

Safety Alert - January 2022

Subject: Crystallised Picrylsulfonic acid

UNSW Safety are issuing a Safety Alert to remind staff and students about the risk of picrylsulfonic acid solution crystallising or solidifying

Background:

During a routine laboratory audit, a container of 5% picrylsulfonic acid solution (2,4,6-Trinitrobenzenesulfonic acid) was discovered in a fridge. The picrylsulfonic acid solution had crystallised. Normally the picrylsulfonic acid is in a solution and must always be stored wet, otherwise the dry material is a touch sensitive explosive. Arranging disposal is much more difficult and hazardous when the picrylsulfonic acid is dry

The investigation identified:

- The 5% picrylsulfonic acid solution had solidified and the original label was unreadable
- The chemical was purchased prior to 2006 based on the labels on the container
- The research group who owned the chemical could not be identified
- No risk management documentation for the chemical could be located



Actions taken following the incident:

- The container was gently placed inside a bucket of vermiculite inside a fume hood with a blast shield in front of it
- The laboratory was evacuated and locked down to prevent access
- Specialist chemical waste contractors were engaged to safely remove the chemical
- A report was run in Jaggaer for picrylsulfonic and picric acid to identify areas where the chemicals were in use
- All users were then prompted to check the condition of their containers of picrylsulfonic and picric acid to identify any containers where the chemical had solidified or crystallised

What is recommended going forward:

- Picrylsulfonic and picric acid must be checked periodically to make sure that it is still in a solution. A monthly checking interval is recommended
- Always keep the quantity stored to a minimum
- Where picric acid is being stored or handled, the [Management of Picric Acid Protocol](#) and [Picric Acid Inspection Checklist](#) must be used
- Store in tightly closed containers in a cool, well-ventilated area and protect from shock, friction and heat
- Document a risk assessment for any picrylsulfonic and picric acid stored or used
- Develop and follow a safe work procedure for any use or storage of picrylsulfonic or picric acid
- Ensure that all users of picrylsulfonic and picric acid are trained on its proper handling, use, storage and emergency procedures
- If crystallised or solidified picrylsulfonic or picric acid is discovered, do not handle it and immediately seek the advice of the Safety team
- Because of its sensitivity to friction, care should be taken in unscrewing any container of picrylsulfonic or picric acid in which there may be any solidified or crystallised chemical at the seal
- When checking the containers, it is important that the container is SLOWLY inverted or turned upside down, as this ensures that all the surface of the container has been wetted to prevent solidification
- Add a 6-month expiry date to the container in Jaggaer CIM ([expiration guide](#))
- When a research group or individual leaves a laboratory ensure that the steps described in [HS723 Laboratory & Equipment Decommission Project/Cessation Procedure](#) are followed.
- This includes the completion of [HS726 Cessation of Laboratory Activities Checklist](#) where part of a laboratory has been vacated such as when students have finished their bench work or one group is leaving a large multi-user laboratory space.
- Where an entire laboratory is being decommissioned, a laboratory space is being used for another purpose or is being vacated for refurbishment or renovation [HS704 Laboratory Decommissioning Checklist](#) must be completed

Further Information: safety@unsw.edu.au

