



SYNTEKO 1242C HARDENER 2542C

Description

SYNTEKO 1242C with the liquid HARDENER 2542C, is a melamine fortified UF resin adhesive used in the production of superior quality timber doors where good weathering characteristics are required. This product is designed to offer a good balance of acceptable performance characteristics versus cost.

Synteko 1242C and Hardener 2542C are derivatives of Synteko 1242 and Hardener 2542 (see separate data sheets) which is a structural load bearing MUF adhesive complying with related EN specifications. Note that Synteko 1242C and Hardener 2542C are NOT designed to comply with the aforementioned specifications, but may be tested and employed to the satisfaction of the door manufacturer for the purpose of their requirements.

Safety instructions

The glue contains small amounts of free formaldehyde and the hardener contains formic acid. During handling, ensure that the glue and hardener do not get into contact with the skin and eyes. Soap and water is used for the removal of glue and/or hardener from the skin. Information regarding health and safety can be found in the Materials Safety Data Sheet.

Instructions for use

- *Application tools:* Roller spreader, ribbon spreader etc.
- *Mixing:* The following SYNTEKO to hardener ratio should be used:

1242C	100 parts by weight (pbw)
2542C	20 pbw

The accuracy in the hardener amounts should be ± 1 pbw.

The applicable resin and hardener amounts must be accurately weighed using a scale of known accuracy, especially within the range about to be measured. Mixing by volume should not be allowed. The mixing vessel and mixing apparatus should preferably be made from glass, plastic or steel. The use of copper, zinc and aluminium apparatus is not advised. Mixing can be done by hand or by stirrer. In both cases, hardener should be added to the resin in small quantities and stirred in before more hardener is added. Stirring should continue at low speeds until a homogeneous mixture is obtained and until a uniform colour is evident. When mixing by mechanical stirrer, a lower revolution speed should be selected and the stirrer's blades are to push the mixture downwards. Once properly mixed, the combination must be left for 5 minutes prior to use to allow for ripening and air bubbles to escape from the mixture. Only mix enough product that can be used within the pot life.

- *Pot life:* Pot life is the period of time during which the mixture of the glue and hardener can be used after mixing the components

Temperature	Pot life
15°C	150 minutes
20°C	100 minutes
30°C	50 minutes
35°C	20 minutes

- *Temperature of the wood:* The temperature of the wood should not be below 18°C at the time of spreading the glue mixture.
- *Moisture content of the wood:* The moisture content of the wood should be between 8% and 15%. For the production of laminated beams the moisture content should be between 10% and 12%.
- *Planing of the wood:* Newly planed surfaces give the best gluing results. For best results for laminated beam production the timber must be smoothly planed. For optimum bonding strength the planing should take place within 24 hours before gluing.
- *Glue spread:* Although single-sided application is acceptable, double-sided application is preferable. A minimum glue spread of 220 – 250 g/m² for double-sided application and 400 – 450 g/m² for single-sided application are recommended. A reduction of the glue spread e.g. at very short assembly times, is only be allowed to be done together with Technical Advisors, depending on the production parameters for the production line in question. This optimization implies that the set parameters are followed and that a continuous control of the adhesion quality is made by means of delamination tests. For HF gluing's: a glue spread of 125 – 175 g/m² for double-sided application and 250 – 350 g/m² for single-sided application is recommended. For other applications: 75 – 150 g/m² for double-sided application and 150 – 300 g/m² for single sided application. Well-planed and smooth surfaces and short assembly times require less glue than rough surfaces and long assembly times. Difficult-to-glue wood or hardwood may require double spreading in amounts of approximately 250 g/m² on each side.
- *Assembly time:* The assembly time is the time between spreading of the glue and the moment when the substrate to be glued are put under pressure in a press. It consists of an open assembly time (OAT) and a closed assembly time (CAT). The OAT is the time between the glue application and assembly of the pieces to be glued and the initiation of pressure in the press. The pressure must be applied while the glue is still tacky.
The assembly times are influenced by the glue spread, the method of applying the glue (ribbon or roller spreader), the temperature and relative humidity in the working area, the wood species, the moisture content and the temperature of the wood etc. The assembly times are prolonged when the glue spread is high, the temperature in the working area is low, the moisture content in the air is high and the wood is slowly absorbing the water in the glue. The press time will also be prolonged.
- *Closed assembly time:* In the table below the approximate closed assembly times at different temperatures and with newly prepared glue mixtures are given for soft wood e.g. spruce or pine.

