



## Determination of Camphor by Polarimetry

Camphor is naturally produced by trees of the laurel family. It has a strong aromatic odor and is used for various medical and non-medical applications.

### Camphor in drugs

In medical applications camphor is mainly used externally in concentrations below 10 %. Its analgesic and expectorant properties are made use of in ointments for myalgia, sprain or in cough suppressants. Non-medical applications include its use in beekeeping as an EU-approved drug against mite pest as well as moth repellent, but also for flavoring sweets in Asian cuisine.

Camphor is a chiral substance that in nature occurs in its dextrorotatory form. Synthesis of camphor results in an optically inactive racemate composed of equal amounts of D- and L-camphor. L-camphor has been found to have higher toxic potential compared to D-camphor. To test for successful synthesis, chiral separation as well as for purity of natural camphor, camphor must be analyzed polarimetrically.

### Characterization of camphor in quality control

A substance's optical rotation depends on its concentration in solution as well as on temperature. Optical rotation of camphor has been shown to be highly temperature dependent, making accurate temperature control essential, especially when analyzing trace amounts of substance.

Anton Paar's MCP 200, 300, and 500 allow the most precise analysis of camphor content in the milligram range, due to the high resolution range of up to 0.0001° optical rotation. To ensure this specific accuracy even in substances with highly temperature dependent optical rotation, every MCP comes with a Peltier temperature control as a standard, allowing temperature control with an accuracy of up to  $\pm 0.03^{\circ}\text{C}$ .

The analysis of camphor with polarimetry is required by an official AOAC method that is specified in the corresponding Application Report.



### Good to know

The MCP may be equipped with a customized method according to AOAC 926.18, which will directly display the amount of camphor in the applied sample.

### Other Anton Paar instruments relevant for the application

Anton Paar's process polarimeter Propol can be used for immediate inline and online detection of optical rotation in process applications.



### Do you have any questions?

Contact Anton Paar directly:

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