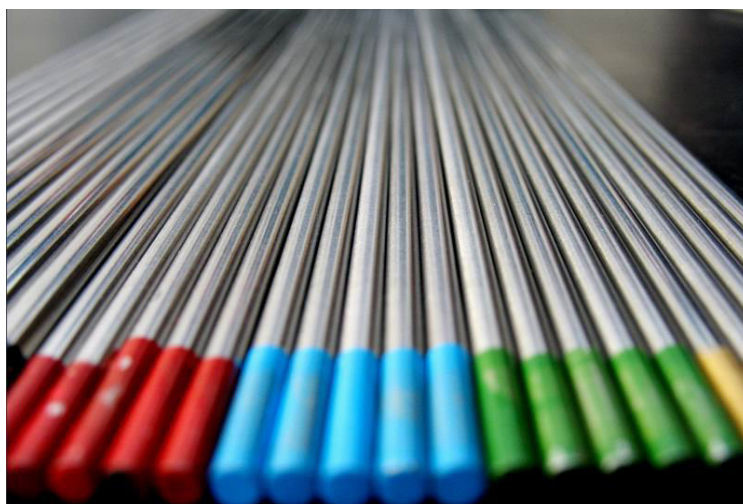




Thoriated Welding Rods

Thoriated welding rods are used as electrodes in tungsten inert gas (TIG) arc welding



Radioactive thorium is added to the tungsten because it increases the current carrying capacity of the electrode and reduces contamination of the weld. In addition, it is easier to start the arc and the arc is more stable.

The welding rods are classed as “non-consumable”, which means that they are not used to provide the filler for the weld (the material that binds the two pieces of metal together).

The amount of thorium in a standard welding rod is such that if the entire rod was ground into a fine powder and inhaled, the resulting radiation dose would be approximately 2-3 times the average annual natural background radiation dose received in Australia.

However, the probability of inhaling the entire contents of a welding rod is extremely small. The slow rate at which the rods are used up during welding, and the use of face masks by welders and provision of good ventilation would reduce the amount of thorium inhaled to an extremely small fraction of the total amount in the welding rod. Grinding the rod to produce a fine tip (which allows the heat from the arc to be concentrated in a small area of the weld) would also lead to the inhalation of only a very small quantity of thorium provided normal work-place safety procedures are followed.