PRESS RELEASE

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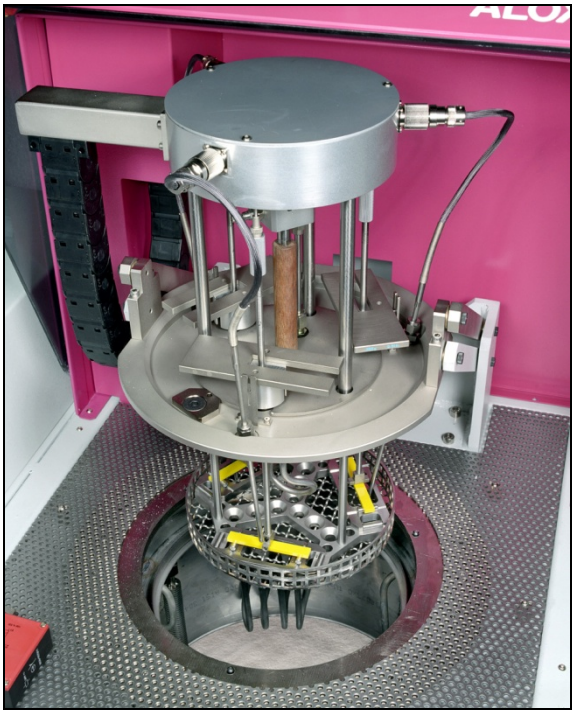
Applicable to high-temperature resistant thermoplastics:

CEAST AlOxide® performs HDT and Vicat Tests at up to 500 °C



The newly developed Instron CEAST AlOxide® thermal tester determines the Vicat softening temperature and HDT heat deflection temperature of plastics at temperatures up to 500 °C, allowing measurements to be conducted even on highly temperature resistant thermoplastics such as PEEK. Unlike conventional instruments, which use silicone oil as heating medium and typically offer maximum temperatures of 300 °C, the Instron CEAST AlOxide uses heat-resistant aluminium oxide powder in a fluid bed. The method is expected to be adopted in the relevant European standards in the near future.

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Applicable to high-temperature resistant thermoplastics:

CEAST AlOxide® performs HDT and Vicat Tests at up to 500 °C

Pfungstadt/Germany, August 2011 – Offering a temperature range from 50 °C to 500 °C the new Instron® CEAST HDT Vicat 500 AlOxide® thermal tester is setting new standards for the determination of the VICAT softening temperature (VST, ISO 306) and heat deflection temperature (HDT, ISO 75) of plastic materials. Conventional systems typically use silicone oil for heating the specimens. Due to their flash point, these can normally only be used at temperatures up to approx. 300 °C. The new AlOxide® tester provides controlled heat input through a fluid bed, consisting of high heat conductivity aluminium oxide powder with a grain size of 20 to 60 µm heated by a flow of hot air. This enables measurements to be performed with highest precision and repeatability even on high-temperature resistant thermoplastics such as liquid crystalline polymers (LCP), polyetherimide (PEI) or polyether ether ketone (PEEK). Ring tests conducted at an international level have underlined the quality of test results and demonstrated the suitability of the new method for practical use in industrial quality assurance as well as in research and development. The new technology is expected to be incorporated into the relevant testing standards in the near future.

Users of the CEAST AlOxide® thermal tester further benefit from a variety of other powerful features. The fact that the system does not use a flammable heat transfer medium significantly enhances operator safety in the test laboratory. The aluminium oxide powder in the tester allows shorter cycle times than with conventional oil baths, as the fluid bed takes less time to cool down. In addition, specimens will be free from oily residues after the test. Any particles adhering to the surface can be removed easily, and there is virtually no risk of testing related contamination of hands, clothing, and laboratory equipment. Likewise, noxious vapours in connection with evaporating oil are avoided. The fact that there is no degradation of the aluminium oxide particles means that the system works without the need for oil related changing intervals and associated procurement, storage and labour cost.

The HDT Vicat 500 AlOxide® system enables simultaneous testing of three specimens in three independent testing stations. HDT and Vicat tests can be performed in parallel. A pneumatic system automatically lowers all three testing stations at the beginning of a test and raises them at the end of the test. Likewise, an automatic pneumatic system applies and removes the

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test weights. During the test, the protective cover remains closed until the bath temperature has fallen below a preset threshold. Manual operator intervention is not required. The system can be used as a stand-alone unit, controlled by a microprocessor or touch pad. The instrument can also be connected directly to a PC running the Instron® VisualTHERM software for parameter management, process control as well as storage and evaluation of measurement data. VisualTHERM provides all test results specified in the relevant international standards for thermo-mechanical HDT und Vicat tests, both in numerical and graphical form.

Background:

The **Vicat Softening Temperature (VST)** is the temperature at which the surface of a plastic specimen is penetrated to a depth of 1 mm by a defined steel needle at a constant load with steadily increasing temperature. Two test methods are distinguished: **Method A** specifies a load of 10 N, **Method B** a load of 50 N, with heating rates of 50 K/h and 120 K/h respectively.

The **Heat Deflection Temperature** (**HDT**) is the temperature at which a specimen supported at both ends deforms by a specified amount under a defined, centrally applied load and at a uniform temperature increase (outer fibre strain equals 0.2 %). Three methods are distinguished: HDT A: Bending stress s = 1.8 N/mm² = const., HDT B: Bending stress s = 0.45 N/mm² = const., and HDT C: Bending stress s = 8.0 N/mm² = const.

About Instron
Instron is a globally leading manufacturer of test equipment for the material and structural testing markets. A global company providing single-source convenience, Instron manufactures and services products used to test the mechanical properties and performances of various materials, components and structures in a wide array of environments. Instron systems evaluate materials ranging from the most fragile filament to advanced high-strength alloys. With the combined experience of CEAST in designing plastic testing systems, Instron enhances materials testing offerings, providing customers with comprehensive solutions for all their research, quality and service-life testing requirements. Additionally, Instron offers a broad range of service capabilities, including assistance with laboratory management, calibration expertise and customer training.

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