



GGC



VINAMEL *t*

Toughenable enamelled glass





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## History

For thousands of years glass has been a means of decoration. Coloured glass was used as long ago as 6000 BC by ancient Egyptians in their jewellery, an increasing range of tints allowed an extra creativity in blown glassware, stained glass in windows brought deep colours into buildings, patterns pressed onto the glass surface mixed transparency and shadow – the vibrance and versatility of glass have helped to make it a vital ingredient of commercial and interior design.

## Toughenable enamelled glass from an industrial leader

Ghazvin Glass has established a reputation for offering high quality flat glass products, clear and tinted, and has now introduced a new addition to its product range – Vinamel t – a toughenable enamelled glass.



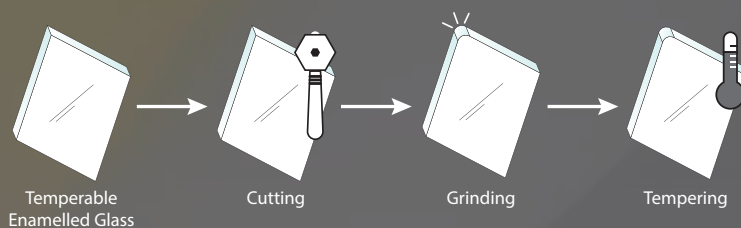
## VINAMEL *t* changing our view of the world

- a palette of bright, dense colours
- high reflection of light, controlled by design and location
- addition of patterns extend the options from transparent to completely opaque
- modern look and feel
- ability to give an enlarged space effect
- surfaces resistant to temperature and humidity
- scratch resistance
- ease of installation, as construction or retrofitting

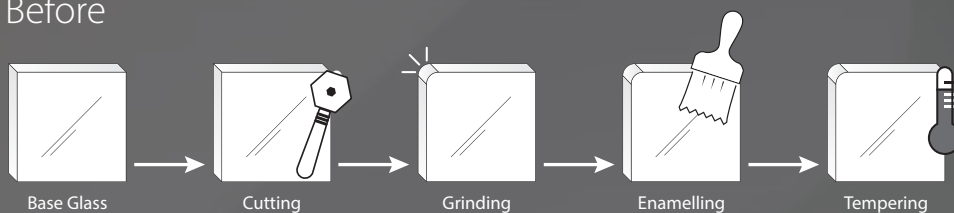
## A decorative glass for the demands of the 21st century

Clear float glass manufactured at the Farsejin factory is transferred to our secondary processing site where an enamel is applied and then cooked at high temperature to achieve a coating with consistent coverage, strength and durability, but still capable of being cut to size, toughened, or used in further processes such as laminating.

