GLASS UNLIMITED

PROCESSING GUIDE

Matelux
Matelux Arctic White

Version I – November 2010

Product information, availability and processing guidelines are regularly updated on the AGC Glass Europe website www.YourGlass.com

CONTENTS

0. PRODUCTS

This processing guide is for the following products:

- Matelux: for the sake of simplicity, in this document Matelux covers Matelux Clear, Matelux Clearvision, Matelux Linea Azzurra, Matelux Light, Matelux double sided, Matelux Antislip, Matelux Bronze, Matelux Dark Grey, Matelux Green, Matelux Grey and Matelux PrivaBlue
- Matelux Arctic White is a coated Matelux glass (compliant with EN 1096-2 Class B)

Because Matelux Arctic White glass is coated, it is more prone to staining than the other products in the Matelux range (see Section II.2).

I. RECEPTION and STORAGE

1. Unloading

The packs of glass must be inspected on arrival. AGC shall accept no liability for faults arising after delivery or during handling, processing or installation of the finished product in the building if this procedure is not followed:

- The rack must be positioned on perfectly level ground
- Use the appropriate handling equipment
- The grab must be perfectly centred
- Avoid damaging the protective packaging whilst handling
- The glass must be stored on appropriate racks
- All recommendations given in this Processing Guide shall be strictly followed.

General comments:

- Clamps, slings, lifting beams and other handling equipment must comply with prevailing regulations and be approved by the relevant authorities.
- Ensure the safety of personnel at all times. Keep all unnecessary personnel out of the handling area. Wear appropriate personal protective equipment.
- Personnel must have received the necessary training.

2. Storage of the packs

Storing packs correctly reduces the risk of chemical or mechanical damage to the glass.

As a general rule, care should be taken to avoid major fluctuations in temperature and humidity that may cause condensation on the glass. Such fluctuations generally occur near loading and unloading areas. No water must be allowed to come into contact with the sheets of glass.

Care should be taken to ensure that the ambient air is not polluted by any corrosive elements such as chlorine or sulphur. Sources of such elements include machinery fitted with heat engines, battery-charging points, road salt on the ground and so forth.

Factory racks are used for packaging during transport and are not designed to be used for storage. Consequently, the PLFs must be stored on racks with spacers between packs ensuring that all packs of the same size are stored together.

II. PROCESSING

0. Safety

At each stage of the processing procedure, the personnel responsible for handling the glass must have the adequate equipment: safety shoes, safety gloves[1], safety glasses, etc.

1. General

Personnel must wear clean safety gloves at all stages of processing and endeavour to avoid contact with the matt surface of the product. No fatty or greasy substances should be placed on the matt surface.

2. Cleaning Matelux Arctic White during processing

Matelux Arctic White is more susceptible to staining than other products in the Matelux range.

Therefore, at each stage of the processing procedure, it is recommended that Matelux Arctic White be cleaned as soon as it is marked and then immediately dried.

Normal cleaning products can be used to clean Matelux Arctic White. You should use a damp cloth rather than applying liquids directly to the matt surface.

Another simple way of removing light stains is to use a soft (non-abrasive) white eraser.

Special precautions:
- Since scratches penetrate the surface and cannot be repaired, avoid contact with abrasive cleaning products (e.g. cerium oxide)
- Excessive mechanical handling can wear down the coating in localised areas
- Avoid contact with metal objects (e.g. pen nibs)
- Avoid using chemical substances that cause permanent damage to the surface

The table below contains guidelines for removing different types of stain from matt surfaces.

Type of stain	**Method for cleaning the matt surface**
Cutting oil	Clean using ordinary kitchen roll and Instanet[1] as quickly as possible (so as to avoid irreversible brown staining after a day)
Edge treatment dust	Clear water
Chalk	Alcohol or acetone (but may still leave traces ➔ avoid contact with this substance)
Permanent marker (alcohol-based)	Alcohol or acetone (but may still leave traces ➔ avoid contact with this substance)
Oil stain	Ordinary cleaning products (Ajax[2] or Bref Power[3])
Fingerprints	Ordinary cleaning products (Instanet, Ajax, Bref Power)

[1] '*Instanet Vitre à l'alcool*' by Henkel (alcohol-based window cleaner)
[2] '*Ajax Toutes Surfaces*' by Colgate-Palmolive (all-purpose cleaner)
[3] '*Bref Power*' by Henkel (all-purpose cleaner)

