

# Araldite®

Reliable and comprehensive bonding solutions



Raising performance in assembly operations



# Our mission: provide unique bonding technologies that create value for our customers

## Araldite®

The adhesives serving worldwide manufacturing industry for more than half a century

Structural bonding techniques play a key role in today's assembly operations. As designers strive to bring lightweight and durable products to market in the quickest time possible, they increasingly choose industrial adhesives as the best solution for complex design issues.

Based on 60 years heritage as pioneers in high performance adhesive technology, Huntsman has developed an extensive range of adhesives to provide solutions to the great majority of design issues engineers face on a daily basis.



## Adhesives deliver long term performance and durability

Adhesive bonding enables the most efficient use of materials, maximising their long-term potential while optimising manufacturing methods with easy handling and processing.

Compared to mechanical joining, adhesive bonding allows the assembly of dissimilar substrates and higher weight loads to be carried while offering more uniform stress distribution across the entire bonded joint and superior fatigue resistance.

Adhesives facilitate the integrity and strength of materials as there are no holes, rivets or fastening elements to weaken the structure. Without any visible joining elements, nothing detracts from the aesthetics of the finished parts and greater lightweight design flexibility can be achieved.

Additionally, adhesives offer the potential to reduce costs in parts production through streamlined assembly processes and hence faster cycle times.

Therefore adhesives have become essential in manufacturing exterior and interior parts in order to deliver superior performance, durability, and aesthetic.

## We deliver more than just products

Huntsman's high performance structural adhesives are designed for those who require high strength in their assemblies at reduced production process costs. Our products help overcome a wide variety of challenges such as fast curing cycles with high initial green strength, durability under dynamic stress, impact resistance, corrosion resistance, and multi-substrate joining.

As a strategic partner to many industries, our company keeps on tailoring its products and services to the evolving needs. Based on state-of-the-art epoxy, polyurethane and methyl methacrylate technologies, Araldite® adhesives provide superior joining and bonding solutions for plastics, metals, composite materials and other substrates. This results in higher productivity rates, increased design freedoms, secured long-term performance and safety of assemblies.

All Huntsman's products are tested in-house in certified mechanical testing laboratories to ensure they provide the desired properties. Moreover our global manufacturing footprint, our experienced technical support teams and our extended network of distributors ensure close proximity with our customers.

# Strength in bonding

The Araldite® adhesives range for assembly operations contains a selection of adhesives from the latest epoxy, polyurethane and methacrylate technologies to meet the great majority of high-performance bonding applications.

## Araldite® adhesives range for assembly operations

From adhesives with long open times for large area applications to fast-curing adhesives for early removal from fixtures and rapid through-put, this range includes adhesives which are resistant to high temperature, water and chemicals. Liquid adhesives as well as thixotropic adhesives for gap-filling or vertical applications can be found in this range. Adhesives with highest strength can be selected from this range as well as tough and impact-resistant adhesives with a well-balanced combination of strength and flexibility and also elastic adhesives to cope with different thermal expansions when bonding larger structures of dissimilar materials.

Products from the Araldite® adhesives range for assembly operations are available in a variety of packaging including easy-to-use cartridges with static mixers and working packs for manual applications as well as hobbocks and drums for higher volume applications. The Araldite® adhesives range for assembly operations will continuously be updated to meet the newest demands of innovative design using the bonding technology.



## Epoxies

### 1-C epoxy adhesives

- > excellent adhesion to metals, thermoset and thermoplastic composites
- > outstanding lap shear strength and peel strength
- > high fatigue resistance
- > very high impact resistance
- > excellent chemical resistance
- > easy processing

### 2-C epoxy adhesives

- > excellent adhesion to metals and thermoset composites
- > high strength and high stiffness
- > high creep resistance
- > high fatigue resistance
- > high temperature resistance (adhesive specific up to 210°C)
- > excellent chemical resistance
- > low shrinkage

## Methacrylates

### 2-C methyl methacrylate adhesives

- > excellent adhesion to metals, thermoset composites and most thermoplastics
- > good adhesion with minimum surface preparation
- > tolerant to mix-ratio variations
- > wide spectrum of available reactivity
- > optimum ratio open-time / cure time
- > mechanical properties from rigid to flexible
- > good long-term durability

### No-mix methyl methacrylate adhesives

- > long open-time and rapid cure
- > good adhesion with minimum surface preparation
- > high process flexibility
- > suitable for high production speed
- > high toughness
- > good long-term durability

