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| <div> <p>ASET • NSW INC</p>  <p>FOR LABBIES • BY LABBIES</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <div> <h1>ASET-NSW<br/>NEWSLETTER</h1> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <div> <p>MAY 2021</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div> <p>Volume 4, Number 1</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <div> <h2>In This Issue</h2> </div> <div> <ul style="list-style-type: none"> <li>• Committee Reports</li> <li>• Calendar</li> <li>• CONASTA69</li> <li>• Waste Article</li> <li>• Tips &amp; tricks</li> </ul> </div> <div> <h2>Links for Articles</h2> </div> <div> <ul style="list-style-type: none"> <li>• <a href="https://assist.asta.edu.au/">https://assist.asta.edu.au/</a></li> <li>• <a href="https://seaact.act.edu.au/conasta">https://seaact.act.edu.au/conasta</a></li> <li>• <a href="https://scienceweek.net.au">https://scienceweek.net.au</a></li> <li>• <a href="https://envirostore.com.au">https://envirostore.com.au</a></li> </ul> </div> <div> <h2>Contact Us</h2> </div> <div> <p><a href="http://www.asetnsw.org.au">http://www.asetnsw.org.au</a><br/> <a href="mailto:secretaryasetnsw@gmail.com">secretaryasetnsw@gmail.com</a></p> </div> <div> <h2>Temp Editor</h2> </div> <div> <p>Loretta Fincato<br/> <a href="mailto:fincatol@stmarks.nsw.edu.au">fincatol@stmarks.nsw.edu.au</a></p> </div> | <div> <h2>Chairperson's Report</h2> </div> <div> <p>Welcome to the 7th edition of the ASET-NSW newsletter.</p> <p>ScienceASSIST will be carrying on thanks to the wonderful response to subscriptions.<br/> #STARweek will be 1-5 November when we can be given sole recognition without other support staff getting all the accolades!</p> <p>Registration is open for CONASTA69. Places are limited on some of the tours, so get in quickly.</p> <p>Enquiries are being made into booking our own conference in September.</p> <p>Margaret Croucher</p> </div> <div> <h2>Secretary's Report</h2> </div> <div> <p>We are using new software to manage our membership, and you will have to use the "Member Area" to join, or if you were an active (financial member since November last year), you will have to enter your email address and then tell it you "Forgot your password" in order for an email to be sent to you that will enable your password to be changed. Please check all your current details are correct.</p> <p>All contacts on the old website have been archived. We may decide to delete any non-financial members off the database, and in that case you will have to re-join under a new subscription.</p> <p>Linda Stanford</p> </div> |

## Current Elected Committee Members

Margaret Croucher

*Chairperson, Public Officer*

Linda Stanford

*Secretary*

Elizabeth Brown

*Vice-Chairperson*

Johnathon Gray

*Publicity Officer, IT Manager*

Loretta Fincato

*Membership Secretary, Treasurer*

Jonathon Blair

*Committee Member*

## Publicity Officer's Report

We are looking for a newsletter editor. If you are interested, please contact Linda or Margaret.

Just a reminder that you can obtain a discounted conference fee for the upcoming CONASTA 69 if you are a member of ASET-NSW.

Loretta Fincato

## Calendar of Events

|                 |                                                   |
|-----------------|---------------------------------------------------|
| 27 March        | Earth Hour                                        |
| 12 April        | International Day of Human Space Flight           |
| 22 April        | International Day of Girls in ICT                 |
| 21 June         | PD Day – St Pauls, Booragul                       |
| 29 July         | Australian National Chemistry Quiz                |
| 30 July         | Australian Science Olympiads Chemistry            |
| 14-22 August    | National Science Week – Food: Different by Design |
| 1-5 November    | #STARweek                                         |
| September       | ASET-NSW Conference T.B.C                         |
| 26-29 September | CONASTA69 – Kingston, Canberra                    |
| 05-07 October   | ConSTANZ – Christchurch, NZ                       |
| 20 October      | HSC Exams begin                                   |
| 18-24 October   | Aussie Backyard Bird Count                        |
| 8-14 November   | National Recycling Week                           |
| 06 March 2022   | Clean Up Australia Day                            |

If you have any interesting science stories, photos, hints, tips or freebie suggestions, and they haven't been published on other forums, please send us an email so we can publish in the next edition of the newsletter. Please put NEWSLETTER in the subject line.