### Now



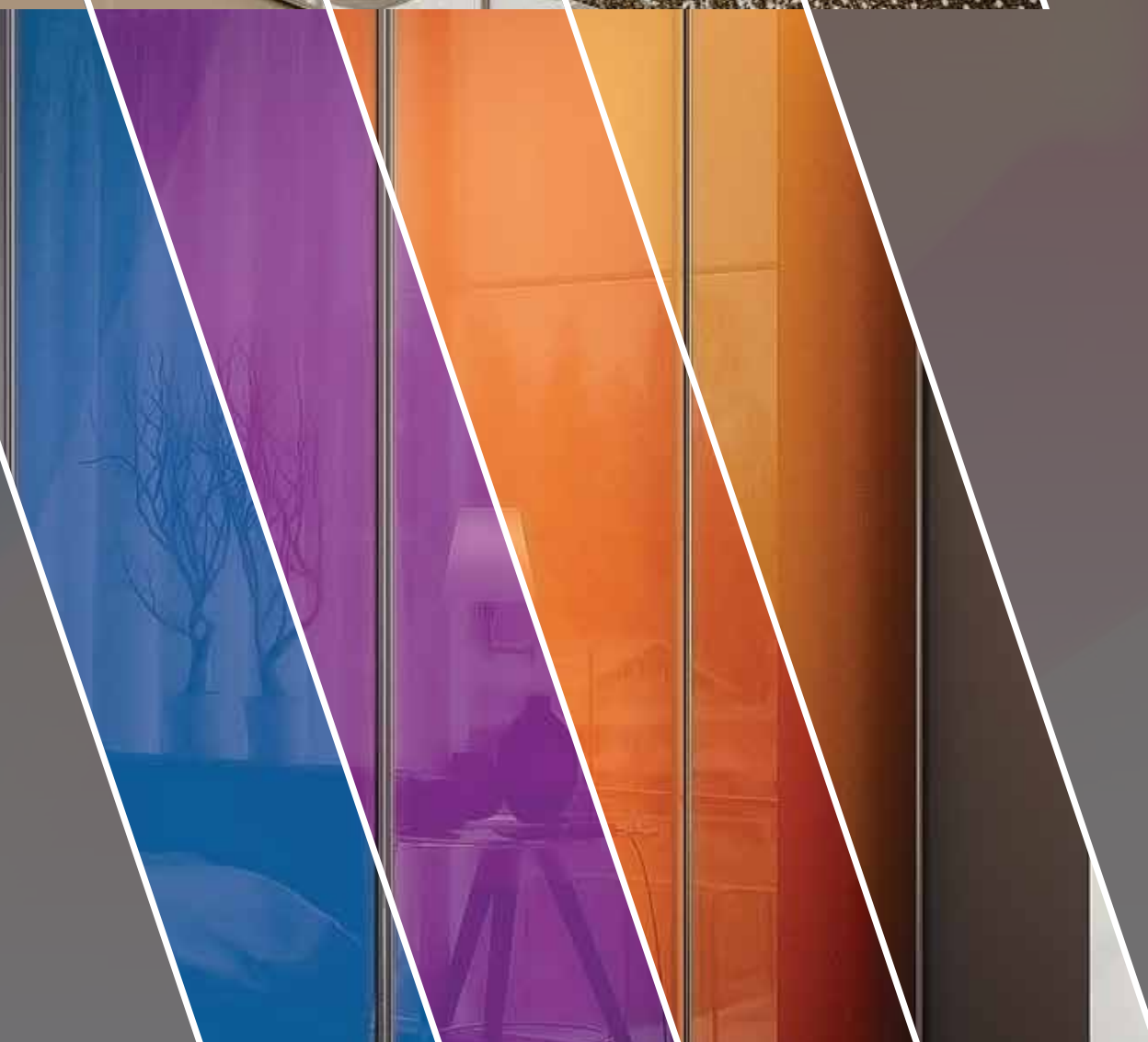
### Before



## Vinamel t fact sheet

- various colours and thickness from 6 to 12 mm
- with a range of patterns, or incorporating designs to order
- available as a single sheet or laminated
- standard sizes 3210 x 2250 mm and 2500 x 1605 mm, or cut to order
- drilled holes, cut-outs, and other features also available





## Vinamel t application in design and architecture

Glass has long been an important building material, thanks to a combination of its physical properties and the opportunities it offers to designers and architects, engineers and artists, to bring light and reflection to their work. For over 50 years Ghazvin Glass has responded to the market needs for patterned surfaces and printed designs, but this new product is a major step forward.

Thanks to properties of Vinamel t's decorative range, chiaroscuro features, scratch resistance and strength, toughen-able enamelled glass is suitable for many applications. Such features in addition to durability, cost and energy saving, security, hygiene, distinctiveness, practicality, and last but not least transparency makes Vinamel t instantly suitable for various application such as:

- Interior design
- Public and commercial buildings
- Public spaces
- Offices
- Clinics and hospitals
- Religious places
- Art and culture centres, sports facilities, hospitality spaces
- Residential buildings
- Airports & other transport hobs
- Hotels