3. Cutting

The following special precautions must be taken during cutting:

- Personnel must wear clean gloves.
- The matt side of the glass should face upwards to avoid contact with the table surface.
- The cutting oil used should be compatible with the matt coating, sufficiently volatile and water soluble.[2]
- As little oil as possible should be used during cutting. Oil must also be prevented from running/collecting on the glass surface. Oil must be removed immediately using a non-abrasive cloth and Instanet (Henkel) or a similar alcohol-based product.
- The table and any breaking equipment liable to come into contact with the glass cover must be pre-checked.
- The largest and heaviest sheets of glass must be handled using suction lifting equipment. The suction pads must be covered with protective paper. The operator must ensure that the pads are clean and free of organic pollutants (e.g. oil from the depression unit)

After cutting, when the glass is stored on racks, spacers do not need to be used if the original interlayer powder is still there. However, if for any reason there is not enough interlayer powder on the glass, we advise that you use cork discs with (self-adhesive) foam[3]. The same also applies to packs containing differently sized sheets of glass. Paper with a neutral pH can also be used, e.g. for large panes.

The edges of Matelux and Matelux Arctic White products must not stripped.

4. Processing

Matelux and Matelux Arctic White are designed to be heat strengthened or toughened where necessary. Before either takes place, the edges of the glass must be processed.

4.1 Handling the glass

The personnel responsible for handling and shaping the edges of the glass must wear clean safety gloves.

The largest and heaviest sheets of glass must be handled using suction lifting equipment. The suction pads must be covered with protective paper. The operator must ensure that the pads are clean and free of organic pollutants (e.g. oil from the depression unit).

4.2 Edge processing

All the edge-processing machines on the market are suitable, provided the machine parts coming into contact with the matt surface of the glass are not covered in oil or grease:

- Crossed belt systems
- Vertical single edging systems
- Horizontal double edging systems
- Numerical control systems (CNCs)

During shaping, the matt side of the glass should face upwards or be placed against the back of the conveyor.

4.3 Unloading

Since the interlayer powder comes off when the glass is washed, we recommend placing cork discs with (self-adhesive) foam[3] around the edges of each glazing to prevent contact between the glass and the matt surface. Paper with a neutral pH can also be used, e.g. for large panes.

Larger and heavier sheets of glass should be handled using suction lifting equipment. The suction pads must be covered with protective paper. The operator must ensure that the pads are clean and free of organic pollutants (e.g. oil from the depression unit).

5. Washing

This stage involves washing, rinsing and drying the glass.

The glass must be washed using soft brushes. The cycle should not be stopped while the glass is in the washing machine.

No special precautions need to be taken regarding the quality of the water. That said, the pH of the water in the washer and in the edge-processing machine should be between 6 and 8.

In all cases, the glass must be perfectly clean after washing.

After washing, cork discs with (self-adhesive) foam[3] must be placed between the glazings. Paper with a neutral pH can also be used, e.g. for panes.

All glass must be washed within 24 hours of cutting. Moreover, the glass must be washed immediately after any handling, processing or storage likely to contaminate the matt surface.

Quality control

The glass must be inspected after washing.

Any residual contamination must be removed using a cloth soaked in Instanet (Henkel) or another alcohol-based product. Wetting the cloth is preferable to applying the liquid directly to the matt surface.

Another simple way of removing light stains is to use a soft (non-abrasive) white rubber.

6. Thermal toughening and heat strengthening

6.1 Introduction

Matelux and Matelux Arctic White have the same emissivity as float glass (0.89). Any toughening furnace on the market would be suitable for thermal toughening or heat strengthening these products.

6.2 Recommendations

Personnel handling the glass must wear clean safety gloves.[1]

	Direction the matt surface faces in the furnace	
	Upwards	Downwards*
Matelux	OK	OK
Matelux Arctic White	OK	NO
* The furnace rollers and quench and conveyor systems must be kept clean. N.B. Where used, the top and bottom convection pressure profiles must be fine-tuned so as to keep the glass flat in the toughening furnace from the start to the end of the heating process. The same should apply for high and low set-point temperatures.		

6.3 Settings

The heat treatment settings for Matelux Arctic White are identical to those for base glass with untreated surfaces.