fincatol@stmarks.nsw.edu.au

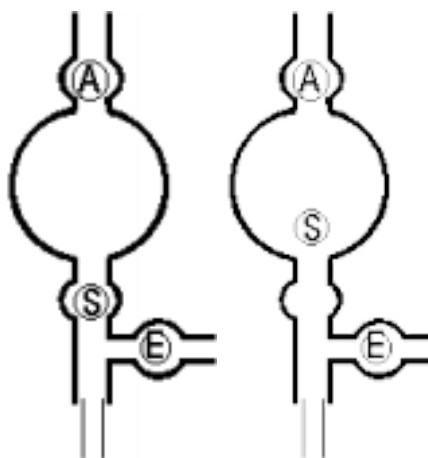


## Resources – Fixing Bulb Pipette Fillers

by Loretta Fincato

My year 12 chemistry students spend at least 4 lessons learning how to titrate. We had plenty of the wheel fillers in stock. I had used them at TAFE and never had an issue learning the technique. A new head of science asked me to purchase the bulb pipette fillers (D & N) and then the failures commenced. Many of the rubber bulbs become inoperable whilst students were learning to titrate, many became unusable during exams, and several of them become filled with solution which has to be emptied before they can be stored. Having just witnessed some bad technique during a recent practical exam involving titration which included getting too many air bubbles into the pipette, not being able to remember how to operate the fillers, displacing balls in brand new fillers, and squeezing too hard.

We had taught our students to A = Aspirate, E = Expel, and S = Suck. In the prep room we cut open a bulb filler to see how they worked, and where the 3 glass balls were located. Eventually I went onto [preproom.org](http://preproom.org) to research how to place the balls back into the correct position. One of the British technicians sent me the link to this document.



## **HOW TO REPAIR PIPETTE BULB FILLERS**

Students have a bad habit of inserting pipettes too far into pipette bulbs. This causes the Liquid Fill Valve glass ball 'S' to be pushed into the bulb or just the tube section before the bulb. By temporarily removing the Release Valve glass ball 'A', glass ball 'S' can be pushed back into place.

### **You will need**

- Large beaker or similar sided vessel with crumpled paper towel inside
- Small flat blade screwdriver
- The solid pin from a cork borer set. Cork borers come in a set of nested sizes along with a solid pin for pushing the removed cork out of the borer.

Alternative: #8 knitting needle 120mm long – end cut off square

### **How to do it**

1. Hold the pipette bulb upside down over the large beaker, pinching the rubber tube between the release valve and the bulb with your thumb and forefinger. Insert the screwdriver up the release valve pipe to get behind its glass ball 'A' and pop it out. Your thumb and forefinger stop the ball being pushed into the bulb. (The crumpled paper towel in the bottom of the beaker is there to stop the ball bouncing out and across the Prep Room – as experienced by the author!)
2. By shaking the pipette bulb you will know if the 'S' ball is stuck in the pipe or is loose in the bulb. Most likely it is in the pipe.
3. If the glass ball is in the pipe: turn the bulb upside down and push the cork borer pin down on a bench to pop the glass ball back into place.
4. If it's in the bulb: you will have to first push it just into the pipe a little before you can turn it upside down for the final push into place.
5. Now similarly reinsert the glass ball 'A' back into its valve position, whilst once again pinching the rubber tube beyond the valve to stop it going too far and into the bulb.

(Thanks to Liz Beech, Bev Bekker & Brema Samuel for assisting in the development of this repair technique.)



## Freebies

Need to make a scientific calculation or conversion? Try installing the Omni Calculator onto your smartphone.

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## Welcome to the Wonderful World of Waste and the School Laboratory Part VI

By Michael Pola  
Envirostore Chemical Consulting  
[mike@envirostore.com.au](mailto:mike@envirostore.com.au)

This article will make mention of two of the nastiest chemicals we have come across during collections. One of these we have only encountered in the school laboratory, and both have no place in schools, no matter what the chemistry teacher says.

The worst chemical is white phosphorous. Yellow phosphorous is the same thing as white turns yellow upon ageing. Red phosphorus (amorphous) is much more stable and will not burst into flame on contact with air. White is a class 4.2 dangerous good i.e. spontaneously flammable, and the red is a class 4.1 flammable solid. The problem is that white has pyrophoric properties, requiring it to be stored under water. It is also very toxic at very low levels to humans and marine life like fish. The liver is targeted in fish, and kidneys and hearts for humans. It has to be stored under water, and if you come across some which is not fully covered, you had better call your disposal expert.

Over the years we have asked schools why they keep it and invariably it was just to demonstrate its properties by taking a piece out to the school oval and watching ignite, burn, and emit copious white clouds of phosphoric pentoxide. These fumes are corrosive and will attack mucous membranes and tissues. We don't consider this educational, let alone a safe practice, and hope it is no longer demonstrated. Phosphorus in either allotrope was just never seen in other types of laboratories and it has virtually zero usage. A phosphate salt or phosphoric acid are commonplace and a far safer way to study this weird element.

The other chemical to steer clear of is hydrofluoric acid, HF. This acid loves calcium, and as humans contain a fair bit, HF is not welcome. 160sqcm of skin exposed to strong HF can cause hypocalcemia and is almost always fatal. It will dissolve most oxides and silicates, so it is commonly used to dissolve minerals and ores in the analytical laboratory. Not things that happen regularly in the school laboratory. HF will dissolve silicate glass and is therefore stored in special plastic bottles. It is used to etch printed circuit boards and glass, which are not normally done in schools. It may have been gifted to the school but always reject it, and get the donor to pay for its disposal.

