

Residual Oxygen & Dissolved Oxygen Test

An important factor affecting the shelf life of drugs is drug oxidation, in the process of oxidation reaction, oxygen and pharmaceutical agents form peroxide compounds, causing drug deterioration, especially under the catalytic effect of humid air and light, accelerating the oxidation of air on drugs. Oxidative degradation of APIs of pharmaceutical preparations can reduce the efficacy and greatly shorten the expiration date of the drug. The oxidative degradation of the final pharmaceutical product during storage makes it possible for the product to have undesirable pharmacology, even including toxic or negative side effects, so there is an urgent need for good residual oxygen testing of pharmaceuticals.



Background

Some pharmaceuticals are unusually sensitive to oxygen, so it is common in the pharmaceutical industry to use protective gases for pharmaceutical packaging. Pharmaceutical residual oxygen control can provide different principles of electrochemical, zirconium oxide and fluorescence methods for destructive or nondestructive detection means for headspace oxygen and dissolved oxygen detection and analysis according to demand.



Elements to note for testing residual oxygen or dissolved oxygen in headspace of pharmaceuticals

- **Residual oxygen or dissolved oxygen control range**
The pharmaceutical residual oxygen control range is determined by the characteristics of the drug and the internal regulations of the company. Also, this range of values directly determines what principle of analyzer is used to test.
- **Whether to destroy the test sample**
Some companies want to test in a non-destructive way, when it is sufficient to place the induction patch on the inner wall of the container by fluorescence.
- **Allowable sampling volume**
For pharmaceutical products such as ampoules and blister packs, there are cases where the sampling volume is extremely small. If you use a pumping analyzer, you will encounter two situations: the sample gas volume is not enough to analyze; and you can only get a calculated value instead of the real measurement value. The fluorometric principle, on the other hand, can be analyzed with 0 consumption volume.

Source: <https://www.formulationbio.com/residual-oxygen-dissolved-oxygen-test.html>