Single-walled carbon nanotube

# ZEONANO® SG101

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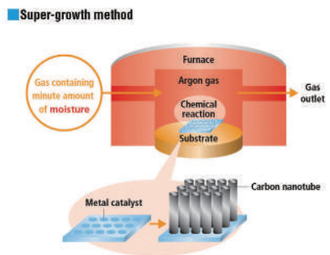
## Single-walled carbon nanotube

# ZEONANO® SG101

**ZEONANO® SG101** is the single-walled carbon nanotubes（SWCNTs）manufactured with "Super growth method" by zeon corporation. Carbon nanotubes, discovered by Sumio Iijima in 1991, are categorized into SWCNTs and multi-walled carbon nanotubes（MWCNTs）by their structures. MWCNTs are easy to produce and have been developed in many applications. On the other hand, SWCNTs had not been developed very much because they are difficult to synthesize. In 2004, Dr. Kenji Hata's team at AIST* discovered a revolutionary method of SWCNTs synthesis, which was named as "Super growth method". With the innovative technology, it was realized to produce high-quality SWCNTs. Zeon Corporation developed mass production technology of the method with the support of NEDO**.




*AIST: National institute of advanced industrial science and technology
**NEDO: New energy and industrial technology development organization

## Features

### 1 Single-walled

**ZEONANO® SG101** is a single-walled carbon nanotube.

Benefit Great strength by unit weight

Application High-strength polymers

### 2 High specific surface area

**ZEONANO® SG101** has a high specific surface area

Benefit Storage of much electric charge

Application Electrode of power storage device

### 3 Long tube length

**ZEONANO® SG101** has a extremely high aspect ratio with a length of hundreds micrometers which is given by catalyst activation technology of Super growth method.

Benefit1 Form self-supporting film without binder

Application1 Electrode of power storage device

Benefit2 Low percolation threshold

Application2 Conductive polymer, antistatic polymer, conductive paint

### 4 High purity

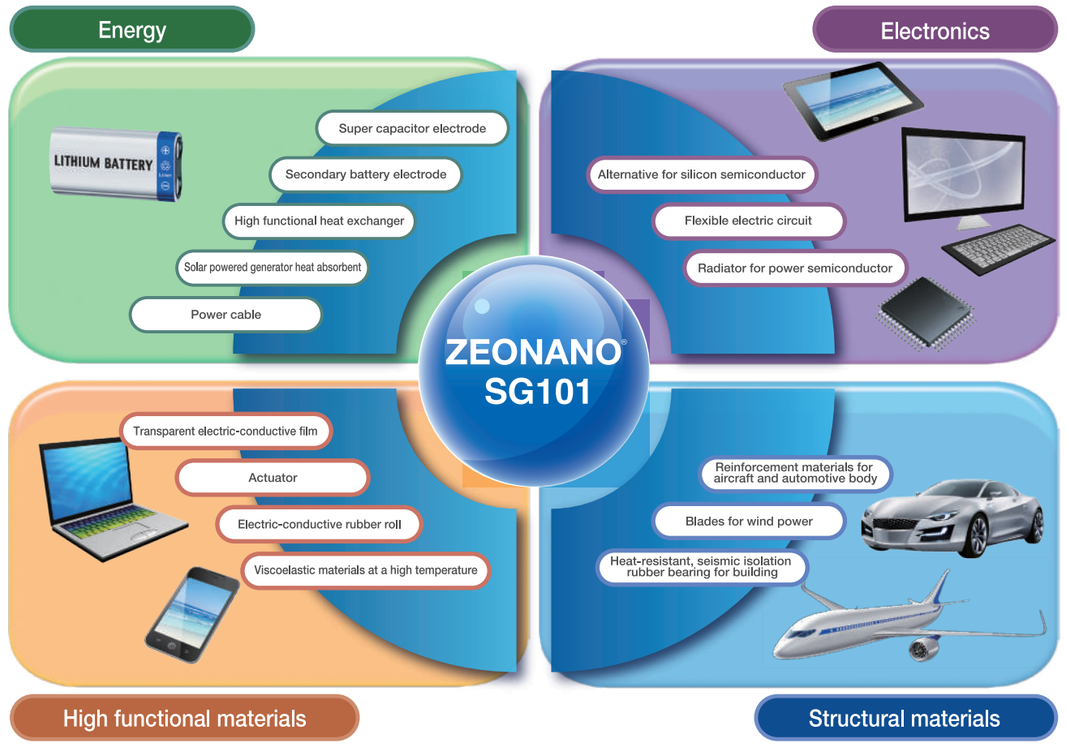
**ZEONANO® SG101** contains very little residues of metal catalysts.

Benefit No reaction with electrolyte

Application Electrode of power storage device

## Applications

**ZEONANO® SG101** is applicable to diverse uses in wide range of fields because of excellent properties of SWCNTs manufactured by Super growth method.

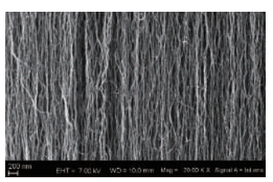



## Typical properties

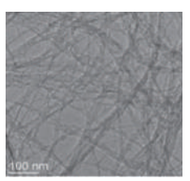
| | |
|---|---|
| Appearance | Black powder |
| Specific surface area | More than 1,100 $m^2/g$ |
| Length in forest | 300 ～ 500 μm |
| Average diameter | 3 ～ 5 nm |
| Impurity（Fe） | Less than 500 ppm |
| Carbon purity | More than 99 % |

*The values shown above are typical, not guaranteed.

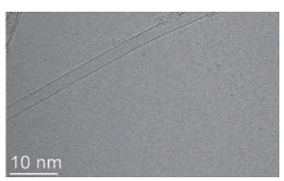
## Microscope images



SEM image of CNT forest generated on substrate




TEM image of CNT dispersed in solvent




TEM image of CNT dispersed in solvent (enlarged)

## Package

- 1kg / 150-liter fiber drum
- 10g / PE bottle