

TYPICAL SHEATH MATERIAL FOR OTS HEATERS

- **Stainless steel heaters** are suitable for use in phosphating, alkaline or neutral pH solutions such as degreasing or rinsing
- **Titanium heaters** can be used in a wide range of alkaline and acidic solutions
- It is important to be aware of varying temperature and concentration of solutions which can cause chemical attack
- In electroplating processes such as nickel plating, the titanium sheath should be connected to act as an anode to prevent corrosion
- **Quartz glass (Vitrosol) heaters** are made from clear fused silica quartz
- Suitable for heating acidic solutions as the tube is inert to most acids
- Not suitable for use in hydrofluoric acid or strong alkaline solutions
- To prevent mechanical damage the sheath should be protected by using a polypropylene or PVC guard
- Using the highest wattage element can result in mechanical damage due to thermal shock
- Lower wattage element inserts are strongly recommended
- **Teflon coated incoloy heaters** are suitable for heating chemical solutions which are aggressive (acidic or alkaline)
- Typical applications include hydrofluoric acid / ammonium difluoride, zinc or ammonium chloride solutions
- These heaters can be bent and shaped to suit customer requirement
- A combination of low watt density and teflon coated heaters in galvanizing flux applications significantly reduces build up on the sheath



Elements supplied to the Metal Finishing Industry generally use high watts density ("red heat") elements which heat up the air in the sheath which then transfers heat to the solution. Even though this form of heating is inefficient it is the best solution where aggressive chemicals need to be heated. The sheath protects the heater from corrosion and/or chemical attack thereby considerably extending the life span of the element. However the inefficiency of the heating process means that cycling the elements is essential to ensure longevity of the heater.