## Polyurethanes

### 2-C polyurethane adhesive

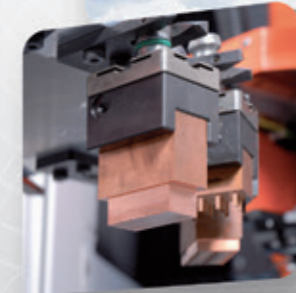
- > excellent adhesion to most thermoplastics and composite materials
- > good adhesion to metals
- > mechanical properties from rigid to flexible
- > good long-term durability
- > good combination of strength and flexibility

# Araldite®

## Reliable and comprehensive bonding solutions

The Araldite® adhesives range offers high performance bonding solutions for a wide variety of applications in assembly operations and maintenance. Our products have been designed to meet the key requirements of many industry sectors.

- > **Electrical engineering and electronics**
- > **Filter manufacturing**
- > **Heating, ventilating, air conditioning**
- > **Machineries**
- > **Marine**
- > **Medical**
- > **On-site and off-site construction**
- > **Pipes and tanks**
- > **Renewable energies**
- > **Sign and display**
- > **Sport and leisure**
- > **Transportation**
- > **White goods**







# Reliable and comprehensive bonding solutions



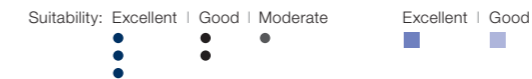
## Long pot life - from 45 to 70 minutes

Product designation	Technology	Pot life	Fixture time	Key benefits	Color	Viscosity	Gap filling capability	E-modulus*	Elongation at break*	Lap shear strength on aluminum**	Maximum service temperature***	Resistance to water / humidity	Resistance to chemicals	Mix ratio - by weight - by volume	Metals							Thermosets composites				Thermoplastics			Various substrates									
															Mild steel	Stainless steel	Galvanized steel	Aluminum	Copper	Brass	Ferrite	GRP (UP)	GRP (EP)	CFRP	SMC	PVC	PA	ABS, ASA, SAN	PC	PMMA	Ceramic	Glass	Rubber	Wood				
Conditions		100g at 23°C			mixed																																	
Unit		min	min			Pa·s	mm	MPa	%	MPa	°C																											
Bulk	Cartridge																																					
XW 396 / XW 397	Araldite® 2020 (working pack)	EP	45	960	Very low viscosity Suitable for clear casting	transparent	0,15	<1	2 800	4	16	60	●●●	●●	100:30 100:35	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Araldite® AY 105-1 / Hardener HY 991		EP	45	360	Self levelling Resistant to weathering and temperature	brown	15	1	1 600	1	14	120	●●●	●●	100:50 100 : 60	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AV 4738 / Hardener HV 4739		EP	45	180	Resistant to temperature KIWA approved / contact with drinking water	grey	thixotropic	5	3 000	1.5	16	150	●●●	●●●	100 : 25 100 : 22	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® F 349 / Hardener paste or powder		MMA	50	90	Resistant to acids Adhesion on thermoplastics	brown	15	1	2 300	2	25	120	●	●●●	100:3 n.a.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AW 136 H / Hardener HY 991		EP	60	480	Self levelling Resistant to weathering and chemicals	grey	25	1	3 000	2	13	110	●●●	●●●	100:35 100:45	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AW 136 H / Hardener HV 997-1		EP	70	300	Good adhesion on rubbers	grey	thixotropic	3	1 000	3	18	80	●●●	●●	100 : 60 100 : 80	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AV 4076-1 / Hardener HV 5309-2		EP	60	240	Toughened Resistant to weathering	neutral	thixotropic	10	1 000	5	24	100	●●●	●●	100 : 116 100 : 100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Araldite® AV 4076-1 BK / Hardener HV 5310 BK	Araldite® 2031-1	EP	60	180	Toughened Resistant to weathering	black	thixotropic	10	1 000	10	22	100	●●●	●●	100 : 120 100 : 100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Araldite® AV 4076-1 / Hardener HY 4076		EP	60	360	Toughened High peel strength	neutral	thixotropic	10	1 500	5	29	70	●	●	100 : 44 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Araldite® AW 5047-1 / Hardener HW 5067-1		EP	80	270	Self-levelling Temperature resistant	white	16	0,5	2 600	7	20	140	●●●	●●●	100 : 30 100 : 45	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AV 144-2 / Hardener HV 997-1	Araldite® 2013-1	EP	80	300	Non sagging paste Multipurpose	grey	thixotropic	5	1 400	2	20	70	●●	●●	100 : 60 100 : 100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