6.4 Unloading

- If the glass is unloaded manually, personnel must wear clean safety gloves.[1]
- Larger and heavier sheets of glass should be handled using suction lifting equipment. The suction pads must be covered with protective paper. The operator must ensure that the pads are clean and free of organic pollutants (e.g. oil from the depression unit).
- Given that toughened glass is never perfectly flat, cork discs with (self-adhesive) foam[3] should be placed around the edges of each pane of glass to prevent contact between the glass and matt surfaces. For larger panes, paper can be placed in the middle to prevent contact between the glass and the matt surface during handling or transport.

6.5 Heat soak test

The risk of spontaneous breakage due to nickel-sulphide inclusions is inherent to thermally toughened glass. The presence of such inclusions can in no way be considered as a fault in the glass. To all but eliminate the risk of spontaneous breakage, an additional Heat Soak test can be carried out in accordance with standard EN 14179-1 (or equivalent standards for countries out of the EC).

Spacers should be placed only around the edges of the glass.

6.6 Quality control

The properties of Matelux and Matelux Arctic White are not altered during heat treatment (thermal toughening/heat strengthening or heat soak tests).

After heat treatment, Matelux and Matelux Arctic White should be subjected to the following checks:

- Heat strengthened glass must comply with EN 12150-1*
- Thermally toughened glass must comply with EN 1863-1*
- Where performed, Heat Soak Tests (HSTs) must comply with EN 14179-1*

N.B. For the EU, Matelux and Matelux Arctic White must be CE marked in accordance with EN 1863-2, 12150-2 or EN 14179-2. All the requirements set out by these standards (ITT, FPC, etc.)

must be met by the processor.

* Or equivalent local standards for countries outside the EU.

6.7 Packaging

If Matelux or Matelux Arctic White is not toughened, AGC recommends using paper with a neutral pH.

If Matelux or Matelux Arctic White is toughened, AGC recommends using a 1 mm polythene foam spacer.[4]

In all cases:
- care must be taken to ensure that the pack is properly attached to the rack so that the sheets do not rub together;
- care must be taken to ensure the pack is kept dry and free from condensation during storage and transport.

N.B. One particularly effective method of packaging is to apply a polyethylene film when the glass leaves the furnace and before storage and shipping. The film will then protect the product until its final use.

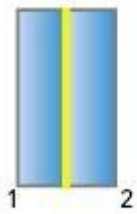
7. Bending

Matelux and Matelux Arctic White can be curved by selecting the same furnace settings as for untreated base glass.

To limit the risk of breakage in the furnace (annealed curved version) or in the quench section (toughened curved / heat treated versions), AGC recommends smooth grinding the edges of the glass during processing.

8. Lamination

Matelux and Matelux Arctic White can be assembled in laminated glazing units with the matt surface facing away from the laminated glass (i.e. not in contact with the PVB). During laminating, the matt surface must face upwards.



N.B. For the EU, laminated units incorporating Matelux or Matelux Arctic White must be CE marked in accordance with EN 14449. All the requirements set out by these standards (ITT, FPC, etc.) must be met by the processor.

9. Use in single glazing

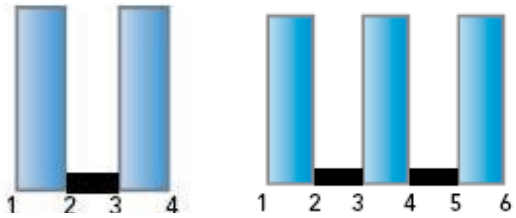
Matelux and Matelux Arctic White can be used in single-glazing units.

Where used in facades, the following restrictions apply to the position of the matt surface.

	Position of the matt surface	
	1	**2**
Matelux	OK *	OK
Matelux Arctic White	NO	OK
N.B. Position 1 is outside the building; position 2 is inside the building * Not recommended; may cause staining and maintenance issues		

10. Assembly in insulating glazing units (IGUs)

Matelux and Matelux Arctic White were designed to be assembled in double-glazing units with the following restrictions on the position of the matt surface.



	Position of the coating in the (double or triple) insulating-glazing unit					
	1	**2**	**3**	**4**	**5**	**6**
Matelux	OK**	OK*	OK*	OK*	OK*	OK
Matelux Arctic White	No	OK*	OK*	OK*	OK*	OK
* The processor must ensure the sealing compound has bonded properly with the matt surface. ** Not recommended; may cause staining and maintenance issues						

The edges of Matelux and Matelux Arctic White must not be stripped.

Where the matt surface is in contact with the IGU sealant, the compatibility of the IGU primary and secondary sealants with the matt surface(s) and bonding shall be approved on a case by case basis by the processor.

