

## Nomenclature

### Resins

Huntsman Advanced Materials' registered trademark for commercial resins is "Araldite®". Examples: Araldite® PY 302-2 CH and EPN 1180 X 80 CH.

The two-letter code following the registered trademark has the following meaning:

First letter indicates the intended use of the product. Ex.: Araldite® **PY** 302-2 CH

<b>B</b>	special resin for civil engineering applications
<b>D</b>	modification product (reactive diluent, flexibilizer, matting agent, etc.)
<b>G</b>	standard resin
<b>P</b>	special resin
<b>EPN</b>	Epoxy Phenol Novolac
<b>ECN</b>	Epoxy Cresol Novolac

(exceptions indicating only the type of resins chemistry)

Second letter indicates the supply form. Ex.: Araldite® **PY** 302-2 CH

<b>T</b>	solid product
<b>Y</b>	liquid product
<b>Z</b>	resin in solution, emulsion or dispersion form

The number following this letter code is the characteristic for the product name. Ex.: Araldite® PY **302-2** CH.

In case of minor product changes, we indicate the actual version by a figure separated from the product number by a dash. Ex.: Araldite® PY 302-**2** CH.

In case of resin solutions a one up to three-letter code behind the characteristic product number indicates a solvent (or solvent mixture). Ex.: EPN 1180 **X 80** CH.

This solvent code is followed by a number indicating the solid content of the product (in the example above it's 80% resin dissolved in xylene).

The last two letters indicate the country of origin, in these two cases CH for Switzerland. Ex.: EPN 1180 X 80 **CH**.

These appendices are in use on packaging, transport and invoicing documents but not within this selector guide.

### Curing Agents

Huntsman Advanced Materials' registered trademark for commercial hardeners is "Aradur®". Ex: Aradur® 3467 XW 70 BD and Aradur® 450 S BD.

In case of hardeners the characteristic number for the product name follows directly after the registered trademark. Ex.: Aradur® **3467** XW 70 BD

A one up to three-letter code behind the characteristic product number indicates a solvent (mixture). Ex.: Aradur® 3467 **XW** 70 BD

This solvent code is followed by a number indicating the solid content of the product (in the example above it's 70% hardener dissolved in a xylene / butanol mixture). Ex.: Aradur® 3467 XW **70** BD

The final letter code again indicates the country of origin; in this case Germany. Ex.: Aradur® 3467 XW 70 **BD**

A one-letter code (S or T) behind the characteristic product number (without additional solid content number) indicates a special behaviour of the hardener. S shows that the hardener is the fast version of an existing product, whereas T has the meaning "tropical" indicating a long pot life at higher temperatures.

### Experimental products

Experimental products are commercially between a lab development and a fully commercial product. They have not yet reached their final status in terms of specification, market penetration and nomenclature. Ex: Hardener XB 2973 and Hardener XBK 3984

First letter X describes the product status as experimental. The following one or two-letter code indicates the country of origin of the development.

The experimental product is also described as resin, hardener, accelerator, etc.

## Calculation of Mixing Ratio

### Epoxy - amine cure

Epoxy content of resin given as:

• <b>Epoxy Index</b>	[Eq/kg]
• <b>Epoxy Equivalent Weight</b>	[g/Eq]

$$\frac{[\text{Eq/kg}]}{[\text{g/Eq}]} = \frac{1000 \text{ g/kg}}{[\text{g/Eq}]}$$

Amine functionality (reactive groups) of hardener given as:

• <b>H+ active Equivalent</b>	[g/Eq]
-------------------------------	--------

### Formula

<b>Epoxy Index</b> [Eq/kg]	x	<b>H+ active Equivalent</b> [g/Eq]	=	<b>g hardener/kg resin</b>
	x		=	<b>g hardener/kg resin</b>

### Other possibility

<b>100 g of resin</b> EEW in [g/Eq]	x	<b>H+ active Equivalent in</b> [g/Eq]	=	<b>g hardener to cure</b> 100 g of resin
--	---	--	---	---

All trademarks mentioned are either property of or licensed to Huntsman Corporation or an affiliate thereof.

