

Loss-on-Drying Test

About Loss on Drying of Drugs

Loss-on-drying (LOD) is determined by heating a sample in an oven to a temperature below its melting point and includes all volatile substances, including water content and solvents. Loss on drying is a non-specific analytical technique that removes not only water from the sample, but also all other volatile impurities such as alcohol. The degree of drying depends on temperature and drying time. analysis of the total water content of an LOD or drug product can include both bound water (e.g. hydrated water) and free water. Since other volatile impurities may be present in the drug, e.g., alcohol; all, the LOD may be higher than the water content.

% LOD check formula:

$$\% \text{LOD} = \frac{\text{Weight of sample before dry} - \text{weight of sample after dry}}{\text{Weight of sample before dry}} \times 100$$

Loss-on-Drying Test Method

Oven

Once placed in a room or convection oven, the sample is repeatedly weighed according to a preset schedule and the weight loss is recorded. Once the weight remains constant, the difference between the initial weight and the final weight is calculated, corresponding to the evaporated moisture. This is used to calculate the percentage of moisture.



Microwave Drying

This is another weight method that uses several steps to dry the sample while performing repeated weight measurements. Microwave heating and evaporation of the moisture in the sample is very fast and takes only a few minutes. In addition, the sample size does not have to be very small.

Infrared Drying

Infrared radiation or heat can also be used to determine the moisture content of a sample, but only for small samples weighing 0.1 to 120 grams.



Moisture Meters

Moisture tester is a device for determining the moisture content using the loss-on-drying method and consists of a weighing and halogen heating unit. It is suitable for quality control and production needs in pharmaceutical and chemical industries.

SOURCE: <https://www.formulationbio.com/loss-on-drying-test.html>