N.B. For the EU, Matelux and Matelux Arctic White glazings assembled in IGUs must be CE marked in accordance with EN 1279-5. All the requirements set out by these standards (ITT, FPC, etc.) must be met by the processor.

Quality control

It is essential to check that the matt surface is in the correct position before assembly. Any mistake could alter the appearance of the glass.

Two or three halogen projectors must be placed at the exit of each processing machine to illuminate the glass properly (vertically, from top to bottom), enabling personnel to immediately detect any deviation from regulatory parameters that might affect the appearance of the product (e.g. scratches, failure to clean properly, accidental contamination).

The glass must be inspected after each stage of the processing procedure. Any residual contamination should be removed immediately using a cloth soaked in Instanet (Henkel) or another alcohol-based cleaning fluid.

Wetting the cloth is preferable to applying the liquid directly to the matt surface.

Another simple way of removing light stains is to use a soft (non-abrasive) white eraser.

11. Storage of cut sizes / insulating glazings

11.1 Processing in the same factory

After each processing stage, when the glass is stored on racks, spacers do not need to be used if the original interlayer powder is still there. However, if for any reason there is not enough interlayer powder on the glass, especially after washing, we advise that you place cork discs with (self-adhesive) foam[3] between glazings. The same also applies to packs containing differently sized sheets of glass.

N.B. One particularly effective method of packaging is to apply a polyethylene film when the glass leaves the furnace and before storage and shipping. The film will then protect the product until its final use.

Storage must follow the recommendations set out in Section § I.2

11.2 Sending cut sizes to another factory

If Matelux or Matelux Arctic White are to be transported from the processing factory to another factory, the following packaging recommendations should be followed:

- A 1 mm polyethylene foam spacer should be placed between each sheet.[4]
- Care must be taken to ensure that the pack is properly attached to the rack so that the sheets do not rub together.

N.B. One particularly effective method of packaging is to apply a polyethylene film when the glass leaves the furnace and before storage and shipping. The film will then protect the product until its final use.

11.3 On site

Where the glass is delivered on site, it must be stored in a dry, sheltered and well-ventilated area. It must never be laid on the ground or be stored either in the sun or near heat sources.

During setting, the glass should be handled with care and using clean gloves.

Larger and heavier sheets of glass should be handled using suction lifting equipment. The suction pads must be covered with protective paper. The operator must ensure that the pads are clean and free of organic pollutants (e.g. oil from the depression unit).

III. CONFORMITY

1. CE Marking

Matelux and Matelux Arctic White base glasses do not need to bear the CE marking.

The CE marking applies to products that have been processed (lamination, assembly in IGUs, toughening, etc.)

Processors making any such changes to the glass are responsible for CE marking processed products and fulfilling the associated requirements (performing initial type tests (ITTs), marking the glass, factory production control, etc.)

2. Disclaimer

It is the responsibility of the processor to adequately inspect the processed glass before and after each stage of production and prior to installation. Failure to apply the professional standards, routine instructions and processing guidelines contained in this processing guide and its linked documents will automatically absolve AGC of any accountability in relation to the glass. We recommend that processors perform preliminary tests with the typical glass compositions for the project prior to any further commitment with their customers. The processor is solely responsible for the quality of the final product.

IV. GLAZING INSTRUCTIONS

AGC's glazing instructions are available at www.yourglass.com.

V. CLEANING

Cleaning instructions for glazings installed on facades are available at www.yourglass.com.

VI. NOTES

[1] **Recommended gloves**
Product description: HYD TUF 52-547 (glove size 8-10 for handling coated glass)
Supplier: IMPEXACOM
Rue des tourterelles 14-16 B -5651 Thy le Château - Belgium
Tel.: + 32 71 612145 Fax: + 32 71 612164

[2] **Recommended cutting oil**
Product description: Huile de coupe Sogever 1100 FG
Supplier: SOGELUB
Rue de la terre à briques, B- 7522 Marquain - Belgium

[3] **Recommended spacer for storing the glass**
Product description: cork discs with (self-adhesive) foam (3x20x20 mm)

Supplier: VITO IRMEN
Mittelstrasse 74-80 D -53407 Remagen -Germany
Tel.:+ 49 26 42 40 07 10 Fax:+ 49 26 42 42 913

[4] Recommended packing foam

Product description: 1 mm packing foam
Supplier: SCRIPHORIA
Wellen Belgium Tel.: + 32 11 370 111