Sales of the product described herein ("Product") are subject to the general terms and conditions of sale of either Huntsman Advanced Materials LLC, or its appropriate affiliate including without limitation Huntsman Advanced Materials (Europe) BVBA, Huntsman Advanced Materials Americas Inc., or Huntsman Advanced Materials (Hong Kong) Ltd. ("Huntsman"). The following supercedes Buyer's documents.

While the information and recommendations included in this publication are, to the best of Huntsman's knowledge, accurate as of the date of publication, NOTHING CONTAINED HEREIN IS TO BE CONSTRUED AS A REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS, OR WARRANTIES AS TO QUALITY OR CORRESPONDENCE WITH PRIOR DESCRIPTION OR SAMPLE, AND THE BUYER ASSUMES ALL RISK AND LIABILITY WHATSOEVER RESULTING FROM THE USE OF SUCH PRODUCT, WHETHER USED SINGLY OR IN COMBINATION WITH OTHER SUBSTANCES. No statements or recommendations made herein are to be construed as a representation about the suitability of any Product for the particular application of Buyer or user or as an inducement to infringe any patent or other intellectual property right. Data and results are based on controlled conditions and/or lab work. Buyer is responsible to determine the applicability of such information and recommendations and the suitability of any Product for its own particular purpose, and to ensure that its intended use of the Product does not infringe any intellectual property rights.

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.

© 2007 Huntsman Corporation. All rights reserved.

# HUNTSMAN

Enriching lives through innovation

### EUROPE / AFRICA

Huntsman Advanced Materials  
(Switzerland) GmbH  
Klybeckstrasse 200  
P.O. Box  
4002 Basel  
Switzerland  
Tel +41 61 966 33 33  
Fax +41 61 966 35 19

### INDIA / MIDDLE EAST

Huntsman Advanced Materials  
(India) Pvt. Ltd  
5th Floor, Bldg. No. 10  
Solitaire Corporate Park  
167, Guru Hargovindji Marg, Chakal  
Andheri (East)  
Mumbai - 400 093  
India  
Tel +91 22 4095 1556 - 60  
Fax +91 22 4095 1300/1400/1500

### ASIA / PACIFIC

Huntsman Advanced Materials  
(Hong Kong) Ltd  
Suites 3 - 12, Level 41  
Langham Place  
8 Argyle Street  
Kowloon  
Hong Kong  
Tel +852 2148 8800  
Fax +852 2424 1741

### 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

**More detailed information about these products can be found on our website:**

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

**For any other information, please send an e-mail to:**  
[advanced\\_materials@huntsman.com](mailto:advanced_materials@huntsman.com)

Ref.Nr. AdlMat Ambient curing systems 08.07\_EN

# HUNTSMAN

Enriching lives through innovation

## Advanced Materials Ambient curing systems



## Curing Agents • Aradur®

Product range	Characteristics	Viscosity 25°C [mPa s]	Amine value [mg KOH/g]	H+ active equiv. [g/Eq]	Colour (Gardner)	Applications
<b>Acc. 960-1</b>	Tertiary amine	150-300	560-675	~ 20	≤ 8	CE, IM, MC
<b>Acc. 2950</b>	co-reacting	2 000-6 000	644-700	~ 75	≤ 10	CE, IM, MC
<b>Acc. 3130</b>	40 <span> </span> % in ethanol	10-100	not an amine	-	-	CE, IM, MC

