Conductive Oxide Material
Near Infrared Red Light, IR Shield, Absorb Materials (Heat Shielding, Absorbing Materials)
Antimony Tin Oxide
(GS ATO Series)

GS ATO series are the materials which can absorb and shield near infrared light and heat energy. At the same time, they can maintain high transparency at the visible light range. In general, most of the heat absorbing, shielding materials are organic materials. Our materials are inorganic ceramic material. Therefore, GS ATO series are very robust and have high strength, resistance against light and surrounding environment. GS ATO series can be applied to window, plastic film materials by coating or mixing. These window or film material can absorb and shield infrared light and heat effectively, while maintaining high transparency in the visible light region. Therefore, our materials are very environmentally friendly.

In addition, ATO (Antimony Tin Oxide) is the conductive materials so that they can be applied for transparent conductive material, antistatic materials etc…
1. Robust, high resistance against light, surrounding environment

Most of IR (Heat) absorbing, shielding materials are organic substances in general. GS ATO series are the inorganic ceramic oxide material. Therefore, our materials are very robust, and possess high resistance against light, surrounding environment.

2. High transparency at the visible light region

GS ATO series have high transparency at visible light region so that window or plastic film can be very transparent while absorbing and shielding IR (Heat) energy, by mixing or coating onto those materials.

3. Cheaper than Indium based Material (Indium Tin Oxide : ITO)

Indium Tin Oxide (ITO) is also the IR absorbing, conductive material. However, the price of ITO is not cheap since they contain expensive indium. Whereas GS ATO series are cheaper when compared to ITO.

4. FUJI ATO series is conductive oxide material

ATO also possess high conductivity so that they can be applied for transparent conductive material, antistatic material, catalytic materials etc...

Antimony Tin Oxide Nanoparticles (ATO) SnO$_2$:Sb$_2$O$_3$=90:10

- ATO Nanoparticles Heat Resistance (°C) : <=1100
- ATO Nanoparticles Powder Resistivity (Ω.cm) : <=50
- ATO Nanoparticles Electrical Conductivity: 80~120 ohm

Particle size of ATO dispersion in water
We can supply this IR (heat) shielding, absorbing materials, conductive materials (Antimony Tin Oxide : ATO) either by powder, or dispersion (water and various type of organic solvent as customer request), masterbatch, coating material, paint materials. We can modify chemical and physical properties indicated at above table as customer request. Please consult with us including technical detail, anything anytime.

<table>
<thead>
<tr>
<th>ATO</th>
<th>3.0 – 20.0 %</th>
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<tbody>
<tr>
<td>Resin and additive</td>
<td>0.8 – 10.0 %</td>
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<tr>
<td>Water or Organic Solvent</td>
<td>60.0 - 98.0 %</td>
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<tr>
<td>Viscosity</td>
<td>2.0 – 100000 mPa·s/ 25 °C</td>
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<tr>
<td>Particle size of ATO</td>
<td>20.0 nm – 300.0 nm</td>
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