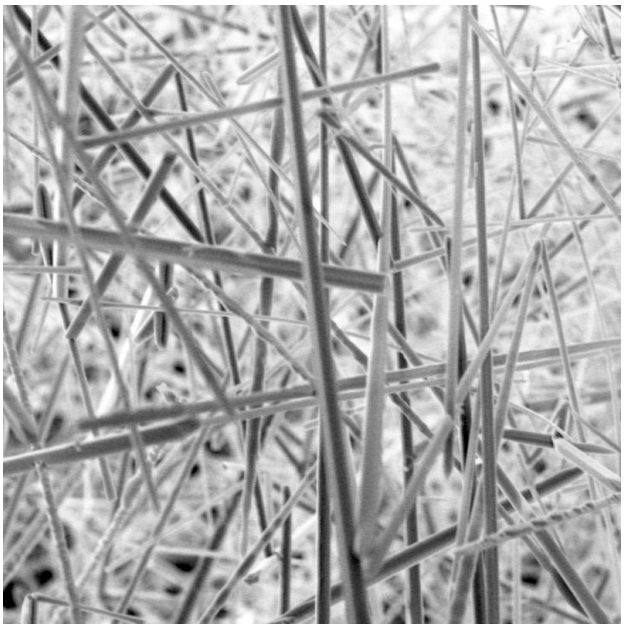
NU Tech
Technology Partnership of Nagoya University, Inc.

(E23)

New synthesis method for AlN whisker, High Performance Heat Radiation Filler



Background:

AlN whisker, a type of aluminum nitride (AlN) crystals has the excellent properties in thermal conductivity and insulation. AlN has a large range of potential industrial application such as Mobile, High power LED and Power device module. However, current methods to produce this needle shape single crystal have various limitations including poor synthetic quality, low production efficiency, and requisite material such as Si and Ti.

Technology Overview:

Researchers at Nagoya University have successfully developed the simple method for synthesizing AlN crystals by utilizing the reaction of atmospheric nitrogen gas and aluminum vapor. Aluminum vapor and nitrogen gas are reacted at a prescribed reaction temperature and AlN crystals are formed without Si and Ti in the element. By mixing sphere and whisker filler, whisker helps it to hold higher heat conductivity with low filler content. Consequently, Nylon had about 5 W/mK heat conductivity with just 20% AlN whisker. The new method will make a great contribution to synthetic quantity and fabrication of polymer compositions for industrial applications.

Contact

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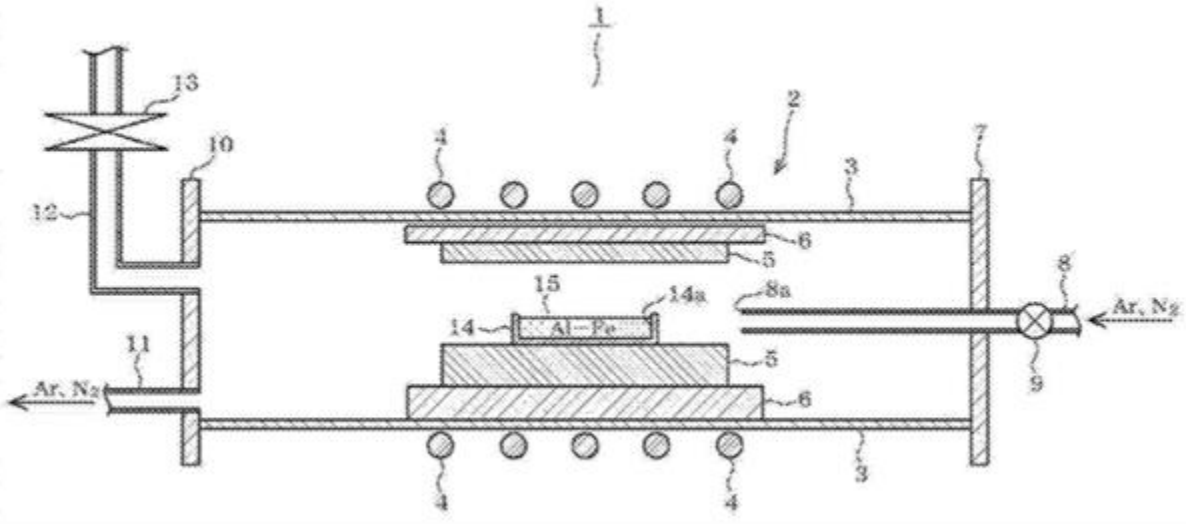
Figures:

Figure 1. AlN whisker production apparatus.



