

## AS1704 (ESP610B) High Strength, Low Outgassing Adhesive Paste

### Introduction

AS1704 is part of a range of low outgassing products that comprises of:

- AS1703 – High strength translucent, adhesive paste
- AS1704 – High strength black adhesive paste
- AS1724 – Medium viscosity translucent liquid
- AS1725 – Medium viscosity black liquid
- AS1726 – Low viscosity translucent liquid
- AS1727 – Low viscosity black liquid

This is a specially formulated neutral cure silicone sealant specifically designed to meet the corrosion resistance requirements of MIL-A-46146B. It features fast curing, exceptionally low volatile content and is compatible with many sensitive substrates including copper, brass, steel, aluminium, polycarbonates, acrylics and FR4, making this an ideal option for many electronic and lighting applications where high performance is paramount.

It is described as an Alkoxy 1-part room temperature vulcanising (RTV) silicone sealant. The Alkoxy cure system produces a silicone sealant with excellent adhesion to most common substrates

### Key Features

- Meets the corrosion resistance requirements of MIL A-46146B
- Low volatile content
- Fast curing
- Adhesion to many substrates
- Meets the requirements of UL94HB

### Use and Cure Information

#### Typical Applications

- Lighting assembly and coating
- Under bonnet sensors
- Assembly of electrical and electronic equipment
- Sealing and bonding of corrosion sensitive devices
- Shallow encapsulation of small circuits and connectors

#### Application and Cure

After removal of the package seal the product is ready for use. It can be applied manually or using a pneumatic caulking gun. Following exposure to atmospheric moisture the product begins to cure to a resilient, durable silicone elastomer. Full cure will depend on the relative humidity and ambient temperature. At 20 to 40°C and 40 to 70% Relative Humidity a 3mm section will normally cure in less than 10 hours.

The volatile by-products of the curing mechanism are relatively inoffensive alcohols.

(See Health and Safety Data)

Full bond strength and physical properties will be achieved in 5 days. Cure time depends on the thickness of sealant applied and the area exposed to the atmosphere.

It is recommended that a minimum thickness of 1 mm is achieved between parts to obtain best adhesion to substrates.

### Storage and Shelf Life

Expected to be **12 months** in 310 ml cartridges when stored in unopened containers below 40 °C

### Health and Safety

Material Safety Data Sheets available on request.

Property	Test Method	Value
<b>Uncured Product</b>		
Colour:		<b>Black</b>
Appearance:		<b>Thixotropic paste</b>
Tack Free Time:		<b>6 minutes *</b>
3mm Cure Through:		<b>10 hours *</b>
Extrusion Rate:		<b>220 g / minute</b>
* measured at 23+/-2°C and 55% relative humidity.		

### Cured Elastomer

**(after 7 days cure at 23+/-2°C and 55% relative humidity)**

Tensile Strength:	BS903 Part A2	<b>4.6 MPa</b>
Elongation at Break:	BS903 Part A2	<b>440 %</b>
Hardness:	ASTM D 2240-95	<b>34 Shore A</b>
Specific Gravity:	BS 903 Part A1	<b>1.11</b>
Thermal Conductivity:		<b>0.2 W/mK</b>
Coefficient of Thermal Expansion:		
Volumetric		<b>812 ppm / °C</b>
Linear		<b>271 ppm / °C</b>
Min. Service Temperature:		<b>-62 °C</b>
Max. Service Temperature:	AFS 1540B	<b>250 °C</b>
Volatile content		<b>100 ppm</b>

### Electrical Properties

Volume Resistivity:	ASTM D-257	<b>1.04E+15 Ω.cm</b>
Dielectric Strength:	ASTM D-149	<b>&gt;18 kV/mm</b>
Dielectric Constant at 60Hz:	ASTM D-150	<b>2.50</b>
Dissipation Factor at 60Hz:	ASTM D-150	<b>0.004</b>

### Adhesion Testing

Adhesion to most substrates is possible without the use of a primer after 5 days of curing at ambient conditions of 40 to 70% humidity and 20 to 40°C temperature. Lower humidity will require more time for the adhesion to fully develop.

### Overlap Shear Adhesion

Aluminium	ASTM D-1002	<b>8.7 kg/cm<sup>2</sup></b>
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Customers are advised to carry out their own tests on clean, degreased substrates to ensure satisfactory adhesion is achieved

All values are typical and should not be accepted as a specification.

**Packages** –310 ml cartridges

**Revision date** 23/10/2012

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