

Reagent storage and expiry

All reagents should be stored according to manufacturer's instructions. These details can be found on the certificate of analysis and the safety data sheet. It is important to read the safety data sheet for all incoming chemicals. All expiry dates provided by the manufacturer should be noted and adhered to in order to ensure accurate results.

All laboratories should be equipped with fridges and freezers that suit their reagent and sample storage needs.

Temperature monitoring

Temperature monitors should be utilised in order to ensure the correct temperatures of fridges and freezers are maintained. It is essential to keep a laboratory log book so temperatures can be tracked and allow for early identification of malfunctioning equipment to avoid degradation of samples and reagents.

In-house prepared sample/reagent storage and expiry

Prepared sample expiry dates should not exceed that of the stock solution they were made from. It is important to conduct proper research before assigning an in-house prepared reagent's expiry date. You should consider the reagent's stability and ensure it is properly labelled.

Why is sample/reagent expiry important?

Expiration dates are important because they are imperative to ensuring accurate, reliable and safe laboratory procedures. By adhering to expiry dates high standards of scientific integrity and safety can be upheld.

Reagents can degrade over time which can change their reactivity and reliability. So it is clear that using expired reagents can lead to inaccurate laboratory results which can undermine the validity of scientific studies.

From the perspective of safety using expired chemical can be dangerous as when the chemical begins to degrade it may produce hazardous by-products.

As well as producing inaccurate results and posing a health and safety hazard using expired reagents is also against many strict laboratory guidelines such as good laboratory practice (GLP) and good manufacturing practice (GMP).

In-house prepared reagents - considerations

In-house prepared reagents have the potential to be inconsistent – making of reagent should be done by adhering to strict laboratory protocol. All staff involved in making reagents should be properly trained. This ensures that there is consistency in the reagents being used for scientific studies which ensures accurate and precise results.

Before use all reagents should be inspected visually by the user, colour changes, opalescence and precipitation should all be looked for before using the reagent.

Inert gas

Some reagents are sensitive to air and moisture – this means they need to be stored under inert gas. This can be done by passing a nitrogen stream over the top of the reagent bottle before sealing with the cap.

Some reagents are pyrophoric or extremely sensitive to air and moisture and will require a constant stream of nitrogen supplied by a needle through the suba seal top while in use.

Contamination

In order to prevent the contamination of reagents used in the laboratory it is important that the reagent is not directly dipped into. A beaker should be used to collect a small quantity of the required reagent and then the reagent can be sampled from the beaker.

Reagent bottles should also not be exposed to air for long periods of time. It is important to replace reagent and sample bottle cap immediately after use.

