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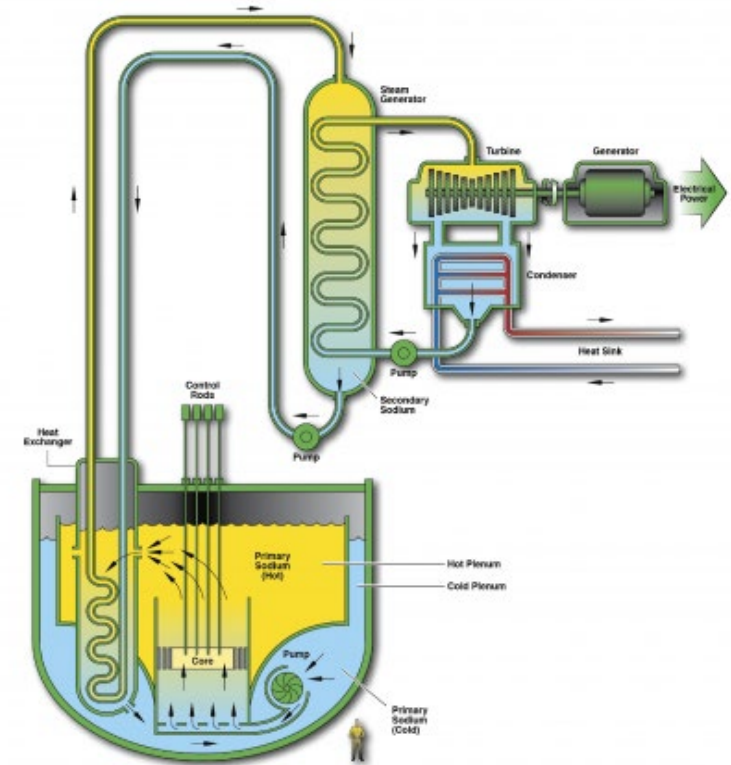
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Project: Impurity Monitoring and
Detection in Sodium Fast Reactors

Background

- High levels of oxygen in sodium coolant accelerate corrosion, and can lead to plugging in small channels
- Traditional methods of impurity detection/removal make use of temperature dependent solubility of oxygen in sodium
 - Cold traps and plugging meters use gas to cool down sodium and precipitate out sodium oxide
- Smaller or less accessible experimental facilities require impurity detection/removal methods using only electrical connections
 - Hot trapping and vanadium wire equilibration are being investigated as replacements for traditional methods

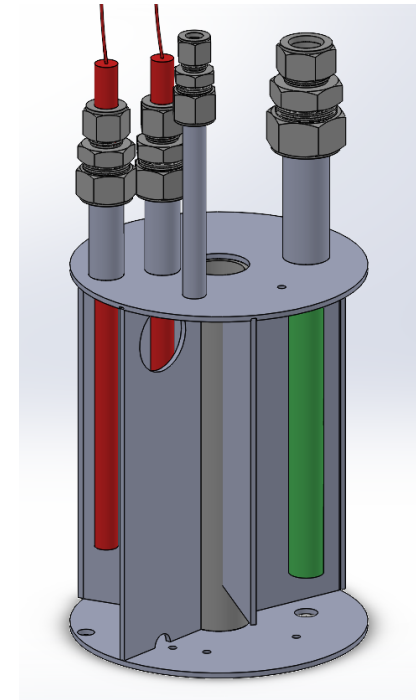


Project Goals

- Correlate vanadium wire measurements against plugging meter measurements of the same sodium
- Quantify the sensitivity of vanadium wire equilibration to different temperatures, holding times, and oxygen levels
- Quantify trapping performance of zirconium granules at various temperatures, flow rates, and exposure times
- Confirm satisfactory performance of a zirconium hot trap operated simultaneously with vanadium wire equilibration in a cartridge loop form factor



Experimental facility



Hot trap/vanadium wire module