

Advanced Materials

Araldite® 1644 A/B

Aerospace Adhesives

DATA SHEET

KEY PROPERTIES

- **Very low density two-part epoxy syntactic**
- **Room temperature cure**
- **Non sagging**

DESCRIPTION

Araldite® 1644 A/B is a very low density room temperature curing epoxy syntactic designed for edge sealing, void and gap filling of honeycomb structures. The core filler is characterized by its combination of low density and high compressive strength.

PRODUCT DATA

Property	Araldite® 1644 A	Araldite® 1644 B	Mixed Syntactic	Test Method
Consistency	thixotropic	paste	thixotropic	
Colour	white	green	pale green	visual
Density (g/cm ³)	0.5 – 0.58	0.6 – 0.7	0.5 – 0.6	ISO 1183
Work life (200g at 25 °C)			30 -35 min	
Slump (mm)			0	

** Specified data are on a regular basis analysed. Data which is described in this document as 'typical' is not analysed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.*

PROCESSING

Pretreatment

The strength and durability of a bonded joint are dependant on proper treatment of the surfaces to be bonded.

At the very least, joint surfaces should be cleaned with a good degreasing agent such as acetone or other proprietary degreasing agents in order to remove all traces of oil, grease and dirt. Alcohol, gasoline (petrol) or paint thinners should never be used.

The strongest and most durable joints are obtained by either mechanically abrading or chemically etching (“pickling”) the degreased surfaces. Abrading should be followed by a second degreasing treatment.

Mix ratio	Parts by weight	Parts by volume
Araldite® 1644 A	100	100
Araldite® 1644 B	20	16.3

Application

The resin and hardener must be blended until they form a homogeneous mix, shown by a uniform pale green colour. The mix can be applied manually or extruded. Any material not used within 30 minutes of mixing should be pumped or spread out thinly on a disposable surface and allowed to cure to eliminate the risk of exotherm.

Equipment maintenance

All tools should be cleaned before syntactic residues have had time to cure. The removal of cured residues is a difficult and time-consuming operation.

If solvents such as acetone are used for cleaning, the operator should take the appropriate precautions and avoid skin and eye contact.

Recommended cure schedule

24 - 36 hours at 23°C or 3 - 4 hours at 23°C + 2 hours at 60 - 80°C

TYPICAL CURED PROPERTIES

Not for specification purposes (typical average values)

DRY compression properties

Property	Test Temp (°C)	Results (MPa)
Compressive Strength	- 55	35 - 50
	23	25 - 35
	80	15 - 20
Compressive Modulus	- 55	1100 - 1400
	23	1000 - 1300
	80	400 - 700

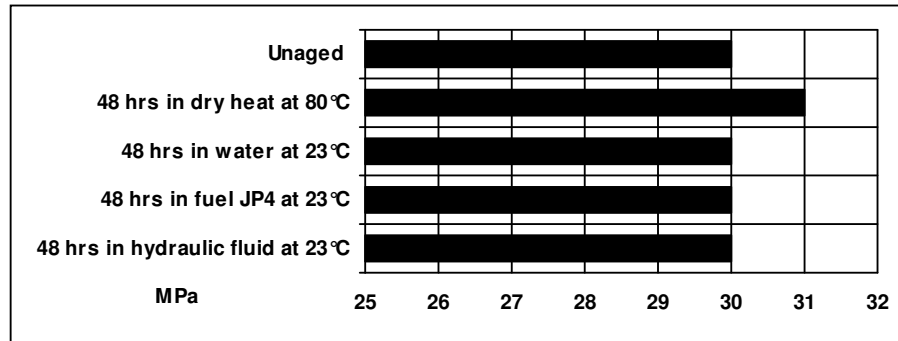
Tested per ISO 604, cure cycle: 3 - 4 hours at 23°C + 2 hours at 60°C

WET compression properties after 2000 hours 85%RH/70°C

Property	Test Temp (°C)	Results (MPa)
Compressive Strength	23	21 - 24
	80	3.1 - 3.4
Compressive Modulus	23	1000 - 1200
	80	100 - 110

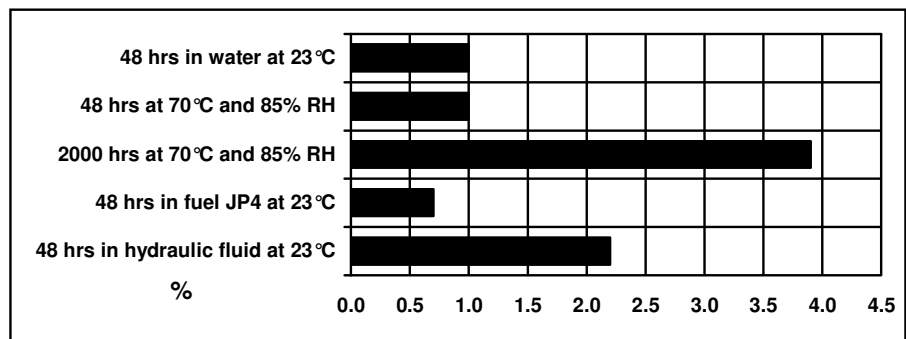
Tested per ISO 604, cure cycle: 3 - 4 hours at 23°C + 2 hours at 60°C

Compressive strength at 23°C versus immersion in various media (typical average values)



Tested per ISO 604, cure cycle: 3 - 4 hours at 23°C + 2 hours at 60°C

Fluid absorption in various media (typical average values)



Glass transition temperature (typical values)

Curing cycle	Tg _{onset} TMA (°C)	Tg DSC (°C)
24 hrs at 23°C	55 - 60	
3-4 hrs at 23°C + 2 hrs at 60°C	80 - 90	
3-4 hrs at 23°C + 2 hrs at 80°C		90 - 100

STORAGE

Araldite® 1644 A/B must be stored at 2 - 8°C for at least 12 months and the components must be stored in their original sealed containers. The expiry date is indicated on the label.

**HANDLING
PRECAUTIONS****Caution**

Our products are generally quite harmless to handle provided that certain precautions normally taken when handling chemicals are observed. The uncured materials must not, for instance, be allowed to come into contact with foodstuffs or food utensils, and measures should be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The wearing of impervious rubber or plastic gloves will normally be necessary; likewise the use of eye protection. The skin should be thoroughly cleansed at the end of each working period by washing with soap and warm water. The use of solvents is to be avoided. Disposable paper - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. These precautions are described in greater detail in the Material Safety Data sheets for the individual products and should be referred to for fuller information.

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