

Technical Data Sheet**Wood & Specialty Adhesives**

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Hardeners Prefere 5219, 5270, 5275 and 5278

Liquid, formaldehyde-binding hardeners for Prefere 4114

Use

The hardeners Prefere 5219, 5270, 5275 and 5278 are formaldehyde binding, filled liquid hardeners with varying reactivity. Although the reactivity (pot life and setting time) of Prefere 5219 and 5270 are relatively similar, they are still different with respect to application. Due to this, Prefere 5219 is especially recommended for veneering whereas Prefere 5270 as well as 5275 and 5278 are recommended for production of curved plywood shapes. Prefere 5275 and 5278 give somewhat longer assembly times than the other hardeners. The hardeners are suitable for hot bonding operations and can also be used under radio frequency heating conditions.

By combination of Prefere 4114 with the hardeners in this technical data sheet, adhesive systems that can fulfil different requirements for glue line quality are obtained. Prefere 4114 with Prefere 5219 can give glue lines of durability class C3 after EN 12765/ 205 and MR quality after BS 1203. Prefere 4114 with Prefere 5270, 5275 or 5278 can give glue lines of durability class C2 after EN 12765/ 205 and MR quality after BS 1203. It is a prerequisite that the gluing is done at hot conditions and that the glue line is fully cured.

The hardeners are formulated with a view to be used in automatic mixing equipment preparing small batches of resin and hardener. It is not recommended to mix greater batches by hand as the heat evolved will raise the temperature of the glue mix, thus reducing the pot life.

Technical data

Prefere	5219	5270	5275	5278
Appearance	Greyish to white viscous liquid			
Viscosity at 25°C, mPas	1800 – 4000		1500 - 5000	
pH	2,7-3,3	2,8-3,5	3,4-4,0	4,0-4,5
Density at 25°C, g/cm ³	ca 1,32	ca 1,30	ca 1,25	ca 1,21
Shelf life at 20 °C	ca 3 months			

Containers

Plastic drums, IBC containers and tank cars.

Storage

The hardeners may corrode metal. This must be taken into consideration when selecting materials for storage tanks, pipelines and valves.

The hardeners may get very thick upon storage. They will regain their original consistency upon stirring.

The hardeners must under no circumstance be stored at temperatures below 10°C. It is also recommended to store the hardeners below 20°C. Higher storage temperatures may reduce the shelf life of the product.

Mixing ratio

The hardeners are mixed with Prefere 4114 at the following ratios:

Prefere	kg	liter	kg	liter	kg	liter
4114	10	10	10	10	10	10
5219 and 5270	2	2				
5275			2	2,1		
5278					2	2,2

It is warned against changing the hardener dosage, e.g. to obtain longer pot life or shorter pressing time. For several reasons, the correct hardener dosage is important. If the glue mixture is not suitable, our Marketing Department will recommend an alternative.

Pot life

The pot life of glue mixtures of Prefere 4114 with the Prefere hardeners at different temperatures are given in the table below.

Prefere	Pot life in hours at				
	10 °C	15 °C	20 °C	25 °C	30 °C
5219	5	3 ¼	1 ¾	¾	-
5270	5 ½	3 ½	1 ¾	¾	-
5275	20	10	5	2 ½	¾
5278	> 24	16	8	4	1 ¾

Pressing times

The pressing times of Prefere 4114 with the Prefere hardeners are given below.

Prefere	Setting time in seconds at				
	70°C	80°C	90°C	100°C	110°C
5219	85	55	40	35	30
5270	100	60	40	35	30
5275	255	150	85	60	45
5278	370	160	90	65	45

The pressing times (basic setting times) stated refer to glue line temperature only and allowance must be made for the heat to travel from the press platens. The heat penetration time will vary depending on press temperature and the heat capacity of the press, the heat transfer of the wood material and distance to the farthest glue line.

When veneering with veneer thickness below 1 mm, the heat transfer at above 100°C can be calculated to be 1-2 sec pr 0.1 mm veneer thickness. For other applications the table on the next page can be used as a guide to the additional time required for low and medium density timbers.

Press temperature	Additional time per mm distance to the farthest glue line
70-80°C	2 minutes
90-100°C	1 minute

The pressing times apply when bonding soft wood. Denser and less absorbent materials such as hardwoods and special particleboard grades (moisture resistant) require extended pressing times. On the other hand can gluing of absorbent materials such as low density woods, fibre board, particleboard, etc. be done with shorter pressing times.

Because so many local conditions affect the pressing times it is recommended to establish the correct pressing time by trials on the spot.

Safety precautions

Reference is made to the Safety Data Sheet for hardeners Prefere 5219, 5270, 5275 and 5278.

When the adhesive and the hardener are mixed a chemical reaction will start. The pH of the mixture will be in between the value for the adhesive and the

hardener. The free formaldehyde content for the adhesive will be reduced. The acid/salt concentration of the hardener will be diluted.

When handling the adhesive, hardener and the glue mix it is recommended that certain precautions normally taken when handling chemicals is observed. Skin contact with the uncured glue should be avoided, since people with particularly sensitive skin may be affected. It is recommended to wear protective gloves, likewise eye protection where there is a risk of splashes. Hands and forearms should be thoroughly washed with soap and warm water at the end of the working day.

Adequate ventilation of the workshops should be maintained.

The suggestions given in these notes are based on data gained from experience and tests. However, since operating conditions in the user's plant is beyond our control, we cannot assume responsibility for any risks or liabilities, which may result from the use of our products.

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