



Redux® 308

Modified epoxy film adhesive

Product Data

Description

Redux 308 is a high strength film adhesive curing at 170°C. It is suitable for a wide range of structural bonding applications including metal to metal bonding and sandwich constructions, where operating temperatures of up to 125°C may be experienced.

Features

- Cures at 170°C
- Good structural performance and service temperature up to 125°C
- Excellent environmental resistance
- Superior ageing performance for continuous operation up to 120°C
- Low volatile content (solventless process)

Applications

- Metal to metal bonding
- Structural sandwich constructions

Forms

Black unsupported epoxy film with a paper release backing and a polythene interleaving.

Product Description	Areal Weight g/m ²	Roll Width mm	Standard Roll m ²
Redux 308	300	1000	50

Instructions For Use

Pretreatment

It is essential that all substrates to be used are free of contamination and are in as ideal a state for bonding as possible. As pretreatment varies significantly depending on the substrates used, please refer to the Hexcel Composites publication Redux Bonding Technology for optimum procedures.

If there is to be a delay between the pretreatment and bonding of aluminium, the pretreated surface should be protected with Redux 108 or Redux 140 surface pretreatment protection solution to conserve the optimum bonding surface. This will enable bonding to be delayed for up to 2 weeks without deterioration of the pretreated surface. The correct application of Redux 108 or Redux 140 should not alter the bonding performance of Redux 308 (for full application details consult the relevant data sheet).



Redux 308

Application

1. Allow sufficient time for the adhesive to warm to room temperature (15°C - 27°C) before removing the protective polythene.
2. Cut the film to the shape and size required.
3. Remove the release paper and position the adhesive on the prepared bonding surface.
4. Remove the polythene backing sheet.
5. Complete the joint assembly and apply pressure while the adhesive is being cured. For sandwich structures the pressure application should be selected to suit the type of core used. After the adhesive has cured it is advisable to maintain pressure on the bonded assembly until it has cooled sufficiently to be handled without discomfort.

Curing

Redux 308 should be cured at $170 \pm 5^\circ\text{C}$ for 60 minutes to obtain optimum properties. Enough time should be allowed for heat to penetrate through the assembled parts to ensure that the adhesive reaches that temperature before timing starts. Cure pressures of around 170 - 350 kPa and heat up rates of approximately 5°C per minute are recommended during cure. After curing it is recommended that components are cooled to below 70°C before releasing the pressure.

Mechanical Properties

All the performance values given in this data sheet are based on experimental results obtained during testing under laboratory conditions. They are typical values expected for Redux 308 prepared and cured as recommended and under the conditions indicated. They do not and should not constitute specification minima.

Metal Bonding Strengths

Redux 308 at areal weight 300 g/m^2 was used to bond Alclad 2024-T3 aluminium test specimens; the aluminium was pretreated in accordance with DTD 915B (ii) (chromic/sulphuric acid pickling). Redux 108 primer was used after the pretreatment. The honeycomb tests used Hexcel's 7.9-1/4-40 (5052) T aluminium honeycomb.

Test	Test Temperature °C	Redux 308 300g/m^2
Lap Shear Strength MPa	21 70 120	47 43 20
Bell Peel N/25mm	22	120
Climbing Drum Peel N/76mm	21 22	460
Flatwise Tensile MPa	21	8.0

Storage

Redux 308 has been formulated for maximum storage life consistent with its high performance. Certain precautions, however, will help to enhance that storage life as follows:

1. When stored at room temperature (less than 27°C) it should be kept on a horizontal mandrel passed through the tube core on which the roll is wound. This avoids the risk of local thinning of the film under the weight of the roll.
2. When storing under refrigeration the original packaging should be retained if possible. When returning to the refrigerator after use it is essential to protect the film with a water vapour barrier packaging material such as polythene.
3. On withdrawal from the refrigerator the water vapour barrier packaging should not be removed until the roll of adhesive has reached room temperature. This may take up to 24 hours depending on the size of the roll and the temperature involved (failure to observe this will result in the film becoming damp).
4. The film should be handled with care whilst in the frozen state since it will be brittle and easily cracked.

Redux 308 has a storage life of 18 months from manufacture at -18°C (0°F) plus an additional open life of 3 months when stored below 27°C (80°F).

Volatile content

Redux 308 has a very low volatile content, usually well below 1%. In practice, the loss in weight when cured is negligible and emission of volatile products is not of practical significance.

Associated products

Redux 108 and Redux 140 surface pretreatment protection solutions (primer)
Redux 208/4NA and 208/5NA foaming film adhesive

Handling and safety precautions

In common with all Redux adhesives in film form, Redux 308 is particularly free from handling hazards for the following reasons:

- Film is covered on both sides by protective release paper and polythene sheet which are not removed until final component assembly. It should be cut to shape before removing the protective coverings and virtually no handling of the film is necessary.
- Virtually tack-free (dry) at normal room temperature. The film is dependent on elevated temperature for wetting-out the adherend surfaces.
- Volatile-free at normal room temperature.
- Splash-free, leak-free, spillage-free.

However, the usual precautions necessary when handling synthetic resins should be observed. A Material Safety Data Sheet for Redux 308 is available on request.



Release Certification

The Quality System at Hexcel Composites Duxford has been certified to ISO 9001 by Lloyd's 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 308 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.

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