### Accelerators

Product range	Characteristics	Viscosity 25°C [mPa s]	Amine value [mg KOH/g]	H+ active equiv. [g/Eq]	Gel time [min]	Colour (Gardner)	Applications
<b>Aradur® 10</b>	Polyamine	1 300-1 900	890-950	~ 40	12	≤ 8	CE, IM, MC
<b>Aradur® 14</b>	Polyamine	400-600	350-390	~ 75	12	≤ 5	CE, IM, MC
<b>Aradur® 15</b>	Polyamine	100-300	195-215	~ 140	20	≤ 3	CE, IM, MC
<b>Aradur® 16</b>	Polyamine	550-750	380-400	~ 75	15	≤ 5	CE, A
<b>Aradur® 43</b>	Cycloaliphatic polyamine	290-450	260-280	115	45	≤ 4	CE, IM
<b>Aradur® 43 S</b>	Accelerated cycloaliphatic polyamine	550-850	265-285	115	22	≤ 4	CE, IM
<b>Aradur® 44</b>	Cycloaliphatic polyamine	25-35	310-330	87	40	≤ 1	CE, A
<b>Aradur® 45</b>	Aliphatic polyamine	4 000-7 000	310-330	185	≤ 10	≤ 4	CE, A
<b>Aradur® 46</b>	Polyamine adduct	130-230	310-340	95	38	≤ 3	CE, IM
<b>Aradur® 46 S</b>	Cycloaliphatic polyamine	220-320	310-340	95	20	≤ 3	CE, IM, MC
<b>Aradur® 48 S</b>	Accelerated cycloaliphatic polyamine	45-75	350-390	~ 75	43	≤ 8	CE, IM
<b>Aradur® 49</b>	Polyamine adduct	220-300	280-360	95	24	≤ 4	CE, IM, MC
<b>Aradur® 49 S</b>	Polyamine adduct	260-360	295-325	95	15	≤ 3	CE, IM, MC
<b>Aradur® 50</b>	Polyamine	20-40	440-480	92	15	≤ 2	CE
<b>Aradur® 51</b>	Polyamine	20-40	440-480	67-90	20	≤ 3	CE
<b>Aradur® 53 S</b>	Polyamine adduct	300-400	250-280	~ 115	14	≤ 1	CE, IM
<b>Aradur® 70</b>	Polyetherurethane amine	16 000-27 000	65-75	~ 900	300-500	≤ 5	CE
<b>Aradur® 75</b>	Polyetherurethane amine/polyamine	3 000-5 000	120-140	~ 250	40	≤ 4	CE
<b>Aradur® 76</b>	Polytherpolyamine	1 100-1 900	160-190	~ 250	43	≤ 6	CE
<b>Aradur® 90</b>	Polymercaptane	10 000-16 000	-	200	4-5 (20 g)	≤ 3	CE, IM, A
<b>Aradur® 208</b>	Polyamine adduct	1 600-3 200	235-275	~ 115	25	≤ 4	CE, IM
<b>Aradur® 835</b>	Solid isolated aliphatic polyamine adduct	600-1 200 <sup>1)</sup>	180-210	~ 200	1 000 <sup>2)</sup>	≤ 5	IM, MC
<b>Aradur® 837</b>	Aliphatic polyamine adduct	2 900-3 600	395-415	66	15	≤ 2	CE, IM, MC
<b>Aradur® 847</b>	Cycloaliphatic polyamine	150-300	350-375	~ 75	30	≤ 2	CE, IM, MC
<b>Aradur® 943</b>	Aliphatic polyamine	3 400-5 000	730-840	~ 38	15	≤ 5	CE, IM, MC
<b>Aradur® 985 E-1</b>	Basic hardener <sup>3)</sup>	-	-	-	6 month <sup>4)</sup>	≤ 3	CC, IM
<b>Aradur® 1012</b>	Aliphatic polyamine	90-120	670-785	~ 66	133	≤ 4	CE
<b>Aradur® 2958</b>	Aliphatic polyamine	190-250	954-999	~ 33	8	≤ 7	CE, IM, MC
<b>Aradur® 2963</b>	Cycloaliphatic polyamine	30-70	325-350	~ 85	40	≤ 2	CE
<b>Aradur® 2964</b>	Cycloaliphatic polyamine	40-60	325-335	~ 92	30	≤ 2	CE
<b>Aradur® 2965</b>	Cycloaliphatic polyamine	100-300	300-325	~ 94	35	≤ 4	CE, IM, MC
<b>Aradur® 2973</b>	Aliphatic polyamine	900-1 400	300-335	~ 85	40	≤ 7	CE, IM
<b>Aradur® 2987</b>	Cycloaliphatic polyamine	110-150	220-235	~ 130	40	≤ 4	CE
<b>Aradur® 2992</b>	Aliphatic polyamine	10-20	575-605	~ 55	5	≤ 2	CE
<b>Aradur® 3203</b>	Aliphatic polyamine	300-600	455-485	~ 50	15	≤ 3	CE, IM, MC
<b>Aradur® 3243</b>	Cycloaliphatic polyamine	220-360	280-360	95	60	≤ 1	CE, IM
<b>Aradur® 3253</b>	Cycloaliphatic polyamine	200-260	290-320	~ 95	40	≤ 1	CE
<b>Aradur® 3257</b>	Cycloaliphatic polyamine	300-500	280-340	115	36	≤ 2	CE, IM, MC
<b>Aradur® 3258</b>	Polyamine adduct	300-400	350-400	~ 95	~ 43	≤ 2	CE, IM, MC
<b>Aradur® 3275</b>	Formulated polyetherpolyamine	200-300	100-170	250	85	≤ 6	CE, IM
<b>Aradur® 3277</b>	Formulated polyamine adduct	250-450	450-500	91	80	≤ 6	CE
<b>Aradur® 3282</b>	Formulated polyamidoamine adduct	900-1900	290-350	115	100	≤ 10	CE, IM
<b>Aradur® 3290</b>	Polyamine adduct	100-180	820-900	48	22	≤ 4	CE
<b>Aradur® 3290 S</b>	Polyamine	90-130	770-870	48	12	≤ 5	CE
<b>Aradur® 3296</b>	Polyamine	350-650	330-370	75	~ 17	≤ 8	CE, IM, MC
<b>Aradur® 3369</b>	Polyamine	120-220	330-410	75	12	≤ 5	CE, IM
<b>Aradur® 3484</b>	Polyamine adduct	300-550	350-450	95	30	≤ 6	CE
<b>Aradur® 3740</b>	Cycloaliphatic polyamine	5-20	645-700	41	58	≤ 3	CE
<b>Aradur® 3741</b>	Cycloaliphatic polyamine	5-25	695-730	39	84	≤ 1	CE
<b>Aradur® 30 XWM 55</b>	Isolated amine adduct <sup>5)</sup>	2 000-2 800	98-114	~ 370	> 1 000 <sup>2)</sup>	≤ 5	IM, MC
<b>Aradur® 3776 XW 55</b>	Isolated amine adduct <sup>5)</sup>	1 500-2 500	100-120	350	> 1 000 <sup>2)</sup>	≤ 8	IM, MC

