

Assignment 6

1. What is thermal spraying? Provide key features of the process.
2. Provide the factors that affect the bonding of coating with the substrate.
3. List various parameters that control the quality of coatings.
4. How the plasma spray differs from high velocity oxy fuel process?
5. How the coating develops in a thermal spray process? Show the typical deposition layers develop in the cross-section and top of the substrate.
6. Show the role of spat deposition in affecting surface roughness. How is the columnar grain generated?
7. What parameters comprise coating reliability?
8. What is the advantage of carbon nanotubes (CNT) incorporation during plasma spraying of hydroxyapatite (HA)?
9. What is spark plasma sintering?
10. What is role of Al_2O_3 and CNT addition in HA matrix?
11. Which phases result from dissociation of hydroxyapatite?
12. By which mechanisms CNT enhances the toughness of HA matrix?
13. What is the mechanism of reduction in the dissociation of HA with CNT addition?
14. How is the cytocompatibility of hydroxyapatite affected when reinforced with Al_2O_3 and CNT?