\*measured following ISO 527 (Curing 16h at 40°C) | \*\*measured following ISO 4587 (Curing 16h at 40°C)

\*\*\* maximum temperature giving LSS > 5MPa or maximum temperature giving 33% of LSS at 23°C

Cure temperature at RT possible (full cure achieved after 7 days) except Araldite® 4738 / Hardener HV 4739 at minimum 80°C and Araldite® AW 5047-1 / Hardener HW 5067 at minimum 40°C



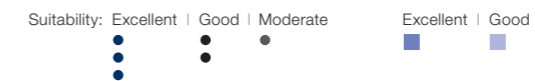
## Very long pot life - more than 90 minutes

Product designation	Technology	Pot life	Fixture time	Key benefits	Color	Viscosity	Gap filling capability	E-modulus*	Elongation at break*	Lap shear strength on aluminum**	Maximum service temperature***	Resistance to water / humidity	Resistance to chemicals	Mix ratio - by weight - by volume	Metals							Thermosets composites				Thermoplastics				Various substrates														
															Mild steel	Stainless steel	Galvanized steel	Aluminum	Copper	Brass	Ferrite	GRP (UP)	GRP (EP)	CFRP	SMC	PVC	PA	ABS, ASA, SAN	PC	PMMA	Ceramic	Glass	Rubber	Wood										
Conditions		100g at 23°C			mixed																																							
Unit		min	min			Pa-s	mm	MPa	%	MPa	°C																																	
Bulk	Cartridge																																											
Araldite® AY 103-1 / Hardener HY 991		EP	90	720	Self-levelling Multi purpose	yellow	5	0.5	1000	5	15	90	●	●●	100 : 40 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Araldite® AW 136 H / Hardener HW 5067-1		EP	100	300	High temperature resistance Resistant to chemicals	grey	10	0.5	2 800	2	15	110	●●	●●	100 : 29 100 : 38	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Araldite® AW 4510 / Hardener HW 4511-1	Araldite® AV 4415 / Hardener HV 4416-1	EP	90	420	Resistant to high temperature Resistant to chemicals	grey	thixotropic	10	4 500	1	22	180	●●	●●	100 : 50 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
XB 5090-1 / Arathane® HY 5611-1		PUR	100	360	Easy to spread Long pot life	beige	4	<1	27	40	20	60	●●	●●	100 : 20 100 : 25	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Araldite® AW 106 / Hardener HV 953 U	Araldite® 2011	EP	100	420	Multipurpose Resistant to dynamic loading	pale yellow	40	1	1 900	9	26	90	●	●●	100 : 80 100 : 100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AW 4859 / Hardener HW 4859	Araldite® AW 4859 / Hardener HW 4859	EP	100	270	Resistant to high temperature High toughness	black	thixotropic	10	1 500	5	33	140	●●	●●	100 : 43 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AW 139-1 / Hardener HW 5323-1	Araldite® 2014-2	EP	110	300	Resistant to temperature KIWA approved / contact with drinking water	dark grey	thixotropic	5	3 000	1	17	140	●●	●●	100 : 50 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AW 4833 / Hardener HW 4833	Araldite® 2033	EP	140	240	Flame retardant Long pot life	black	thixotropic	5	2 500	1	16	100	●●	●●	100 : 88 100 : 100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® 420 A/B	Araldite® 420 A/B	EP	150	360	High peel strength Toughened	dark green	40	<1	1 500	10	40	60	●●	●●	100 : 40 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Araldite® AW 4858 / Hardener HW 4858	Araldite® AW 4858 / Hardener HW 4858	EP	150	360	High peel strength High toughness	black	thixotropic	10	1 600	10	38	90	●●	●●	100 : 42 100 : 50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Araldite® AW 4804 / Hardener HW 4804		EP	240	na.	Resistant to very high temperatures	grey	17	0.5	6 200	1	21	220	●●	●●	100 : 15 100 : 28	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

\*measured following ISO 527 (Curing 16h at 40°C) | \*\*measured following ISO 4587 (Curing 16h at 40°C)

\*\*\*maximum temperature giving LSS > 5MPa or maximum temperature giving 33% of LSS at 23°C

Cure temperature at RT possible (full cure achieved after 7 days) except Araldite® AW 4510 / Hardener HW 4511 at minimum 80°C and Araldite® AW 4804 / Hardener HW 4804 at minimum 120°C









# We value your challenge

By providing unique, certified or patented technologies, combined with high quality and reliability, our chemists and experts bring enhanced value to our customers, ensuring their success.

