The following are the most common tubular element sheath materials.

**Incoloy® 840**: Nickel 18-20%, Chromium 18-22%, Iron balance. Has about 10% less nickel than Incoloy 800. Used in many air heating applications, where it has exhibited superior oxidation resistance at less cost than Incoloy 800.

**Incoloy® 800**: Nickel 30-35%, Chromium 19-23%, Iron balance. The high nickel content of this alloy contributes to its resistance to scaling and corrosion. Used in air heating and immersion heating of potable water and other liquids.

**316 Stainless Steel**: Chromium 16-18%, Nickel 11-14%, Iron balance. Modified with the addition of Molybdenum (2-3%) to improve corrosion resistance in certain environments, especially those which would tend to cause pitting due to the presence of chlorides. Applications include deionized water.

**304 Stainless Steel**: Chromium 18-20%, Nickel 8-11%, Iron balance. Used in the food industry, medical, and chemical heating.

**321 Stainless Steel**: Chromium 17-20%, Nickel 9-13%, Iron balance. Modified with the addition of Titanium to prevent carbide precipitation and resulting intergranular corrosion that can take place in certain mediums when operating in the 800-1200°F (427-649°C) temperature range.

**Copper**: Standard Copper Alloy

A low temperature, inexpensive material used mainly for clean water heating.

**Steel**: Low Carbon

Used for high to low viscosity oils, asphalt, tar, wax, molten salt, heat transfer liquid media and other compatible solutions.

**Other Sheath Materials**: Available for a limited number of diameters. Consult Tempco for more information.

**Inconel® 600**: Iron 6-10%, Chromium 14-17%, Nickel balance

Maximum Sheath Temperature: 1800°F / 982°C

**Incoloy® 825**: Nickel 38-46%, Chromium 19.5-23.5%, Molybdenum 2.5-3.5%, Iron balance

Maximum Sheath Temperature: 1100°F / 593°C

**NOTE**: The best source for chemical/sheath compatibility is the supplier of the gas or liquid to be heated.