

## Metal / ceramic composite material

Possible to produce high laser absorption metal powder with finely dispersed ceramic on the surface, and metal/ceramic composite material having complex shape!

### Overview

Metal and ceramic repel each other when mixing due to their positive surface charge. So since they are dispersed away, the composite can not be formed. The conventional technology uses a binder composed mainly of polyvinyl alcohol to glue metal and ceramic. This is then sintered in order to make a composite powder. However, the binder reduces the functionality due to compositional change (specifically, mechanical property deterioration, optical absorbance decrease, etc.) and handling during production is difficult.

This invention is able to easily make ceramic / metal composite by using carbon nanotube (CNT). Application of various powder to bulk material is expected, such as sintered material and composite material by 3D printer. It is also possible to create a pure composite of metal / CNT, and this technology is expected to improve the anti-oxidation property of the base metal material.

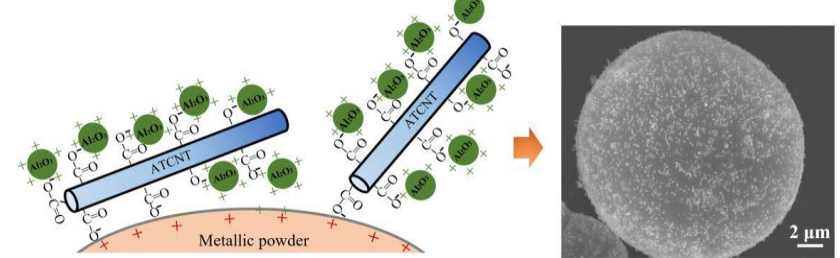
### Product Application

- ❑ Metal / ceramic composite material having complex shape
- ❑ Metal / CNT composite material
- ❑ Heat resistant material requiring ceramic protective coating
- ❑ Corrosion resistant material
- ❑ Hard material, etc.

### IP Data

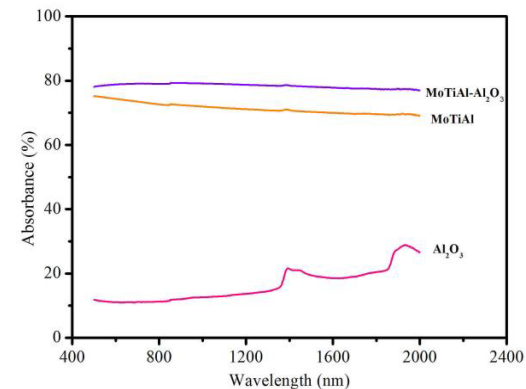
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 Admin No. : T16-100

(e.g.)  $Al_2O_3/NiAlCrMo$  alloy



Weiwei Zhou, Xiaohao Sun, Keiko Kikuchi, Naoyuki Nomura, Kyosuke Yoshimi, Akira Kawasaki, Materials Design 137 (2018) 276-285.

### Features · Outstandings



The composite powder has higher laser absorbance than the raw metal powder

### Related Works

### Contact