

TiO₂ NANOTUBULAR ARRAYS ON Ti AND ITS ALLOYS

Title of Technology to be offered	TiO ₂ nanotubular arrays on Ti and its alloys
Type of Technology	Surface modification
Area of Technology	Surface engineering, anodization
Details of Collaborating Agency	Nil
Uses	Dye sensitized solar cells Controlled drug delivery Biomedical applications – for better osseointegration Sensors Self-cleaning photocatalytic surfaces and devices
Salient Features	TiO ₂ nanotubular structure with varying tube length and diameter with high aspect ratio can be prepared on the surface of Ti and its alloys by using optimum electrochemical treatment.
Scale of Development	Laboratory and pilot scale
Major Raw Materials	Ti and its alloys, mineral acids, fluorides and special additives
Major Plant Equipment/Machinery	Direct current source (Rectifier) having a potential range of 0-60 V Stainless steel cathodes of suitable geometry Cooling systems
Details of specification application	Dye sensitized solar cells Controlled drug delivery Biomedical applications – for better osseointegration Sensors Self-cleaning photocatalytic surfaces and devices
Status of Development	Ready to market
Ecological/Environmental Impact (if any, specify briefly)	Acidic solutions. They should be neutralized before discharge.
Patenting details	Nil
Commercialisation Status	Yet to commercialize
Techno-Economics	Installation cost: Rs. 5 Lakhs
Key words	Titanium, titanium alloys, nanotubular structure, anodization, drug delivery, solar cells, implant application