Glue spread, single sided with 20 pbw of hardener	250 g/m ² (HF heating)	400 g/m ²
Temperature (°C)	20	20
Maximum time (mins)	80	110
Minimum time (mins)	5	10

Glue spread, double sided with 20 pbw of hardener	2X125 g/m ² (HF heating)	2X220 g/m ²
Temperature (°C)	20	20
Maximum time (mins)	80	110
Minimum time (mins)	5	10

Hardwood requires longer minimum times.

Open assembly time is approximately half of the closed assembly time.

- *Pressing temperature:* The minimum pressing temperature is +18°C.
- For standard types of gluing the required press pressures are :

Minimum 0.5 MPa for soft wood

Minimum 1.0 MPa for hard wood

- *Pressing time:* The pressing time depends e.g. on the ambient temperature and the temperature of the material. The table below is to be used as a guideline:

Bond-line temperature	Pressing time
18°C	14 hours
20°C	10 hours
30°C	3 hours
40°C	1.5 hours
50°C	40 minutes

At temperatures above 30°C the minimum pressing time is to be stated by a Technical advisor in every special case. The pressing times given relate to straight beams made of lamellae with a moisture content of approximately 12%. When gluing curved beams or using wood with a higher moisture content the pressing times will be longer.

- *After-curing time:* After the pressing time, the bond-line has enough strength for the construction to be handled. Full strength and water resistance will be reached after curing time, which depends on the pressing time, the pressing temperature and the temperature during the after-curing process. If the temperature during the pressing operation is 20°C, the after-curing time can be up to 5 days. With a pressing temperature of 18°C the after-curing time has to be prolonged with another 1 – 2 days.

General Timber Assembly

- *Application equipment:* Profiled rollers, die
- *Moisture content:* Maximum 15%
- *Glue spread:* With single-sided application 250 – 300 g/m² and with application on both ends 125 – 150 g/m² on each end. The total surface for a 15mm profile is 8X the cross-section of the wood, for 20mm profile 6.5X the cross-section of the wood and with 28 – 32mm profile 10X the cross-section of the wood.

- *Mixing ratio:* For finger-jointing the following glue mixture is also approved :

1242C	100 pbw
2542C	20 pbw
Water	0–5 pbw

The accuracy of the hardener should be ± 1 pbw

- *Pot life:* 5 pbw of water will increase the pot life by approximately 10%.
- *HF-heating:* As a recommendation for finger-jointing with MUF glue, it requires HF pre-heating of the two ends to be joined to a temperature in the joint zone of 60 – 80°C or, if HF-heating is used in the press, the temperature reaches 85 – 95°C.
- *Assembly time:* Maximum 90 seconds
- *Further processing:* Planing of finger-jointed wood can be done 7 – 10 minutes after jointing provided that the planer is not pulling the wood. Full hardening of the finger-joint is achieved after 2 hours if the temperature of the wood in the joint zone was more than 60°C. If pressing is made at 20°C full hardening is achieved after 24 hours.

Cleaning

Glue spreader and other material can be washed with warm water before the glue has hardened.

Storage stability

- 1242C 8 months at 20°C in tightly closed packaging
- 2542C 6 months at 20°C in tightly closed packaging

The viscosity will increase during storage and the increase will be faster at the end of the storage life. Higher temperatures will shorten it. At 30°C the storage life will be approximately half of the storage life at 20°C. The most suitable storage temperature is 15 – 20°C for both products. The glue should not be stored at temperatures below +10°C. The hardener should not be stored below 0°C. Neither of the products should be stored at temperatures greater than 30°C. Short time exposures to temperatures below +10°C for the glue or 0°C for the hardener and temperatures above +30°C for both products e.g. during transportation can be accepted. If the products have been frozen they cannot be thawed and used due to irreversible changes in their properties.

Physical data

Type	Melamine urea formaldehyde glue
Appearance	1242C White liquid 2542C Grey / white liquid
Density	1242C Approximately 1250 kg/m ³ 2542C Approximately 1300 kg/m ³
Flashpoint	1242C Above 100°C, not flammable 2542C Above 100°C, not flammable
pH	1242C Approximately 10 2542C Approximately 1
Solids	1242C Approximately 68%
Free formaldehyde	1242C Approximately 0.5%
Viscosity	1242C Approximately 8000 mPas 2542C Approximately 14000 mPas Measured with Brookfield LVTm sp.4, 12 rpm, 25°C

The above information is only offered, as a guide to the use of this product. Furthermore, users should satisfy themselves that it is suitable for their needs. Since we have no control over the conditions under which it is used, we cannot accept responsibility for problems caused by the use and/or application of this product.

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