(Tecam, 250 g/23°C)

Product range	Characteristics	Viscosity 25°C [mPa s]	Amine value [mg KOH/g]	H+ active equiv. [g/Eq]	Gel time [min]	Colour (Gardner)	Applications
<b>Aradur® 10</b>	Polyamine	1 300-1 900	890-950	~ 40	12	≤ 8	CE, IM, MC
<b>Aradur® 14</b>	Polyamine	400-600	350-390	~ 75	12	≤ 5	CE, IM, MC
<b>Aradur® 15</b>	Polyamine	100-300	195-215	~ 140	20	≤ 3	CE, IM, MC
<b>Aradur® 16</b>	Polyamine	550-750	380-400	~ 75	15	≤ 5	CE, A
<b>Aradur® 43</b>	Cycloaliphatic polyamine	290-450	260-280	115	45	≤ 4	CE, IM
<b>Aradur® 43 S</b>	Accelerated cycloaliphatic polyamine	550-850	265-285	115	22	≤ 4	CE, IM
<b>Aradur® 44</b>	Cycloaliphatic polyamine	25-35	310-330	87	40	≤ 1	CE, A
<b>Aradur® 45</b>	Aliphatic polyamine	4 000-7 000	310-330	185	≤ 10	≤ 4	CE, A
<b>Aradur® 46</b>	Polyamine adduct	130-230	310-340	95	38	≤ 3	CE, IM
<b>Aradur® 46 S</b>	Cycloaliphatic polyamine	220-320	310-340	95	20	≤ 3	CE, IM, MC
<b>Aradur® 48 S</b>	Accelerated cycloaliphatic polyamine	45-75	350-390	~ 75	43	≤ 8	CE, IM
<b>Aradur® 49</b>	Polyamine adduct	220-300	280-360	95	24	≤ 4	CE, IM, MC
<b>Aradur® 49 S</b>	Polyamine adduct	260-360	295-325	95	15	≤ 3	CE, IM, MC
<b>Aradur® 50</b>	Polyamine	20-40	440-480	92	15	≤ 2	CE
<b>Aradur® 51</b>	Polyamine	20-40	440-480	67-90	20	≤ 3	CE
<b>Aradur® 53 S</b>	Polyamine adduct	300-400	250-280	~ 115	14	≤ 1	CE, IM
<b>Aradur® 70</b>	Polyetherurethane amine	16 000-27 000	65-75	~ 900	300-500	≤ 5	CE
<b>Aradur® 75</b>	Polyetherurethane amine/polyamine	3 000-5 000	120-140	~ 250	40	≤ 4	CE
<b>Aradur® 76</b>	Polytherpolyamine	1 100-1 900	160-190	~ 250	43	≤ 6	CE
<b>Aradur® 90</b>	Polymercaptane	10 000-16 000	-	200	4-5 (20 g)	≤ 3	CE, IM, A
<b>Aradur® 208</b>	Polyamine adduct	1 600-3 200	235-275	~ 115	25	≤ 4	CE, IM
<b>Aradur® 835</b>	Solid isolated aliphatic polyamine adduct	600-1 200 <sup>1)</sup>	180-210	~ 200	1 000 <sup>2)</sup>	≤ 5	IM, MC
<b>Aradur® 837</b>	Aliphatic polyamine adduct	2 900-3 600	395-415	66	15	≤ 2	CE, IM, MC
<b>Aradur® 847</b>	Cycloaliphatic polyamine	150-300	350-375	~ 75	30	≤ 2	CE, IM, MC
<b>Aradur® 943</b>	Aliphatic polyamine	3 400-5 000	730-840	~ 38	15	≤ 5	CE, IM, MC
