

Advanced Materials**Uralane[®] 5774 A/C****Aerospace Adhesives****TECHNICAL DATA SHEET****Key properties**

- **Two component urethane adhesive**
- **Bonds to metals and plastics**
- **High peel strength**
- **Self extinguishing**

Description

Uralane[®] 5774 A/C is a two component, self extinguishing, polyurethane adhesive which cures at room temperature or with heat to form tough, impact resistant bonds to metal or plastic substrates. The mixed compound is a soft paste for application to vertical or overhead surfaces.

Cure may be accelerated using higher temperatures (50 - 100°C), for faster production schedules. This product is also available in easy-to-use cartridges for quick, convenient application.

Uralane[®] 5774 A/C is qualified to BMS 5 - 105, Type 5.

Product data

Property	Uralane [®] 5774 A	Uralane [®] 5774 C	Mixed adhesive	Test method
Colour (visual)	off white	beige	beige	Visual
Specific gravity (g/cm ³)	ca. 1.1	ca. 1.3	ca. 1.2	ASTM-D-792
Viscosity apparent (Pas)	20 - 95	30 - 100	semi paste	(A93)*
Gel time at 25°C (min)	-	-	15 - 25	(A9)*

** 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, iso-propanol (for plastics) or proprietary degreasing agents in order to remove all traces of oil, grease and dirt. Low grade alcohols, 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
Uralane [®] 5774 A	100	2
Uralane [®] 5774 C	55	1

The resin and hardener should be blended until they form a homogeneous mix. It is advisable to mix that amount which can be used in 15 minutes at 25°C.

Resin and hardener are also available in cartridges incorporating mixers and can be applied as ready to use adhesives with the aid of the tool recommended by Huntsman Advanced Materials.

Application of adhesive

The resin/hardener mix is applied with a spatula, to the pretreated and dry joint surfaces.

A layer of adhesive 0.05 to 0.10 mm thick will normally impart the greatest lap shear strength to the joint.

The joint components should be assembled and clamped as soon as the adhesive has been applied.

An even contact pressure throughout the joint area will ensure optimum cure.

Mechanical processing

Specialist firms have developed metering, mixing and spreading equipment that enables the bulk processing of adhesive.

We will be pleased to advise customers on the choice of equipment for their particular needs.

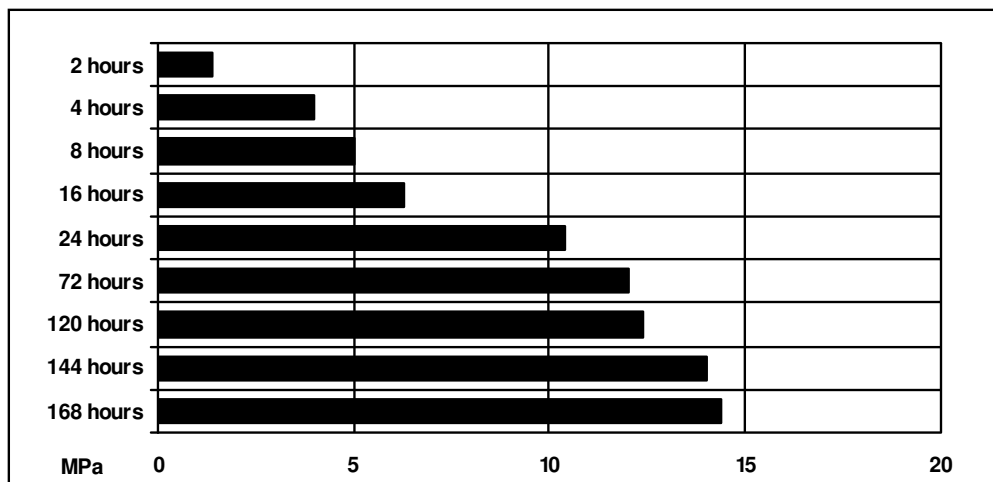
Equipment maintenance

All tools should be cleaned with hot water and soap before adhesives 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, operatives should take the appropriate precautions and, in addition, avoid skin and eye contact.

Strength development at 23°C (typical average values)



The data above illustrates that parts bonded with Uralane® 5774 A/C:

- 1) Can be handled within 3 hours at room temperature after application
- 2) 75% of full strength is achieved in 24 hours at room temperature
- 3) Ultimate strength is reached in 6-7 days at room temperature.

For faster cure, the fabricated part can be subjected to the following accelerated cure schedules after a 30 - 60 minute gelation at room temperature:

eg. 2 - 4 hours at 65°C or 1 - 2 hours at 95°C.

Typical cured properties

The figures were determined with typical production batches using standard testing methods.

They are provided solely as technical information and do not constitute a product specification.

Flammability characteristics (typical average values)

Test	Results	Test method
Self extinguishing	< 1 second	60 second ignition on a vertical sample (400 microns of cured material spread over glass fabric cloth type 116)
Burn length	175 mm	
Drip-self-extinguishing	< 1 second	

Test results of lap shear strengths on various substrates (typical average values)

Substrate	Lap shear strength (Mpa)				Peel Strength at 25°C (N/mm)	Pretreatment
	at -55°C	at 25°C	at 83°C	at 25°C after aging *		
Etched aluminium	31	14.8	9	20 ^{***} 15 ^{****}	8 (T) 10 (R)	Degrease and pickle
Sandblasted aluminium	-	14	6	7 ^{**}	4 (R)	Degrease and sandblast
Polycarbonate lexan	10	8	6	10 8 ^{**}	9 (T) 6 (R)	Isopropanol degrease
Declar-T	11 (s)	9	4	8	4 (T)	Isopropanol degrease
ABS	6 (s)	6 (s)	3	6 (s)	-	Isopropanol degrease
Plexiglass	6	4	3	6	-	Isopropanol degrease
Perspex	-	6	3	2 ^{**}	2 (R)	
PEEK	6	6	6	7	-	Acetone degrease
Ultem / Polycarbonate (70/30)	6	4	3	6	4 (T)	Isopropanol degrease
Ultem	6 (s)	7	3	6	4 (T)	Isopropanol degrease
Kydex 6565	10 (s)	8 (s)	3	8 (s)	4 (T)	Abraded
Steel	-	10	5	8 ^{**}	4 (R)	Sandblasted

* Aged 14 days at 48°C / 95% RH
 ** Aged 30 days at 60°C / 95% RH
 *** Aged 1000 hours at 70°C
 **** Aged 14 days at 70°C / 70%RH

(T) = T Peel to ASTM-D-1876
 (R) = Roller Peel to ISO 4578
 (s) = Substrate failure

Storage

Uralane[®] 5774/A and Uralane[®] 5774/C must be stored for up to 9 months at 18 – 40 °C and the components must be stored in their original sealed containers.

When cartridges are removed from the moisture barrier envelope, they must be used within 2 - 3 weeks.

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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