Local Insight, Global Impact

FT SERIES PRODUCTS - FS-10P/FS-10D

Transparent Electro-conductive Materials
FS Series / acicular type

FS-10P/FS-10D

FS products are fine acicular SnO_2/Sb which ISK only has commercialized in the world. Due to their acicular shape, FS products can be used for coatings or plastics with less amount to obtain required electroconductivity than conventional spherical electro-conductive materials. FS products also show excellent transparency because of their fine particle size. Furthermore, coating films with higher transparency can be obtained by FS products due to their paler color than SN products. Depending on applications, powder type FS-10P and water dispersion type FS-10D are available. The pH adjuster of FS-10D can be selected upon your request.

■Table 2 Basic Properties of FS Series

		FS-10P (Powder)	FS-10D (Water dispersion)
Composition		Sb-doped SnO_2	Sb-doped SnO_2
Particle size (μm)	Length	0.2~2.0	
	Diameter	0.01~0.02	
Aspect ratio		20~30	
Powder resistance (Ωm) 1)		~100	~600 2)
Specific gravity		6.6	6.6 2)
Specific surface area (㎡/g) 2)		25~35	40~60 3)
pH			8.0~10.0
Concentration (%)			20

1) 9.8MPa compressed powder. 2) BET method. 3)Data obtained from dried powder.

■Table 3 Powder color・Slurry color (Analysis Example)

	Powder		Water dispersion	
	FS-10P	SN-100P	FS-10D	SN-100D
L	76.5	40.4	47.6	21.6
a	-5.1	-5.4	-5.0	-2.6
b	-12.3	-11.5	-15.6	-12.5

Both powder and water dispersion show pale color than SN products.

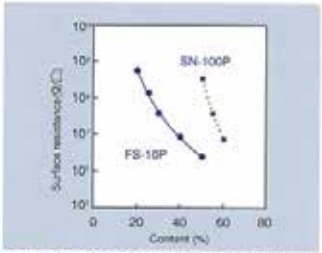


Fig.9 Relationship between surface resistance and content in air drying type acrylic resin.

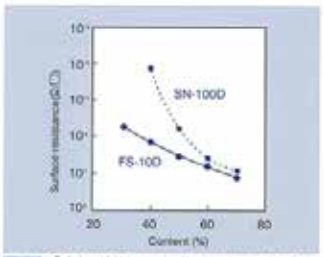


Fig.10 Relationship between surface resistance and content in hydroxyethyl cellulose resin.

FS products provide required electroconductivity by smaller content compared with SN products.
FS products do not exhibit drastic change of surface resistance under various contents.

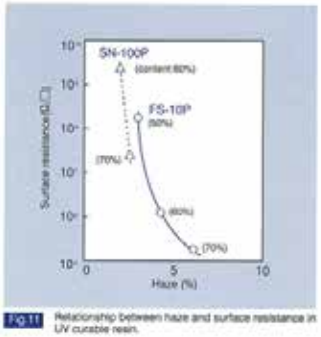


Fig.11 Relationship between haze and surface resistance in UV curable resin.

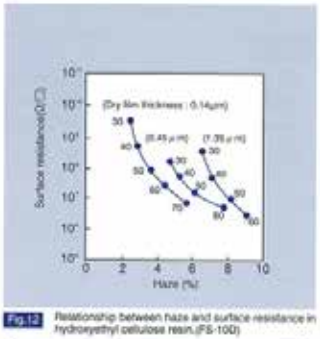


Fig.12 Relationship between haze and surface resistance in hydroxyethyl cellulose resin.(FS-10D)

Generally, it is advantageous to make a coating film with high FS content as thin as possible.

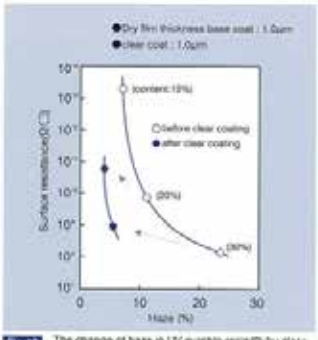


Fig.13 The change of haze in UV curable resin(2) by clear coating. (FS-10P)

With clear coating, it is possible to drastically improve haze without decreasing conductivity.

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