

This is number 13 in the series . We will be looking at dangerous goods cabinets, the new EPA requirements for waste disposers ( ie you and your school) and what to do if presented with a drum that is claimed to be hydrofluoric acid.

You will recall I left you at the end of the last article with a suggestion as to how chemistry pracs could be made relevant by attempting the identification of an unlabelled chemical. When I was a first year applied science ( chemistry ) student in Bendigo approximately 450 years ago, we had a prac subject called Semi-micro Analysis. The lecturer would give us students a vial of some unknown inorganic chemical to identify using a series of steps involving flame tests, charcoal block tests, solubility and specific reactions with certain reagents, For example silver nitrate solution will give you a white precipitate with a chloride . The bright red collar of strontium salts is a dead giveaway in the flame test. You had to identify both cation and anion . I still use these steps today.

The drum of HF looked to me like it was hydrochloric acid but how do you tell them apart. They both are fuming acids. If you apply the concrete test you can tell HCl from HF. Both acids will fizz on concrete but the HCl will go yellow. The ammonia test is also a good one. If you hold an open container of ammonia solution next to an open container of HCl you will see copious white fumes of ammonium chloride. The HF doesn't really do this. The best definitive test is to add a few drops of calcium chloride solution to the acid. No reaction with HCl but HF will form a milky white precipitate of calcium fluoride. We apply these and many other "spot tests" in the waste game as unlabelled and unknown chemical are a fact of life . We do also operate a FT-IR for the organics identification.

Chemical storage cabinets are being seen in more and more school laboratories these days, not only the flammable ones but class 8 and class 5 cabinets. The question of ventilation keeps coming up. The only cabinet that does need to be ventilated is a cabinet holding class 3 flammable liquids. You do not need to ventilate any other dangerous goods cabinet. These cabinets serve two purposes. One is to achieve segregation of incompatible chemical classes and to provide safe storage of dangerous goods. Segregation is required to prevent chemical reactions between classes of dangerous goods . We all know for example that acids and alkalis , while both being class 8 corrosive liquids must be segregated for storage. The is why class 8 dg cabinets are available with two separate compartments within, ie to keep the acids and alkalis apart so no risk of inadvertent mixing. The mixing of strong acids with strong alkalis results in pretty specular reactions and usually produces hot corrosive fumes which are very dangerous .

The flammable cabinet requires ventilation for the simple reason of allowing flammable vapours to escape the cabinet. The venting should be outside , not back into a ventilation shaft and definitely not back into another room. Remember a fire needs three things: fuel, ignition and oxygen. Oxygen is already present, fuel is supplied by the vapours. Its not the flammable liquid that ignites , its the volatile vapours they produce. Also try to eliminate the use of stoppered bottles to store flammable liquids in ( and strong acids for that matter) , it is almost impossible to achieve a gas tight fit. Use screw cap bottles like Schot bottles for example but certainly dangerous goods approved containers. The acid cabinet should have a tray of soda ash inside, this will absorb any fugitive acid vapours. Citric acid is an excellent absorber for ammonia vapours also.

The dangerous goods cabinets also provide secure storage of nasty chemicals so keep them locked up. And all cabinets come with maximum recommended storage limits which should also be observed, the limit should be printed on the front of the cabinet together with a statement that the cabinet is compliant with whatever Australian Standard applies. I have seen cabinets without either statement.

The new EPA Act and associated Regulations came into effect on the first of July. Many of you have been able to register on the EPA Waste Tracker Portal and been able to produce a waste producer certificate record.

Whats different from the former system? Not much but former registrants need to reregister as waste producers. Once you have been registered and you receive a password associated with an

email, you can go ahead and set up a chemical waste collection or as it is now called, Reportable Priority Waste, RPW. Formerly known as Prescribed Chemical Waste ,PIW.

Waste producers certainly include school laboratories and it is legally incumbent to responsibly dispose of your RPW. As before you must employ a chemical disposal business that has a license to accept and treat RPW and the transport must be done in a vehicle that has been issued with a permit to transport RPW.

When setting up a collection the disposer is asked a number of questions about the wastes and must nominate both the transporter and disposer , from a drop down list on the Portal Its not a long way from the old system and for schools the greater majority of your chemicals for disposal are still coded as T100, sometime preceded by a L for liquid or S fo solid or M for mixed. So typical school chemical wastes is coded as MT100. No need either to split your manifest in the different dg classes and do a certificate for each class. One certificate, one code will cover it.

I can only suggest you go to the web site and follow the Sign Up link. Its not too hard and it wont hurt and you can always call Envirostore for help. And at a pinch we can still do the whole shebang on your behalf if you wish. I know a few of you have been able to sign up without any trouble so ask around amount your colleagues at other schools.

And yes we are considered an essential service and still able to come to your schools to do collections. Its up to the individual school but as in the wonderful world of waste , its business as usual as the waste never stops.

Please feel free to contact myself or the editor if you have comments or questions about anything above .