

XRF Scientific Ltd

Platinum (Pt) and many of its alloys are highly resistant to chemical attack. To get the greatest use and life out of your Pt ware you should observe the following:

- Avoid thermal and physical shock.
- **CLEANING:** Boiling with dilute hydrochloric acid (HCl) or fusing with potassium bisulphate prior to boiling with water normally suffices. There are procedures set out for specific material types in various standards E.g. ISO 9516 - 1992 for fusion XRF analysis of iron ores and AS 2879.7 – 1997 for fusion analysis of alumina. For a more aggressive clean, boil in nitric acid (HNO₃ chlorine free). For a less aggressive, routine operation, place Pt ware into a beaker of 20% w/v citric acid, maintained at 80°C. Whatever cleaning method is used, rinse thoroughly with clean water and dry thoroughly.
- Polish and reshape your Pt ware after use.
- Always maintain oxidising condition.
- When performing borate fusion on reducible matter, pre-oxidise first before fusing. In most cases, this can be done insitu E.g. using an oxidant such as sodium nitrate and sintering at 700°C for the analysis of base metal sulphides. Organic material must be fully ashed before fusing.
- Avoid contact with most metals, E.g. Fe, Cr, Ni, Cu, Zn, Pb – particularly at elevated temperatures. If the metal particles are fine enough, they can be pre-oxidised as above.
- Do not carry out direct fusions with caustic alkalis, nitrates, cyanides or nitrides in Pt ware.
- Barium and lithium hydroxides react at red heat with platinum and fused alkali oxides and peroxides dissolve platinum.
- In general, reduce handling as much as possible. Ideally the Pt ware should only come in contact with tongs (titanium or Pt tipped steel tongs), balance pan and cradle used to hold the Pt ware. E.g. preheated/conditioned inconel cradles for furnace work and teflon cradles for cleaning/washing. Never place Pt ware on bench tops.

CONTACT XRF Scientific about particular applications of platinum and its alloys.