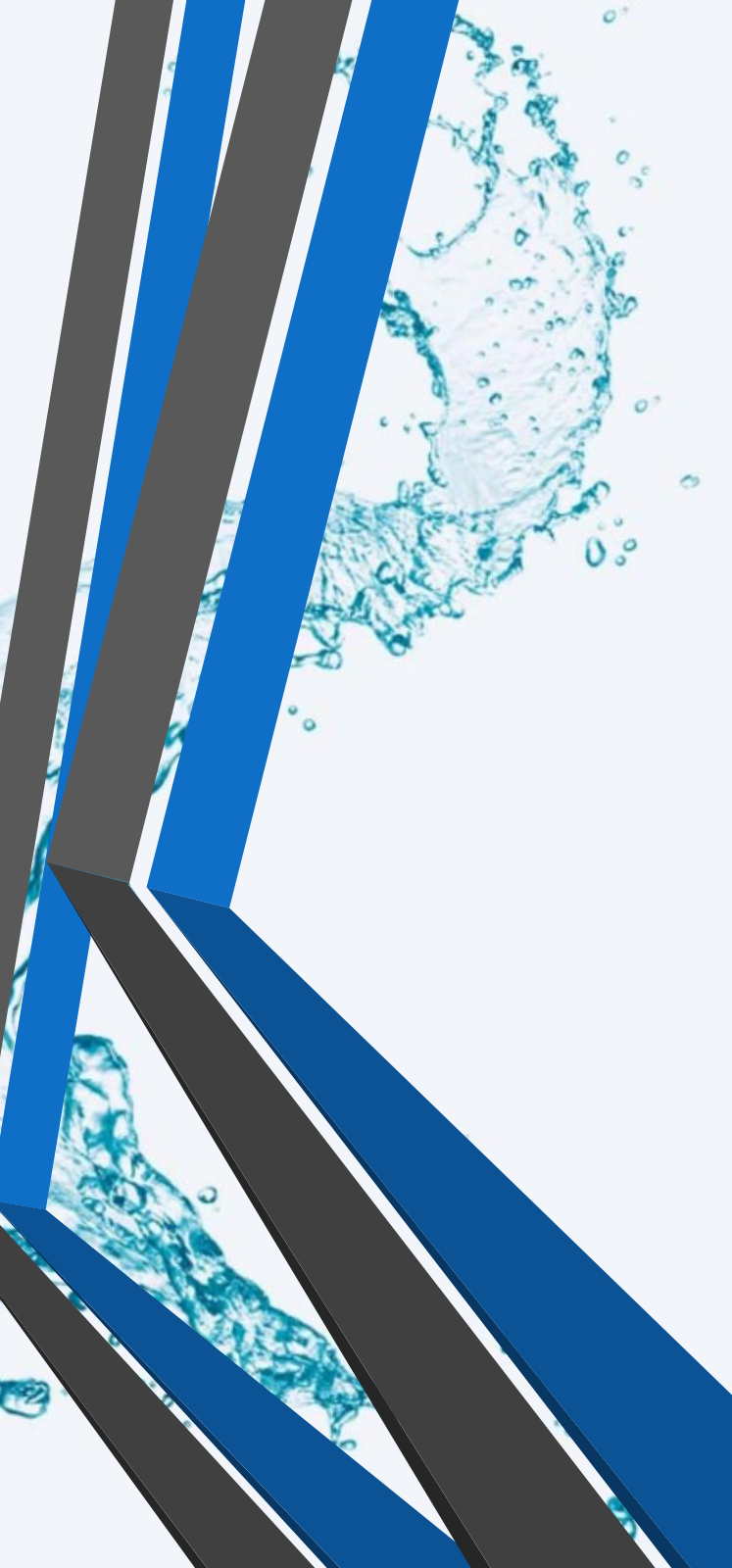




Determination of Water Content



Most of materials contain water. Determination of water content of them is important for their suitability to pharmacopoeia standards. This determination is generally practiced by 3 methods:

- Gravimetric (Sample: F. Sennae)
- Volumetric (Sample: Starch)
- Titrimetric

GRAVIMETRIC METHOD

**This method is recorded in pharmacopoeia.
Water content is examined by drying sample in
oven.**

**PRINCIPLE: Evaporating water in the sample at a
certain temperature. Hereby, finding out moisture
content by calculation of this weigh loss.**

EXPERIMENTAL PROCEDURE:

1- Weighing bottle is brought to a constant weigh then determined the tare. (A1)

- 1 g (1,????) F. Sennae is put into bottle and weighed together (A2) then put in oven (105 °C) and brought to constant weigh again. (A3)
- Amount of sample=C= A2 – A1
- Amount of water in sample=A= A2 – A3

C g sample

A g water

100

X g

X=% water content



VOLUMETRIC METHOD

Solvents that water is immiscible with and generally constitute azeotropic mixture with water (toluene, xylene, benzene) are used in this distillation method. Water is collected in a flask which has accurate measurements (Graduated collecting container). The value read at container gives the result.

