

Titanium Dioxide (TiO₂) and Its Applications

Metal Oxides

2021, Pages 337-352

10 - Titanium dioxide-based nanomaterials: application of their smart properties in biomedicine

Giada Graziana Genchi

[Show more](#) ▾[Outline](#) | [Share](#) [Cite](#)<https://doi.org/10.1016/B978-0-12-819960-2.00002-X> ↗[Get rights and content](#) ↗

Abstract

Largely utilized in [photocatalysis](#) and photovoltaicis, titanium dioxide (also termed “titania”) [nanostructures](#) are increasingly finding applications in different fields of biomedical research. Their versatile physicochemical characteristics and their high compatibility with biological systems have indeed motivated their introduction—among the many areas of investigation—also in tissue engineering, drug delivery, and cancer therapy. Here, the most recent findings in these fields will be presented with a special focus on properties tunable by exposure to a contactless source of stimulation, which make titanium dioxide [nanostructures](#) actual “smart” materials. Current challenges and prospective opportunities will also be discussed by taking into consideration composite titanium dioxide-based nanostructures enriched in surface and bulk features.

Access through your organization

Check access to the full text by signing in through your organization.

Access through **Italian Ins...**[Recommended articles](#)

References (0)

Cited by (3)

[Quasi-linearization analysis for heat and mass transfer of magnetically driven 3rd-grade \(Cu-TiO₂/engine oil\) nanofluid via a convectively heated surface](#)

2022, International Communications in Heat and Mass Transfer

Citation Excerpt :

...The choice of base-liquid to compose nano-fluids depends on the polarity of the base liquids. Engine oil, paints, lubricants, organic-fluids, polymeric solution, transformer oil etc., are non-Newtonian fluids (third-grade fluids) which are commonly used as base-liquids to compose nano-fluids [see refs. 13–15]. The selection of engine oil as base-liquid is because of its thermal stability, high viscous nature at all temperatures, non-corrosive, and good thermal conductor....

[Show abstract](#) 

[Numerical treatment of MHD \$Al_2O_3\$ -Cu/engine oil-based nano fluid flow in a Darcy-Forchheimer medium: Application of radiative heat and mass transfer laws](#)

2024, International Journal of Modern Physics B

[Features of Cu and \$TiO_2\$ in the flow of engine oil subject to thermal jump conditions](#)

2021, Scientific Reports

[View full text](#)

Copyright © 2021 Elsevier Inc. All rights reserved.



All content on this site: Copyright © 2024 Elsevier B.V., its licensors, and contributors. All rights are reserved, including those for text and data mining, AI training, and similar technologies. For all open access content, the Creative Commons licensing terms apply.