Figiure 2. Benefit of AlN heat radiation filler

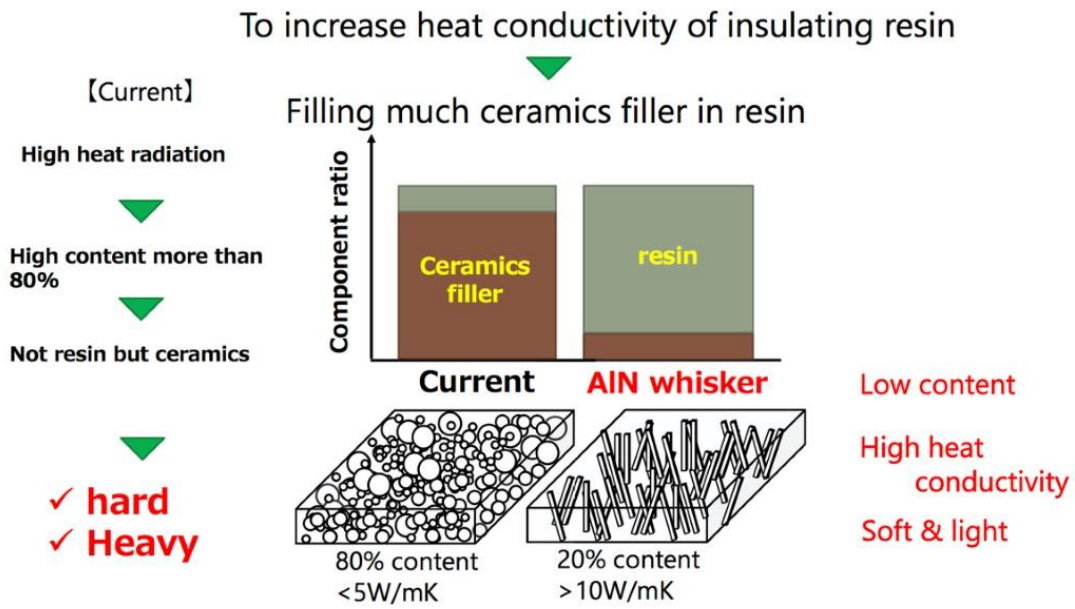


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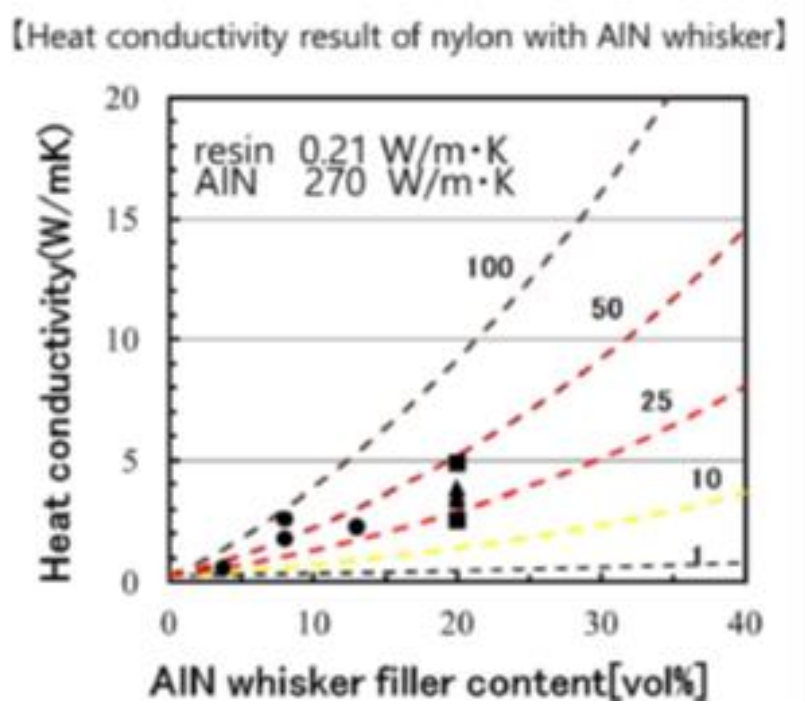
Figure 3. AlN whisker makes higher heat conductivity by low filler content



Nylon had about 5 W/mK heat conductivity with just 20% AlN whisker

Application:

- High heat conductivity resin
- Thermal interface material
- High heat conductivity sealing material
- High heat conductivity board

IP Status: A patent application has been filed

Seeking: Licensing

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