Other chemicals that shouldn't be kept around just to show students include chromium trioxide and other Cr VI salts. Chrome III salts such as chromates are much safer by comparison but you should look long and hard at their requirement. Cobalt and cadmium salts especially the water soluble ones can also be problematic.

Most of the nastier organics are now persona non grata such as toluene, xylene, benzene, chloroform, carbon tetrachloride, dichloromethane, diethyl ether and carbon disulphide. The latter has a putrid odour, is even more flammable & volatile than diethyl ether and will dissolve phosphorous.

A genuine and thorough risk assessment should identify many chemicals that are far too nasty for use in school laboratories. The first risk control in the hierarchy is always Elimination.

These articles were previously published in Lablines and have been included with permission from the author. Editor.

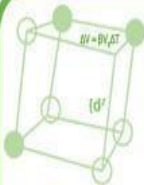
## CONASTA 2021



CONASTA is the annual science education conference of the Australian Science Teachers Association (ASTA). In 2021 CONASTA will be hosted by the Science Educators' Association of the Australian Capital Territory (SEAACT) and will be held from 26-29 September.

The CONASTA 69 theme of 'Science Revealed' has been chosen to inspire all educators to focus on the less obvious and most intriguing aspects of science and how this contributes to the broader body of scientific knowledge that supports breakthrough technologies. CONASTA 69 will also focus on the celebration and successes of science, particularly Australian science, and will explore the vital role of science in our future.

Registration will open **SOON with our EARLY BIRD prices!**



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### New Publication

1. The revised list of chemicals banned in Australian schools is available from the ScienceAssist website but can only be accessed if you have a valid subscription.
2. From 1 January 2021, Australia began the transition to *GHS 7* for workplace hazardous chemicals. The transition period is for two years and will end on 31 December 2022. This information sheet explains the changes to hazard classes and categories between *GHS 3* and *GHS 7*.

<https://www.safeworkaustralia.gov.au/doc/changes-chemical-classifications-and-labelling-under-ghs-7>

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### You know you are an astronomer when : -

1. You see a bright star and know that it's actually Mars.
  2. You know the names of specific craters on the Moon.
  3. You know the significance of the phrase "Oh Be A Fine Guy/Girl, Kiss Me".
  4. You can pronounce Betelgeuse, Uranus, Charon, and Cassiopeia at least two different ways each.
  5. Someone casually wonders aloud how many planets out there might be able to support life you immediately think of the Drake equation.
- 

### A word from our new sponsor...

My name is Chris Simm, and I'm the Service Manager for Conditionaire Manufacturing Pty Ltd. We are a Melbourne based company that specialises in fume cupboard testing & manufacturing, ductless fume hood testing, chemical storage cabinets, ventilation units & fans for chemical cabinets/chemical storage rooms in your school.

The company is well established and has been operating for 70 years. This gives us a very distinct advantage over our competitors when it comes to knowledge and problem solving. We currently repair/trouble shoot all makes and models on the market today. We are also NATA Accredited and adhere to the current standard AS/NZS 2243.8 and AS/NZS 2243.9. Our testing equipment is calibrated to NATA standards.

We have experience in all models of fume cupboards currently on the market, and most past makes & models. We can either offer you original parts or retro-fit ours when replacement parts become unavailable. This is a huge advantage over our competitors, when they cannot offer the same service.

All our reports come with a photo/sketch as per the standards requirements. It seems there are a lot of companies out there not adhering to this, and we now have access through a portal on the internet for all our clients to see or gather their test reports and have a full asset history on their fume cupboards etc including comments/repairs. We normally just email out as a PDF and there will be even more capabilities coming in the future!

What we can offer the regional NSW schools and Sydney Metro is this...we currently do a number of schools in the following areas: Albury, Cowra, Dubbo, Bathurst, Orange, Mudgee, Lithgow. This has come about due to the expensive pricing schools are being quoted from companies based in Sydney. For us to come to your region, I would suggest you contact all the lab assistants and facilities managers in the surrounding region, and discuss what you are currently paying for this type of service, and email me back with how many fume cupboards/fume hoods/ductless fume hoods (portable units on wheels) to get a no obligation quote for your school/s.

We would like to offer your school the following pricing...\$60 plus GST per NATA Test (airflow/smoke test with full report) and if you are 50kms or more out of Sydney, a travel cost of \$300 plus GST to anywhere else in NSW.

Remember also, double sided fume cupboards get tested both sides as per the standards and have to have certification labels on both sides.

I hope to hear from you soon.



**Chris Simm** - Service Manager/Business Development

Conditionaire Manufacturing Pty Ltd

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**Email:** [chris.conairmfg@bigpond.com](mailto:chris.conairmfg@bigpond.com)

## **BOB'S INSTRUMENT SERVICE**

Bob's Instrument Service specialises in the service and repair of school science lab equipment including microscopes, balances, power supplies, panel meters and other equipment throughout NSW and ACT.

Please feel free to contact Bob Death on 0416 721 011 or [bobsinstruments@gmail.com](mailto:bobsinstruments@gmail.com) to discuss your school's needs.