

Case Study

Determination of the boiling point “Siwoloboff”



TECHPharm®

Customer: TECHPharm GmbH, Germany

TECHPharm is an independent contract laboratory for the pharmaceutical industry. We execute our orders on the basis of the good manufacturing practice for pharmaceutical products (cGMP) covering investigations on raw materials, stability storage and stability control, method development and method validation as well as cleaning validation.

Application: Boiling point determination according “Siwoloboff”

The determination of the boiling point is a standard parameter for the characterization of substances and is typically performed using a distillation procedure. Comparative determinations of the boiling point on different substances using both the Melting Point M-565 and a distillation apparatus according Ph. Eur. 2.2.12 showed that the results obtained with Melting Point M-565 confirmed those obtained with the distillation apparatus.

Equipment: Melting Point M-565

The Melting Point M-565 features the determination of the boiling and melting point. The boiling point is determined by the “Siwoloboff” method: a capillary containing the liquid to be tested is heated using a temperature gradient. As the temperature rises bubbles of gas rise slowly and regularly from the immersed end of the boiling point capillary. The boiling point of the liquid has been reached when the flow of bubbles reaches a frequency of 0.6 Hz.

Benefit / Conclusion: Applicable to small sample volumes

The “Siwoloboff” method is applicable to small sample volumes and is fast in comparison with the distillation procedure described in the pharmacopoeia which is time consuming and needs a sample volume of 20 ml. The Melting Point M-565 records the process by video control and determines the moment of boiling automatically. An examination of the analysis is available using replay mode.

“The BUCHI Melting Point M-565 allows fast and automated boiling point determination of small sample volumes.”

Dr. Ulrike Steiner, Head of Laboratory
