Local Insight, Global Impact

ELECTRO-CONDUCTIVE ACICULAR TIO_2 – FT SERIES

White Electro-conductive Titanium Dioxide
FT Series / acicular type

FT-1000/FT-2000/FT-3000

FT products are acicular electro-conductive titanium dioxide. The base of FT series is a unique titanium dioxide; specifically rutile type acicular titanium dioxide (FTL products : ISK is the only manufacturer in the world who offers acicular titanium dioxide.). The surface of the acicular titanium dioxide is coated with SnO_2/Sb thin layer. FT products are divided into three types; FT-1000, FT-2000 and FT-3000 depending on the size of the base titanium dioxide. Because of their characteristic acicular shape, FT products can achieve required electroconductivity with a lower dosage compared to spherical electro-conductive materials like ET products. These materials also show outstanding effect as reinforcing materials. Even under strong dispersion, FT products maintain their properties since the base acicular titanium dioxide is strong enough to remain its shape. Due to extremely low soluble salts, FT products can be safely used for various applications.
Like ET products, FT products can be easily pigmented to various colors.

Uses

- Anti-electrostatic Coatings(Electro-conductive floor and wall materials, Primers, etc.).
- Anti-electrostatic Plastics and Rubber(Packages of IC, Roll, Belts, etc.).
- Anti-electrostatic Fibers(Textiles, Carpets, etc.).
- Others(Recording paper, etc.).

■Table 6 Basic Properties of FT Series.

	FT-1000	FT-2000	FT-3000
Composition	TiO_2, Sb-doped SnO_2	TiO_2, Sb-doped SnO_2	TiO_2, Sb-doped SnO_2
TiO_2 crystal form	Rutile	Rutile	Rutile
Particle size(μm)[1]	D:0.13 L:1.68	D:0.21 L:2.86	D:0.27 L:5.15
Powder resistance(Ωcm)[2]	2~10	2~10	10~60
Specific gravity	4.4	4.4	4.4
Specific surface area(㎡/g)[3]	12~18	10~16	2~8
Oil absorption(g/100g)	45~65	45~65	50~70
Powder color L value	85~91	85~91	90~95

1)Example of volume surface mean diameter measured with image analyzer. D: Diameter,L:Length 2)9.8MPa compressed powder 3)BET method.

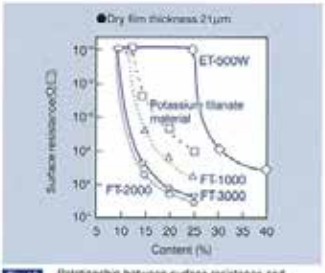


Fig.19 Relationship between surface resistance and content in air drying type acrylic resin.

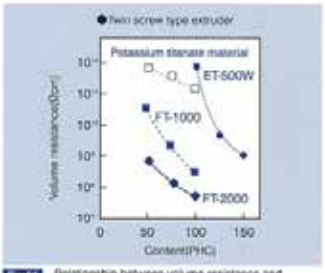


Fig.20 Relationship between volume resistance and content in polyvinyl chloride resin.

Acicular type material can achieve required electroconductivity with lower content compared to spherical type material.

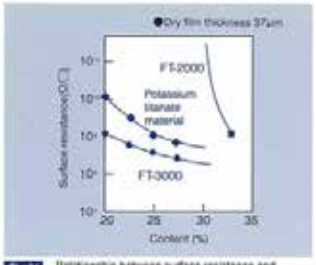


Fig.21 Relationship between surface resistance and content in epoxy/polyamide resin.

FT-3000 shows interesting behavior depending upon resin.

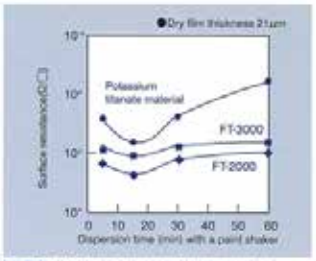


Fig.22 Relationship between surface resistance and dispersing strength in air drying type acrylic resin.

FT products are stable under various dispersion.

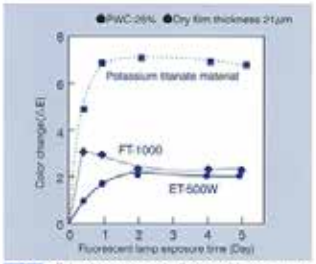


Fig.23 Color change caused by fluorescent lamp exposure in air drying type acrylic resin.

Both ET and FT products have sufficient stability against light exposure.

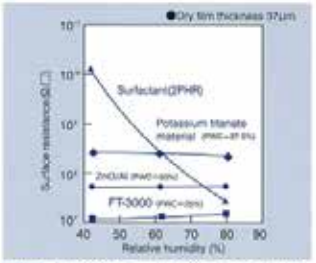


Fig.24 Relationship between surface resistance of film and humidity in epoxy/polyamide resin at 25℃.

FT products are not affected by humidity.

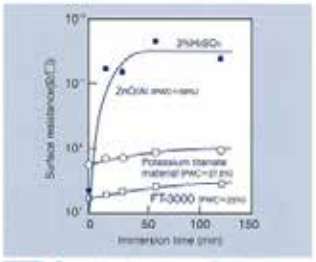


Fig.25 Change of surface resistance of film in epoxy/polyamide resin by immersing into acid solution.

FT products are stable against acid.

ISHIHARA CORPORATION (U.S.A.)
3-15 Edobori 1-chome, Nishi-ku, Osaka 550-0002, Japan