



Redux® 830

Two-part epoxy syntactic paste adhesive

Product Data

Description

Redux® 830 is a low density, self-extinguishing, syntactic, room temperature curing, two-part, epoxy paste adhesive.

Features

- Low density
- Self-extinguishing
- Excellent compressive strength up to 100°C / 212°F.
- Easy to mix by hand
- Non-slump
- Room temperature or warm curing
- Gap filling
- Service temperature up to 100°C / 212°F
- Easily sandable after 4 hours at 22°C / 72°F
- Less than 0.5% (w/w) volatiles emitted during cure

Redux 830 is supplied in 3 litre packs, 25 litre cans and 210 litre drums

Applications

- Potting
- Edge filler in honeycomb sandwich structures

Uncured Adhesive Properties

Property	Units	Part A	Part B	Mixed	Test Method
Colour		Pink	Cream	Purple	Visual
Density @ 25°C	g/cc	0.72	0.46		ASTM D1875-69
Density @ 77°F	lb/ft ³	45	29		
Pot-life (100g @ 25°C)	mins			~ 70	ASTM 2471 water bath
Pot-life (0.22 lbs @ 77°F)	mins			~ 70	
Slump properties @ 25°C	mm			1	BMS5-28
Slump properties @ 52°C	mm			4	
Slump properties @ 77°F	inch			0.04	BMS5-28
Slump properties @ 126°F	inch			0.16	



Redux 830

Instructions For Use

1. Pretreatment

All substrates must be free of contamination and in as ideal a state for bonding as possible. Pretreatment varies depending on the chosen substrates. Please refer to the Hexcel Composites publication Redux Bonding Technology for optimum procedures.

2. Mixing

Peak Exotherm – Test Method ASTM D2471, water bath

Mix Ratio	Part A	Part B
By Weight	3	1

Mass	50 g / 0.11 lb	100g / 0.22 lb	200 g / 0.44 lb
Time to max temp (mins)	N/a	52	30
Max temp. (°C / °F)	ambient	82 / 180	144 / 291

Redux 830 can be mixed in a pot or in the hands. Gloves should be worn during the mixing process as stated in the Material Safety Data Sheet.

Part A and Part B should be combined in the correct ratio as shown in the chart above and mixed thoroughly until the two colours are completely blended.

Heat build-up, during or after mixing, is normal. The temperature rise depends on the amount of paste mixed and the container shape. Care should be taken to avoid an uncontrolled exothermic reaction. See peak exotherm data above.

3. Application

The mixed adhesive can be worked into place with a spatula or trowel to ensure that all voids are eliminated.

4. Curing

Gel Time – BMS 5-28	
@ 22°C / 72°F	@ 50°C / 122°F
70-90mins	15-20mins

Cure Cycles		
Time	Temperature (°C)	Temperature (°F)
5 days	22	72
5 hours	50	122

The colour of the cured material can vary slightly depending on cure temperature.

5. Cleaning

Excess adhesive should be removed before it hardens. Many industrial solvents, such as acetone and denatured alcohol, are suitable for removing uncured adhesive. Before use of solvents, please refer to the suppliers' Material Safety Data Sheets.

Storage

At 5-27°C / 41 – 81 °F, Part A and Part B have a shelf life of 12 months, when stored in sealed containers. The expiry date can be found on the label.

Cured Resin Properties

Compressive Properties - Test method ASTM D695

Cure Cycle	5 days at 22°C / 72°F		5 hours at 50°C / 122°F	
Strength @ 22°C / 72°F, Dry	44 MPa	6382 <i>psi</i>	38 MPa	5511 <i>psi</i>
Strength @ 60°C / 140°F, Dry	18 MPa	2611 <i>psi</i>	28 MPa	4061 <i>psi</i>
Strength @ 80°C / 176°F, Dry	19 MPa	2756 <i>psi</i>	19 MPa	2756 <i>psi</i>
Strength @ 100°C / 176°F, Dry	16 MPa	2321 <i>psi</i>	10 MPa	1450 <i>psi</i>
Modulus @ 22°C / 72°F, Dry	1900 MPa	276 <i>ksi</i>	1500 MPa	218 <i>ksi</i>

Flammability, Vertical Direction, 12 Second Ignition, BSS7230 Method F2

Cure Cycle	5 days at 22°C / 72°F	5 hours at 50°C / 122°F
Extinguishing Time secs	0.7	0.8
Burn Length mm	64	57
<i>Burn Length inches</i>	2.52	2.25
Drip extinguishing time secs	No drips	No drips

Flammability, Horizontal Direction, 15 Second Ignition, BSS7230 Method F4

Cure Cycle	5 days at 22°C / 72°F	5 hours at 50°C / 122°F
Extinguishing Time secs	1.1	0.7
Burn Length mm	19	13
<i>Burn Length inches</i>	0.75	0.51
Drip extinguishing time secs	No drips	No drips

