

Indigenous development of nickel based super alloy in collaboration with MSD and MIDHANI

- ❖ Nickel based super alloy has been developed as the primary material of construction for IMSBR and IHTR.
- ❖ Alloy is primarily composed of Ni, Mo, Cr and Ti and is meant for long term operation in molten fluoride salt environment upto 700 °C.
- ❖ Alloying elements, selected based on thermodynamic compatibility with fluoride salt, oxidation resistance and ease of fabrication.
- ❖ Fabrication routes were evaluated:
 - Air melting and investment casting - desired microstructure could not be obtained after heat treatment.
 - Vacuum melting at MIDHANI - desired microstructure was obtained and has been selected for further study.



Air melted and investment cast alloy billet [in collaboration with MSD]



Billet manufactured by vacuum induction melting and casting [MIDHANI and MSD]