

Safety Bulletin – Nitric Acid Container Failure

1. Overview of Incident

A researcher was moving a bottle of concentrated nitric acid housed within a storage cabinet. Whilst looking for another reagent, the researcher tilted the bottle of nitric acid to one side while supporting the cap with their hand. Suddenly, the top of the bottle sheared and detached from container body resulting in the acid spilling.

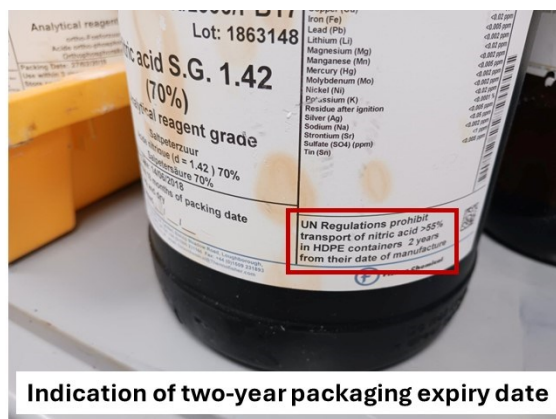
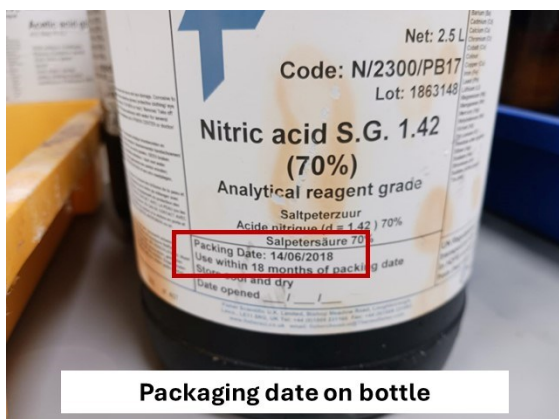


2. Lessons Learned

During the incident investigation, several lessons were identified for future improvement.

2.1 Periodic Checks of Age / Integrity of Nitric Acid Containers

The nitric acid container in question was supplied in 2018 (~8 years old) and HDPE bottles used to store nitric acid are known to degrade over time. The label on the outside of the container states bottles over 2 years old cannot be transported, suggesting bottles over two-years old are most susceptible to suffer from degradation.



It is advised that the age and integrity of plastic containers used to store concentrated acids are routinely checked. Out-of-date containers can either be disposed of via a waste contractor or, if safe to do so, the contents decanted into clean (or new/unused) brown glass bottles for storage as they do not degrade in the same manner.

If you do decant acids from their original container, please ensure the glass bottle is suitably labelled.

2.2 Handling of Containers

Whilst the researcher was only supporting the top of the container with their hand when the container failed, the incident serves as a reminder not to lift bottles / Winchester bottles solely by their lid / cap. Handles should be used where available whilst supporting the body of the container with the other hand.

