

## SpectrAl® 81

SpectrAl 81 is a medium surface area fumed alumina. Fumed alumina has similar morphology and many similar properties and functions as fumed silica. It differs from fumed silica in optical, thermal, electrical and charge characteristics.

**All untreated fumed aluminas are characterized by:**

- High purity
- Aggregated structure
- Submicron particle size
- Low bulk density
- Mixture of theta, delta, gamma and amorphous alumina
- Positive surface charge

### Application Information:

#### Inkjet Media

CAB-O-SIL fumed silica and SpectrAl fumed alumina are used in microporous coatings for inkjet printable media. Microporous coatings enable instant dry printing, a significant improvement over slow drying polymer swellable coatings. Higher surface area fumed silicas and aluminas are recommended for their increased adsorption capacity. Fumed aluminas provide excellent gloss, color gamut, coating transparency, and water fastness.

### Performance Comparison in Microporous Coatings:

	Alumina	Cationic Silica	Silica
Particles	SpectrAl 51 and 81		CAB-O-SIL M-5, MS-55, H-5 and HS-5
Dispersions	CAB-O-SPERSE PG-003 and PG-008	CAB-O-SPERSE PG-022	CAB-O-SPERSE PG-001 and PG-002
Gloss	Excellent	Very Good	Good
Drying Speed & Ink Absorption	Excellent	Excellent	Excellent
Humidity Fastness (Ink Adhesion)	Excellent	Excellent	Good
Dark Fastness (Ozone Fading)	Poor	Poor	Poor
Optical Properties	Good	Very Good	Good

### Lighting

Use of fumed alumina in fluorescent lamps can significantly improve the performance and service life of the lamps. Fumed alumina is an ideal choice for this application as it is transparent in visible light spectrum, has high ultraviolet light reflectance and chemical stability at high temperatures.



### SpectrAl fumed aluminas are used in three components of fluorescent lamps:

- In the barrier layer, a coating on glass tube, fumed alumina prevents migration of sodium into the phosphor during production of lamp and prevents migration of mercury into the glass tube during usage. By preventing migration of mercury into the glass which causes graying and reduces efficiency, fumed alumina increases service life of fluorescent lamps.
  - The reflector layer functions to reflect back into the phosphor any UV light not initially captured thereby maximizing the effectiveness of the phosphor. Fumed alumina which has high ultraviolet light reflectance and good visible light transmittance enhances the performance of the lamp.
  - In the phosphor layer, the positive surface charge of fumed alumina acts to bind the phosphor particles together and to the glass substrate which are both negatively charged.
- In all lighting applications, SpectrAl 81 may offer some advantages in introducing less adsorbed gases and water into the lamp than higher surface area fumed aluminas.

### Packaging Options:

SpectrAl 81 is packaged in 10 kg multi-wall Kraft paper bags and available in 16 x 10 kg (net weight 160 kg) poly-shrouded units.

### Product Sales Specifications:

Sales specifications for this product may be obtained by contacting a sales or technical service manager at the Cabot Corporation office in your region.

### Material Safety Data Sheet:

A Material Safety Data Sheet for this product may be obtained by contacting the Cabot Corporation office in your region or can be downloaded from our website:

[www.cabot-corp.com](http://www.cabot-corp.com)

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