<b>Aradur® 985 E-1</b>	Basic hardener <sup>3)</sup>	-	-	-	6 month <sup>4)</sup>	≤ 3	CC, IM
<b>Aradur® 1012</b>	Aliphatic polyamine	90-120	670-785	~ 66	133	≤ 4	CE
<b>Aradur® 2958</b>	Aliphatic polyamine	190-250	954-999	~ 33	8	≤ 7	CE, IM, MC
<b>Aradur® 2963</b>	Cycloaliphatic polyamine	30-70	325-350	~ 85	40	≤ 2	CE
<b>Aradur® 2964</b>	Cycloaliphatic polyamine	40-60	325-335	~ 92	30	≤ 2	CE
<b>Aradur® 2965</b>	Cycloaliphatic polyamine	100-300	300-325	~ 94	35	≤ 4	CE, IM, MC
<b>Aradur® 2973</b>	Aliphatic polyamine	900-1 400	300-335	~ 85	40	≤ 7	CE, IM
<b>Aradur® 2987</b>	Cycloaliphatic polyamine	110-150	220-235	~ 130	40	≤ 4	CE
<b>Aradur® 2992</b>	Aliphatic polyamine	10-20	575-605	~ 55	5	≤ 2	CE
<b>Aradur® 3203</b>	Aliphatic polyamine	300-600	455-485	~ 50	15	≤ 3	CE, IM, MC
<b>Aradur® 3243</b>	Cycloaliphatic polyamine	220-360	280-360	95	60	≤ 1	CE, IM
<b>Aradur® 3253</b>	Cycloaliphatic polyamine	200-260	290-320	~ 95	40	≤ 1	CE
<b>Aradur® 3257</b>	Cycloaliphatic polyamine	300-500	280-340	115	36	≤ 2	CE, IM, MC
<b>Aradur® 3258</b>	Polyamine adduct	300-400	350-400	~ 95	~ 43	≤ 2	CE, IM, MC
<b>Aradur® 3275</b>	Formulated polyetherpolyamine	200-300	100-170	250	85	≤ 6	CE, IM
<b>Aradur® 3277</b>	Formulated polyamine adduct	250-450	450-500	91	80	≤ 6	CE
<b>Aradur® 3282</b>	Formulated polyamidoamine adduct	900-1900	290-350	115	100	≤ 10	CE, IM
<b>Aradur® 3290</b>	Polyamine adduct	100-180	820-900	48	22	≤ 4	CE
<b>Aradur® 3290 S</b>	Polyamine	90-130	770-870	48	12	≤ 5	CE
<b>Aradur® 3296</b>	Polyamine	350-650	330-370	75	~ 17	≤ 8	CE, IM, MC
<b>Aradur® 3369</b>	Polyamine	120-220	330-410	75	12	≤ 5	CE, IM
<b>Aradur® 3484</b>	Polyamine adduct	300-550	350-450	95	30	≤ 6	CE
<b>Aradur® 3740</b>	Cycloaliphatic polyamine	5-20	645-700	41	58	≤ 3	CE
<b>Aradur® 3741</b>	Cycloaliphatic polyamine	5-25	695-730	39	84	≤ 1	CE
<b>Aradur® 30 XWM 55</b>	Isolated amine adduct <sup>5)</sup>	2 000-2 800	98-114	~ 370	> 1 000 <sup>2)</sup>	≤ 5	IM, MC
<b>Aradur® 3776 XW 55</b>	Isolated amine adduct <sup>5)</sup>	1 500-2 500	100-120	350	> 1 000 <sup>2)</sup>	≤ 8	IM, MC

