Electrical property of epoxy resin-anatase/rutile/brookite mixed TiO2 nanotubes composites

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Epoxy resins have been applied to coatings, electronic devices, and adhesives for improved TiO2 composites because of their outstanding tensile strength, adhesion strength, heat transfer resistance, and electrical resistance. The properties of cured epoxy resins are influenced by the kind of epoxy resin, curing agent, and curing method. This epoxy resin-anatase/rutile/brookite mixed TiO2 nanotubes composite is characterized using photo-electro-catalytic CO2 reduction reaction. Among various CO2 reduction products, methanol can be an alternative of gasoline. It can be also used as a cheap chemical reagent for the production of ethylene, propylene or more complex molecules in chemical industry. Finally, it can be used in fuel cells instead of hydrogen, reducing the dependency of this energy technology to liquefied fossil natural gas. It is expected that solar light-assisted CO2 conversion in methanol will be increasingly significant as a solution for environmental problems, allowing the development of green economies and opening business opportunities.