

Aquadag[®] E

Water based colloidal graphite resistance coating

DESCRIPTION

Aquadag E is a unique dispersion of colloidal graphite in water which combines a sub-micron particle size distribution with outstanding film forming properties on a wide variety of materials. Very thin films of **Aquadag E** will conform and adhere to the finest surface details and are readily formed on either hot or cold surfaces, thus taking fullest advantage of the versatile lubricating, anti-adherent, electrical and opaquing properties of pure graphite. In its undiluted form **Aquadag E** is a stable colloidal gel containing a small quantity of protective ammonia. In final diluted form it finds large scale application as an additive, electrically conductive coating or impregnant.

FEATURES	BENEFITS
• Waterborne product	• Environmental friendly
• Very stable dispersion	• Easy to handle
• Air drying	• Applicable on various substrates
• Very good impregnation properties	• Excellent coverage of all woven and non-woven materials
• Sub micron particles	• Opaque at very thin layers
• High solids content	• Improved coating build up

TYPICAL APPLICATIONS

- Electrically conductive coatings for electrical and electronic uses
- High voltage cable
- Impregnation or coating of gaskets for anti-adherent and anti-static properties
- Photographic and lithographic opaque

PHYSICAL PROPERTIES (as supplied)

Pigment	:	Graphite
Solids content	:	22 ±0.2%
Diluent	:	demineralised water
Consistency	:	thixotropic gel
Density	:	ca. 1120 kg/m ³
Ash content	:	< 0.1%
pH	:	10.4 - 10.6
<u>Particle size</u>		
Microtrac, mean value in volume	:	About 1µm
Maximum particle size	:	3 µm
Shelf Life	:	12 months from date of qualification under original seal

TYPICAL PROPERTIES (as cured)

Resistance
The electrical characteristics of the dry coating can be varied by adjusting the ratio of concentrate to diluent, the method of application, thickness, and the type and degree of heat treatment. Resistance coatings have a negative temperature coefficient of resistance. Typical resistance values of the dry coating on a glass substrate are as follows:

Application Method*	Cure Cycle	Resistance at 25µm
Dip 1 : 3	5 min./150°C	30 Ohm/square
Spray 1 : 5	Preheat surface 100°C	75 Ohm/square
Brush 1 : 1	Air dry	300 Ohm/square

* Ratio expressed as grams of Aquadag E to grams of diluting water

METHOD OF USE

Mixing and Dilution

For best results, stir the concentrate to break up the gel structure before adding water. Next, slowly add de-ionized water to the concentrate. When a fluid consistency is achieved, water can be added at a more rapid rate. Failure to achieve correct dilution can result in small gel structures remaining in the fluid. The presence of these structures can adversely affect performance. A high-speed and high-shear mixer is recommended to properly disperse the product.

When mixing larger amounts (5 litres and up), you should first cover the bottom of the container with several centimeters of water and use a Cowles-type dissolver blade at 750 to 1200 rpm, or other high shear blade. Then add the Aquadag E and slowly add additional water to the Aquadag E while the mixer is stirring.

For even more critical applications commercial dispersing systems such as an Ultra Turrax T 45 should be used following the initial 30-minute mix mentioned above. For proper wetting and to prevent spoilage, the desired pH should be controlled by additions of ammonia.

Application

Diluted **Aquadag E** may be applied by spray, brush, dip, or sponge methods. The optimum viscosity for each method is best established by pretesting. Suggested starting formulations are listed below.

<u>Method</u>	<u>kg of Aquadag E</u>	<u>kg of water</u>
Brush	1	1
Dip, sponge	1	3
Spray	1	5

STORAGE/ HANDLING

Aquadag E should be stored in a cool place and should not be allowed to freeze. Containers should be tightly re-sealed after use in order to prevent contamination and loss of ammonia.

HEALTH & SAFETY

Please consult Material Safety Data Sheet

NOTES

Aquadag® is a registered trademark of Acheson Industries Inc.

The data contained on this sheet represents typical properties and is not to be used as a basis for preparation of specifications.

Before writing specifications on this product, contact our Specialty Coatings Business Group's Technical Service Department.

You can find general information on Acheson at: <http://www.achesonindustries.com>

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