## With innovation

Every day, all over the world, our Technical Competence centers engage in intensive research and development focusing on one goal : to deliver innovative solutions by working hand-in-hand with our business partners. Together through a continual exchange of ideas, supported by an experienced team of sales and technical specialists, we strive to deliver innovative and regulatory compliant (eg REACH compliant) solutions.

We track both new market expectations and changing regulations. Protection of the environment, as well as health and safety are paramount concerns, playing an integral part in our development projects.



## With customer intimacy

We market a unique product portfolio and a broad range of forward-looking solutions for our customers. Customers and partners benefit from an advanced level of service in:

- > product selection and quality
- > product trials in-house and with customers
- > customer seminars and trainings
- > technical service and solution-providing

Partnership with our customers is more than simply «putting them first». It requires long-term commitment to forging close relationships that create synergies of knowledge, security and adaptability to create a successful, shared future.

## With care

Sustainability is a fundamental part of our corporate and business strategy. We see a better world in which our innovations help reduce consumption of natural resources and improve the quality of life for people everywhere. We are identifying the long - term trends that affect our markets and looking to see how products and applications can play a part in supporting and providing solutions to the challenges those markets face.

## Huntsman Advanced Materials

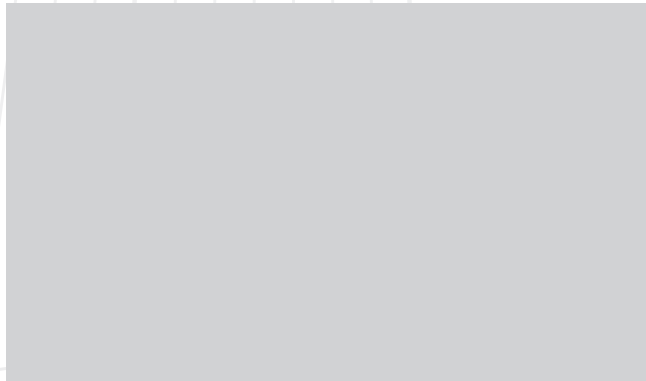
Our Advanced Materials division is a leading global chemical solutions provider with a long heritage of pioneering technologically advanced epoxy, acrylic, phenolic and polyurethane-based polymer products.

Our capabilities in high-performance adhesives and composites, delivered by more than 1 600 associates, serve over 2 000 global customers with innovative, tailor-made solutions and more than 1 500 products which address global engineering challenges.

## We operate synthesis, formulating and production facilities around the world



## Distributed by



## Find the right adhesive to fulfill your needs



[www.AralditeAdhesives.com](http://www.AralditeAdhesives.com)

# HUNTSMAN

Enriching lives through innovation

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[www.huntsman.com/advanced\\_materials](http://www.huntsman.com/advanced_materials)  
[advanced\\_materials@huntsman.com](mailto:advanced_materials@huntsman.com)

**Europe, Middle East & Africa**  
Huntsman Advanced Materials (Switzerland) GmbH  
Klybeckstrasse 200  
P.O. Box  
4002 Basel  
Switzerland  
Tel. +41 61 299 1111  
Fax +41 61 299 1112

**Asia Pacific & India**  
Huntsman Advanced Materials (Guangdong) Co., Ltd.  
Room 4903-4906, Maxdo Centre,  
8 Xing Yi Road,  
Shanghai 200336,  
P.R.China  
Tel. + 86 21 2325 7888  
Fax + 86 21 2325 7808

**Americas**  
Huntsman Advanced Materials Americas Inc.  
10003 Woodloch Forest Drive  
The Woodlands  
Texas 77380  
USA  
Tel. +1 888 564 9318  
Fax +1 281 719 4047

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The Product may be or become hazardous. Buyer should (i) obtain Material Safety Data Sheets and Technical Data Sheets from Huntsman containing detailed information on Product hazards and toxicity, together with proper shipping, handling and storage procedures for the Product, (ii) take all steps necessary to adequately inform, warn and familiarize its employees, agents, direct and indirect customers and contractors who may handle or be exposed to the Product of all hazards pertaining to and proper procedures for safe handling, use, storage, transportation and disposal of and exposure to the Product and (iii) comply with and ensure that its employees, agents, direct and indirect customers and contractors who may handle or be exposed to the Product comply with all safety information contained in the applicable Material Safety Data Sheets, Technical Data Sheets or other instructions provided by Huntsman and all applicable laws, regulations and standards relating to the handling, use, storage, distribution and disposal of and exposure to the Product. Please note that products may differ from country to country. If you have any queries, kindly contact your local Huntsman representative.

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