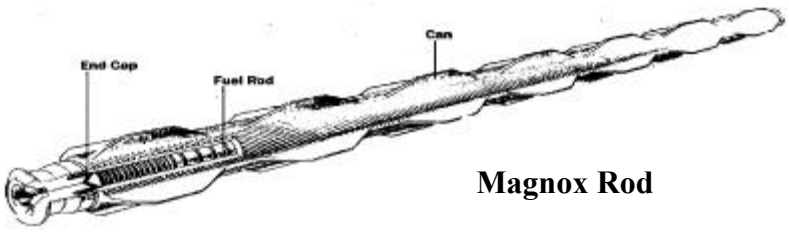
8. Fuel Rod – Specifications.

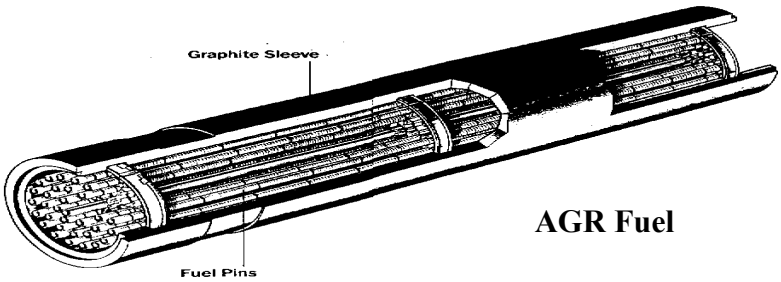
Standard Magnox fuel comes in the form of a rod measuring approximately 1 metre long, 5 centimetres in diameter and weighing between 10-12 kilogrammes. The fuel rod is contained in a casing fabricated from magnesium alloy, hence the name Magnox. Prior to dispatch to Sellafield, and with the 'fins' mechanically removed, the rods are transferred from the power station cooling pond to an open-top fuel skip which is then fitted into the transport flask. The skip forms a snug fit within the flask which is then filled with water which serves as coolant for and shielding against the highly radioactive fuel.



Magnox Rod

Prior to dispatch the steel lid is secured with 16 high-tensile bolts (each of 5cm diameter) and the outer surfaces are checked for contamination and decontaminated if necessary. A radiological survey of the flask is undertaken to ensure that the regulatory limits for transportation are not exceeded, though as a later section of this guide shows, the decontamination programme leaves much to be desired. When fully loaded with 200 Magnox rods each transport flask will weigh around 50 tonnes, with the fuel itself weighing around 2 to 2.5 tonnes.

Unlike Magnox fuel, AGR fuel is not in 'rod' form but consists of fuel pellets packed inside a fuel pin. The pins are themselves then contained in a moderator (graphite) sleeve. Each sleeve contains 36 fuel pins, and 20 sleeves are placed in a skip which is then fitted inside the flask. In total, a flask will therefore hold 720 fuel pins.The sleeve is around 1 metre long and weighs around 43 kilogrammes. Fully loaded, an AGR flask will weigh around 60 tons In all other respects AGR fuel is prepared and loaded into the transport flask in a similar way to Magnox fuel.



AGR Fuel