Fluids and Moisture Resistance, 24 hours @ 25°C / 77°F, % Weight Increase

Cure Cycle	5 days at 22°C / 72°F	5 hours at 50°C / 122°F
Skydrol LD4	1.7	1.2
Skydrol 500B	1.8	1.6
JP4 Turbine Fuel	0.6	0.5
Distilled water	0.5	0

Other Properties

Cure Cycle	5 days at 22°C / 72°F		5 hours at 50°C / 122°F	
Cured Density @ 25°C (g/cc) ASTM D792	0.65		0.62	
<i>Cured Density @ 77°F (lb/ft³) ASTM D792</i>	41		39	
Tensile Lap Shear Strength @ 22°C / 72°F, Dry, EN2243-1	9 MPa	1305 <i>psi</i>	10 MPa	1450 <i>psi</i>
Shore D Hardness @ 22°C / 72°F, Dry	75		74	
Tg onset, Dry, AITM 1-0003	59°C & 108°C	138°F & 226°F	86°C	187°F
Tg Tan d, Dry, AITM 1-0003	79°C & 113°C	174°F & 235°F	103°C	217°F



Handling and Safety Precautions

Redux products are safe to use providing that certain precautions, normally taken when handling chemicals, are observed. The uncured materials must not 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.

Impervious rubber or plastic gloves should be worn in addition to 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.

Before using Redux 830, please consult the Material Safety Data Sheet.

Release Certification

The Quality System at Hexcel Composites Duxford has been certified to ISO9001 by Lloyds Register Quality Assurance, and is approved by the UK Civil Aviation Authority and Ministry of Defence. Certificates of Conformity and Test Reports can be issued for batches of Redux 830 on request.

Important

All information is believed to be accurate but is given without acceptance of liability. Users should make their own assessment of the suitability of any product for the purposes required. All sales are made subject to our standard terms of sale, which include limitations on liability and other important terms.

Performance values given in this data sheet are based on experimental, routine Quality Control and Specification testing results obtained under laboratory conditions. They are typical values expected for Redux 830 prepared and cured as recommended and under the conditions indicated. They do not and should not constitute specification minima.

Copyright Hexcel Composites
Publication RTU 134a
March 2003

For further information, please contact your nearest sales office, or visit our website at www.hexcelcomposites.com

Australia

Suite 2, 86 Grimshaw Street
Greensborough, Victoria 3088
Tel: **61 3 9432 7100**
Fax: **61 3 9432 7200**

China

Room B707, Yin Hai Bldg.
250 Cao Xi Rd
Shanghai 200233
Tel: **86 21 6483 6741/2**
Fax: **86 21 6483 6744**

Japan - Joint Venture

DIC - Hexcel Limited
Room 603, Santsu-Mori Bldg.
2-22-1 Nishi - Shimbashi
Minato-Ku, Tokyo 105
Tel: **81 3 5401 0271**
Fax: **81 3 5401 0270**

USA

900 Main Street South,
Building 1, Suite 104,
Southbury, CT 06488
Tel: **1 203 267 1414**
Fax: **1 203 267 1561**

Austria

Industriestrasse 1
A-4061, Pasching
Tel: **43 (0)7229 7720**
Fax: **43 (0)7229 772299**

France

ZI La Plaine, B.P.27 Dagneux
01121 Montluel CEDEX
Tel: **33 (0)4 72 25 26 27**
Fax: **33 (0)4 72 25 27 30**

Spain

Bruselas, 10 - 16
Polig. Ind. "Ciudad de Parla"
28980 Parla, Madrid
Tel: **34 91 664 4900**
Fax: **34 91 698 4914**

USA

42705 Grand River
Suite 201
Novi, MI 48375
Tel: **1 248 344 8688**
Fax: **1 248 305 9760**

Belgium

Rue Trois Bourdons, 54
B-4840 Welkenraedt
Tel: **32 87 307 411**
Fax: **32 87 882 895**

Germany

Postfach 1560
21655 Stade
Tel: **49 4141 7879-00**
Fax: **49 4141 7879-01**

United Kingdom

Duxford, Cambridge
CB2 4QD
Tel: **44 (0)1223 833141**
Fax: **44 (0)1223 838808**

USA

2350 Airport Freeway, Suite 550
Bedford, TX 76022-6027
Tel: **1 817 315 3939**
Fax: **1 817 571 8629**

Brazil

Av. J. Guilhermino, 474/72
S.J.Campos, SP 12210-130
Tel: **55 12 3941 2242**
Fax: **55 12 3923 1186**

Italy

Via San Cristoforo, 44
21047 Saronno (VA)
Tel: **39 02 96709082**
Fax: **39 02 9600809**

USA

11711 Dublin Blvd.
Dublin, CA 94568-2832
Tel: **1 925 551 4900**
Fax: **1 925 828 9202**

USA

16310 NE 80th Street, Suite 102
Redmond, WA 98052
Tel: **1 425 558 4400**
Fax: **1 425 861 5847**