

UREA FORMALDEHYDE IW-200

1. STANDARD:

UK BS – 1455 types MR and INT

USA C – 35 - 36 types II and III

GERMAN DIN 1-74 PS 51-71 INT GRD

JAPANESE JPIC types II and III

2. SPECIFICATIONS:

Appearance		:	Milky white viscous liquid
Viscosity,	, 30°C	:	60 – 150 cPs
Specific gravity,	, 30°C	:	1.192 – 1.194 g/cm ³
pH,	, 30°C	:	7.0 – 8.0
Gelation time,	, 30°C	:	60 – 180 minutes
Free formaldehyde,		:	0,5 - 1,5 %
Solid content,		:	49.5 % – 50.5 %
Storage life,	, 30°C	:	2 months

3. SUITABLE HARDENER

IWH-200 is a hot bonding hardener suitable for IW-200, yellow powder packed in bag by net weight 25 kg. if stored in a cold and dry place, could last for minimum a year.

4. RECOMMENDED FORMULATION

A. UF IW-200	:	100
B. Wheat Flour	:	10 – 20
C. Hardener IWH-200	:	0.5 – 1.0
D. Water	:	2 – 6

5. MIXING PROSEDURE

I. For high speed stirrer

First take all of (A), and next all of (B), mix about five minutes and then take all of (C), finally (D). Before use, stir for 10-15 min in order to mix well.

II. For low speed stirrer

First take hair of (A), and next all of (B). start to mix for five minutes. Then charge the rest of (A) and all of (C), Finally (D). Before use, stir for 10 - 15 min in order to mix well

6. POT LIFE OF RECOMMENDED GLUE MIX :

Temperature	20°C	25°C	30°C	35°C
Pot life(hours)	14	10	6	4

7. PRESSING TIME :

Basic setting time of recommended glue mix is influenced by temperature

Temperature	: 90°C	100°C	110°C	115°C
Basic setting time (minutes)	: 1,75	1,50	1,00	0,85

In order to have enough time for heat transfer, it is necessary to add additional time to the basic setting time, depending on the distance from press plate to farthest glue line (FGL).

The additional time according to temperature is as follows (min/mm)

Distance	:	Press Plate Temperature			
The farthest	:				
Glue line	:	90°C	100°C	110°C	115°C
Below 5 mm	:	1.1	1.0	0.9	0.85
5 – 10 mm	:	1.3	1.2	1.1	1.0

Above 10 mm	:	1.5	1.4	1.3	1.2
-------------	---	-----	-----	-----	-----

Ex.1. for 3 ply panel of 2.5 mm core .1.0 mm face, back. The required press time at 110°C is as follow:

Heat transfer time	=	1.0 x 0.9	= 0.9 min
Basic setting time	=		= 1.0 min
<hr/>			
Total pressing time			= 1.9 min

Ex.2. for 7 ply panel of 2.5 mm inner cores and 1.0 mm face, back veneer.

Distance to the FGL	=	(1.0 + 2.5 + 2.5) mm	= 6.0 mm
Heat transfer time	=	6.0 x 1.1 min/mm	= 6.6 min
Basic setting time	=		= 1.0 min
<hr/>			
Total pressing time			= 7.6 min

Note: speed of heat transfer depends on wood species and moisture content. Therefore the above table is general indication for required additional time.

8. PREPARATION OF VENEER :

- Face of veneer must be clean, smooth and free of dust and stains of glue etc.
- Veneer must have a uniform thickness.
- Moisture content to be controlled at :
 - 8 % - 12 % for veneer
 - 8 % - 16 % for inner core
- High MC increases the risk of punk (reject) owing to higher pressing temperature.

9. GLUE SPREAD :

- glue spread amount :
 - double glue line 30 – 36 g/SF and is to be adjusted according to veneer quality.

- b. Thick veneer requires higher glue spread amount due to rough face.
- c. High density wood” must be increased more 10 % up of glue than “low density wood (meranti)”.

10. ASSEMBLY TIME :

- a. Generally, assembly time must be as short as possible and the glue mix must be Still in viscous state when pressing is performed.
- b. Although glue is rather dry, when bonded at above 100°C, it can achieve good adhesion if pressure and pressing time are increased.

11. PRE PRESSURE :

- a. lay up time is required in order to transfer glue mix from spreaded core to veneer for suitable penetration.
- b. it is important to avoid early curing i.e.: too low a glue spread for low M.C. veneer, especially when climate is hot and dry.
- c. cold press pressure must be lower than that of hot press. Suitable pressure is determined by working condition, good results are usually obtained by 9-10 kg/cm².
Cold press time is also depends on operating condition. 15 – 25 minutes is normally used.