

Application: Waxes in Lipstick



Introduction:

Lipsticks contain a variety of waxes, oils, pigments and emollients. Among the waxes are beeswax, carnauba wax, candelilla wax, etc. The waxes in the lipstick are responsible for ease of application. But the main purpose is to give the lipstick shape stability since it must not melt on the lips. A lipstick contains 10 to 15% waxes which increases its melting point to approx. 65 - 85°C.

Melting points of waxes:

Beeswax: 65°C
Carnauba wax: 75°C
Candellia wax: 85°C

Quality control of beauty products is essential since they come in contact with the skin. Refractometry is a simple and fast procedure to check the constant quality i.e. the composition of lipstick batches.

The refractive index value of a pure material / mixture depends on temperature and wavelength but is specific to the material / mixing ratio. Thus, a refractometer allows to check the constant composition of lipstick ingredients by reading the refractive index.

The determination of the lipstick's melting point is an additional quality criteria. The melting point can be easily determined by running a temperature ramp.

Instrument:

For this application the whole measurement and temperature range is needed. The following instruments are applicable:

ATR-W2 RI 1.33200 - 1.70000 (± 0.00004) Temp. +10 to 80°C
ATR-W2 plus RI 1.33200 - 1.70000 (± 0.00002) Temp. +10 to 80°C

Procedure:

1. Prior to the measurement a RI value / range for proper quality must be defined.
2. Apply some lipstick sample on the prism.
3. Set the temperature to e.g. 65°C.
4. After temperature stabilisation press <Start> to start the measurement.
5. After the measurement is finished the RI value is displayed for the desired temperature at 589 nm. Waxes
6. Alternatively the temperature ramp can be used to estimate the lipstick's melting point.

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