Safe Method of Use for HSNO Class 4, Flammable solids (except 4.3 Dangerous when wet)

A. Classification

These substances pose a significant risk of ignition and adding to the total fuel load. Within the laboratory. The most likely cause of spillages will be after an earthquake or through a mishandling accident.

Code	**Classification criteria**
4.1.1	Flammable Solids
4.1.2	Self-reactive flammable solids
4.1.3	Desensitised explosives
4.2	Spontaneously combustible

You ***MUST*** consult Safety data Sheets (SDS) for details specific to the substance in use.

B. Incompatibilities

Hazard Classification	**Incompatible substances and materials**
4.1.1 (readily combustible substances)	Class 1 substances, Class 2 substances, Class 3.1 substances Class 4.1.2, 4.1.3, 4.2, and 4.3 substances Class 5 substances.
4.1.1 (those solids which cause fire through friction only)	Any substance likely to cause a spark when struck against a class 4.1.1 substance.
Hazard Classification	**Incompatible substances and materials**

4.1.2	Class 1 substances, Class 2 substances, Class 3.1 and 3.2 substances, Class 4.1.3, and 4.2 substances, Class 5 substances, Catalytic impurities having a detrimental influence on the thermal stability and hazard presented by class 4.1.2 substances.
4.1.3	Class 1 substances, Class 2 substances, Class 3.1 substances Class 4.1.3, and 4.2 substances, Class 5 substances.
4.2	Class 1 substances, Class 2 substances, Class 3.1 and 3.2 substances Class 4.1.1, 4.1.2, 4.1.3 and 4.3 substances Class 5 substances, Air, Oxygen

NB: All class 4 substances cannot be stored together in one place, sub classes are incompatible with each other and need segregation.

C. Storage

- Any secondary containers for HSNO Class 4 substances ***shall*** be marked with Class 4 icon.
- Areas of containment (including under–bench) cupboards ***shall*** be marked with a Class 4 substances icon
- Note that Class 4 substances are incompatible with all class 3 substances and must NOT be stored in a flammables cabinet containing flammable liquids
- Store below eye level on earthquake protected shelves or in locked cupboards.
- For specific substances, store as per the recommendations noted in the SDS.

D. Storage - Limits on Storage Time

- Containers ***shall*** be checked annually to ensure they are not deteriorating and are in good condition with labels that are intact and legible.

E. Use of Class 4 substances

- Minimal quantities ***should*** be kept in the laboratory at any one time.
- For any Class 4.1.2A, 4.1.2B, 4.1.3A, 4.2A and 4.3 substance being used, or being held in small containers in the laboratory and is available for use, the following information ***shall*** be provided:

  i) the identity of the substance; and

  ii) the concentration, if applicable and

  iii) for *approved* hazardous substances, a label stating "Flammable + physical state + general type of hazard (e.g. Flammable solid, spontaneously combustible) or a UN Class label. For *all unapproved* hazardous substances, a brief warning of the hazardous properties must be provided, if such information is available. This information can be provided by use of a United Nations (UN) or Globally Harmonized System (GHS) pictogram or written warning. This warning must be available to the person using the substance within 10 seconds, be durable and readily understood.

  iv) Date and name of user/owner

- Keep a dry powder fire extinguishers in any area where Class 4 substances are used and ensure that staff know how to use the extinguisher
- Procedures where vapour, mist or gaseous hazards may be present ***shall*** be performed in an approved fumehood

F. Personal Protective Equipment for Handling HSNO 4 substances

- Care ***shall*** be taken to ensure gloves of appropriate material are used when handling ecotoxic substances.
- Handle solid material with tongs or suitable spatula
- The primary barrier ***shall*** be the use of a tested and certified fume hood to extract toxic vapour, mist or gas away from laboratory workers

G. Disposal

- HSNO Class 4 substances ***shall only*** be disposed of via the chemical waste room (TTR007). Refer to information on the SBS resources page for information on appropriate containers and labelling for waste solvents. If in doubt, contact your lab manager.

H. Spills

- **Minor spills** – ***shall*** be cleaned up immediately using the spill kits present in the laboratory

- Extinguish all sources of ignition
- Use correct gloves
- Recover with tongs, if feasible, otherwise cover with **inert** absorbent material (e.g. sand), and sweep into container. Used absorbent material is to be placed in an impermeable bag and bag is to be sealed. Place in an appropriate container under inert gas.
- Inform Laboratory Manager and arrange for immediate disposal.
- If a staff member, fill out an incident/accident report. If a student, ask your supervisor fill out the online incident/accident report on your behalf.

- **Major spills** –

- Extinguish all sources of ignition and clear area immediately.
- If required provide first-aid to any affected individuals.
- Close all doors to laboratory and prevent re-entry until 'all-clear' is given
- Call fire brigade and campus care immediately.
- Inform Laboratory Manager and/or arrange for SDS to be made available to emergency services.
- Prepare to evacuate building

I. Emergency Contacts

In an emergency

- Call Campus Security on 8888 (0800 842 8888) or (04) 463 9999 giving location and substance details
- For emergency services call: 111