<sup>1)</sup> 30% in xylene/butanol (1:1) • <sup>2)</sup> with solid epoxy resin and solvent • <sup>3)</sup> available as system with Araldite® PZ 985-E •

<sup>4)</sup> heat cure system; solids content: 19-22% • <sup>5)</sup> 55% in xylene/n-butanol/methoxypropanol (4:1:4) • <sup>6)</sup> 55% in xylene/n-butanol.

(Tecam, 250 g/23°C)

Product range	Characteristics	Viscosity 25°C [mPa s]	Amine value [mg KOH/g]	H+ active equiv. [g/Eq]	Gel time [min]	Colour (Gardner)	Applications
<b>Aradur® 3440</b>	Phenalkamine	1 000-3 000	475-505	~ 80	35	≤ 17	IM, MC
<b>Aradur® 3441</b>	Phenalkamine	10 000-50 000	290-325	~ 130	60	≤ 17	IM, MC
<b>Aradur® 3442</b>	Phenalkamine	1 000-5 000	320-350	~ 125	35	≤ 17	IM, MC
<b>Aradur® 3467 XW 70</b>	Phenalkamine adduct	1 000-3 000	170-210	180-220	120 <sup>1)</sup>	≤ 18	IM, MC

### Pure Amine

<b>Aradur® 21</b>	Aliphatic polyamine	< 10	680-720	40	51	≤ 1	CE, IM, MC
<b>Aradur® 22</b>	Aliphatic polyamine	< 8	810-830	34	71	≤ 2	CE, IM, MC
<b>Aradur® 26</b>	Aliphatic polyamine	6-10	1 250-1 290	26	31	≤ 3	CE, IM, MC
<b>Aradur® 40</b>	Cycloaliphatic polyamine	80-100	460-480	60	245	≤ 1	CE, IM, MC
<b>Aradur® 42</b>	Cycloaliphatic polyamine	10-20	645-665	42	95	≤ 1	CE, IM, MC

<sup>1)</sup> with solid epoxy resin and solvent