This method is beneficial for removing the little amount of water in solid matters or organic solvents.



Azeotropic Mixture:

«Mixture of two or more liquids that have different boiling points and do not mix homogeneously at room temperature, but reach common boiling point by heating together. «

When the mixture is distilled and cooled, the liquids separate and gain their own properties. Boiling point of mixture is lower than its components boiling temperature.

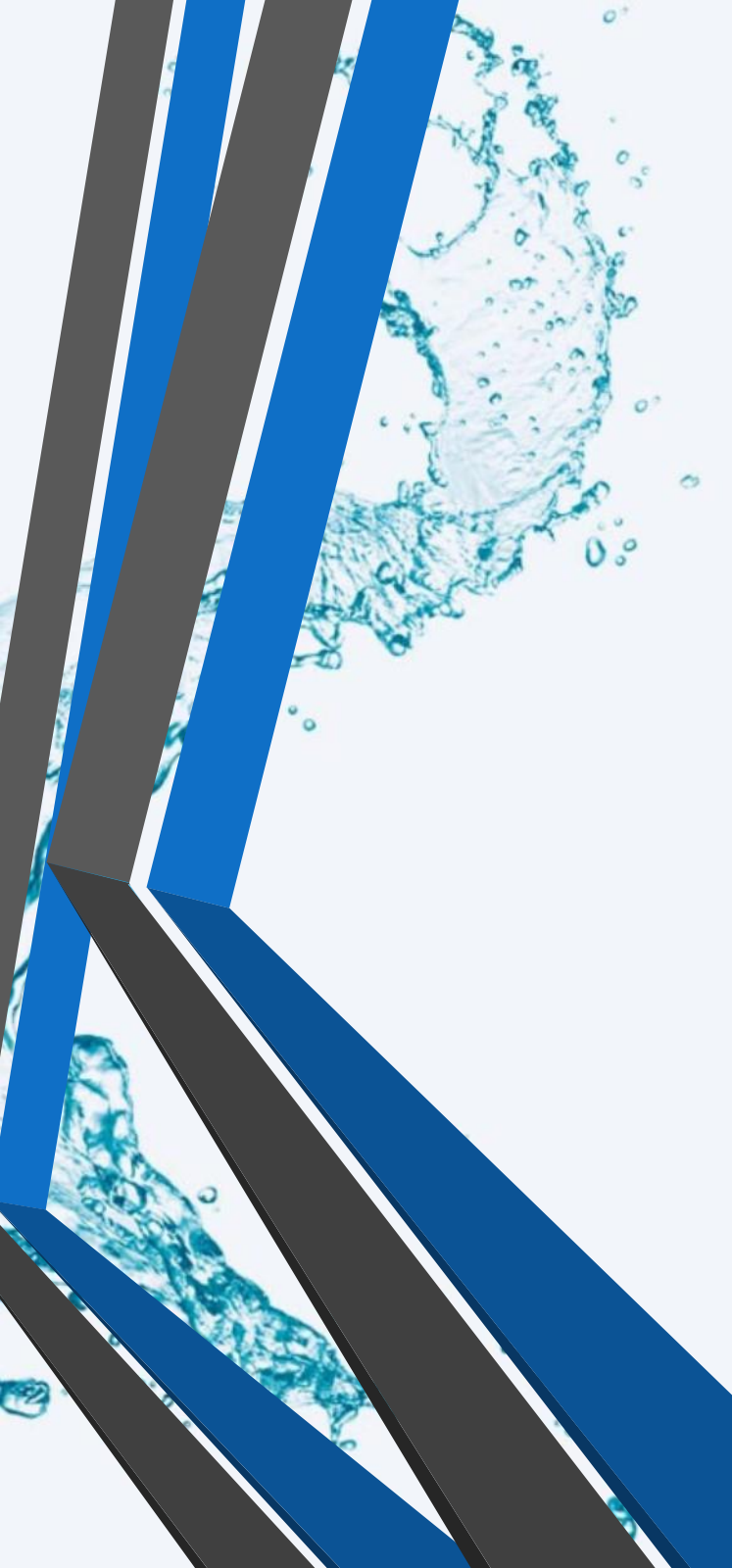
Experimental Procedure:

- 10 g (10,???? g=A g) starch is put in the flask and 150 ml toluene is added, then heated. Water in the starch makes azeotropic mixture with toluene. Little amount of toluene is put into the graduated container to see separating. Flask is heated to boil then temperature is decreased. Distillation is stopped when the amount of the water in container becomes stable. After the flask is at room temperature and water-toluene are separated, volume of water (B ml) is read.

• A g sample B ml water

100 X ml

x=% water content



Boiling stone is put in flask during distillation and heating. Hence;

- Boiling keeps regular,
- Heat disperses homogeneously,
- Boiling gets faster,
- Splashing is avoided.

BOILING STONES

(They can be marble, porcelain or various materials.)