Thermally Conductive Inorganic Powder

Applications

- Heat dissipation sheets
- Heat dissipation paints and inks
- Adhesives, greases, and sealants
- Heat dissipation housings and substrates

Characteristics

- Our product has excellent total balance of insulation quality, water resistance and chemical resistance.
- As a composite of various metal oxides, it exhibits enhanced thermal conductivity. Its rounded, low-hardness particles also serve to decrease machinery wear during processing. (Patents related to this have been obtained.)
- Improvement of thermal conductivity can be expected in combination with scaly particles such as boron nitride.

Performance comparison with other insulative thermal conductive materials

Thermal conductive materials	Hardness	Insulation property	Thermal conductivity	Water resistance	Chemical resistance	Cost-efficiency
Alumina (Al203)	×	◎	△	◎	○	△～○
Zinc Oxide (Zn0)	△～○	△	○	×	△～×	△
Magnesium Oxide (Mg0)	△	◎	○	×	△	△～○
Boron Nitride (BN)	◎	◎	◎	○	○	×
Aluminum Nitride (AlN)	×	◎	◎	×	△～×	×
7300 series	△	◎	○	◎	○	△～○

◎ : very good ○ : good △ : poor × : very poor

Representative Products

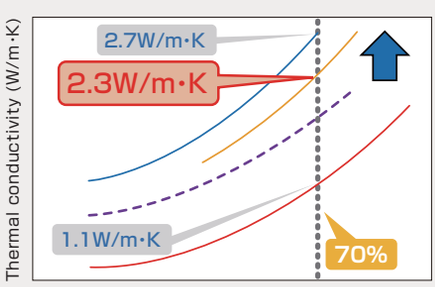
Product name	Particle size (μm)
DAIPYROXIDE 7321	1
DAIPYROXIDE 7323	3
DAIPYROXIDE 7330	10

Example of SEM photomicrograph (DAIPYROXIDE 7323)

- Please consult us about disc-shaped products and sub-micron products.
- Wet surface treatment is also possible.

Evaluation Results

Example of hybrid with other thermal conductive materials (PP resin)



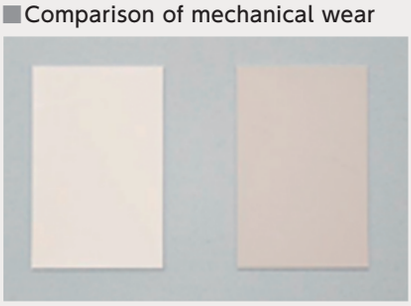
Boron nitride (BN) only — #7330 only
BN:#7330 = 1 : 1(actual measurement)
BN:#7330 = 1 : 1(calculation)

The "surface contact" and "vertical orientation of BN" resulting from the irregular roundness enable cost reduction in hybrid applications while improving mechanical properties and achieving high thermal conductivity close to that of BN alone.

Electron microscope photograph (cross section of BN, 7330 mixed molded material)

- The rounded shape creates many contact points, facilitating heat conduction.
- White particles : 7330
  Black plate-shaped : BN

Comparison of mechanical wear



7330 PP resin 70wt%	Alumina PP resin 70wt%

Less mechanical wear compared to alumina

For inquiries : Pigments Division p-kaigai@daicolor.co.jp