted?
Whether problems with slagging occur depend on the actual combustion plant. Some plants are more sensitive than others towards diverging fuel qualities.

FORCE Technology offers various types of fuel testing. The obtained results of these testing’s together with operational experiences based on former deliveries of fuel, provide a good basis for predicting possible slagging problems.
FORCE Technology’s simple slagging test
FORCE Technology has developed a simple slagging test for fuel pellets, especially levelled at plants that need to use pellets of the best quality or plants that wish to guard themselves against slagging problems.

We carry out the test in our laboratory, directly on the existing pellets. The test is however so simple that a producer, an importer or a major user of fuel pellets will be able to do the test in connection with a quality control of the pellets.

The test distinguishes between high quality pellets as regards ash melting behaviour and pellets of all other qualities. The principle of the simple slagging test is illustrated at the top of this page. From this illustration it appears that the test answers the question “Is there a risk of slagging problems?” by a Yes or a No.

Ash fusibility, standard method
The method is described in CEN/TS 15370-1 and is based on the traditional coal method (ISO 540). The method has been used for many years concerning all forms and types of solid fuels. For this test is prepared a representative analysis sample which is ashed in the laboratory. Of the ash is prepared a small test specimen, which is observed during slow heating to 1500 °C under controlled conditions. During the process the characteristic temperatures are determined, based on the profiles of the test specimen shown below.

Profiles for the characteristic temperatures

The profiles show:
- a. Start
- b. Deformation temperature
- c. Hemisphere temperature
- d. Flow temperature.