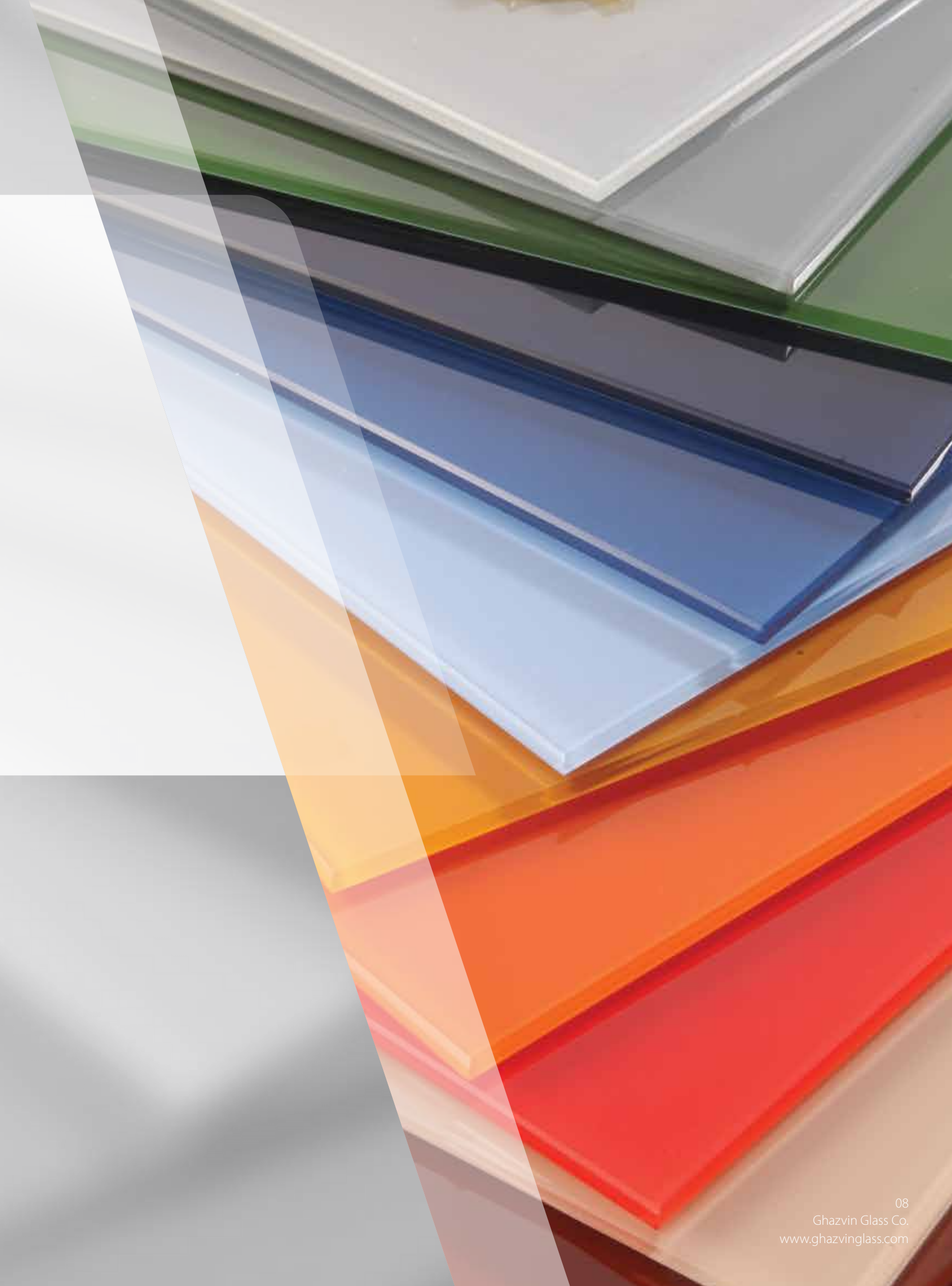
## Quality Control

Ghazvin Glass carries out a series of tests on the toughen-able enamelled glass to ensure that it is fit for purpose:

- Acid test
- Alkali test
- Abrasion resistance test
- Gloss test
- Enamel coverage test
- Colour range test

Each test measures the glass for repeatability of values within a predetermined range.

Ghazvin Glass understands the relevance of having the same values for glass from the beginning of production this week to that manufactured some weeks (or even years) ago.



## Technical Information

Processing Possibilities		Comments
Safety	Toughened	Convection tempering furnace is highly recommended. The enamelled side must be facing upwards.
	Laminated	Laminating via PVB, or EVA films.
Cutting	Rectangular or circular	Easily cuttable before tempering.
Shaping and edge finishing	Edge grinding	Edge grinding should be prosseced before tempering. - enamelled side always facing downwards.
	Drilling	Edge grinding should be prosseced before tempering. - enamelled side always facing downwards.
	Notches	Always before tempering.
Special treatments	Sand-blasting	Sand-blasting could be done on both sides before or after tempering.
	Acid-frosting	Acid etching is available on both sides before or after tempering. (both soft etching & deep etching)
	Printing	Any printing is applicable.
	Bending	Enamelled side always facing away from the mold.

## Other Aspects

Other Aspects		
Enamelled viscosity on glass	Full	Enamel is partially cooked before application.
Humidity resistant	Yes	All Vinamel t colours could be used in wet and humid spaces such as kitchen or bathroom. Note: The direct temperature or water infiltration is not recommended.
Indirect temperature resistant	Yes	Once tempered.
UV resistant	Yes	Consistant colour even with direct UV ray.

## The average throughput IR thermal radiation of the sun

6mm Glass

IR transmittance ( V Series )	IR transmittance ( C Series )	Wave length
2/44	2/84	750
2/44	2/84	770
2/46	2/86	790
2/46	2/86	800
2/46	2/86	820
2/46	2/86	840
2/47	2/87	860
2/51	2/91	880
2/41	2/91	900
2/44	2/94	920
2/46	2/96	940
2/47	2/97	960
2/48	2/98	980

## The average throughput UV rays of the sun

6mm Glass

Notes	UV transmittance	Wave length
This is clear that a very high percentage of UV rays within the UVA wavelength of 320 to 420 nanometer is absorbed and therefore not transmitted through	—	100
	—	120
	—	140
	2/2	360
	2/2	380
	2/23	400
	2/25	420







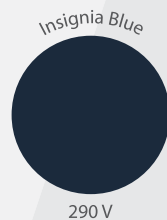
Alaskan Blue

220 C



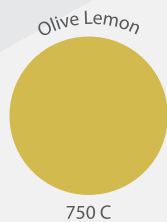
Patriot Blue

290 C



Insignia Blue

290 V



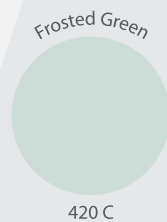
Olive Lemon

750 C



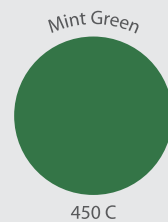
Citronelle

437 C



Frosted Green

420 C



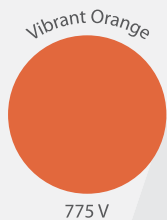
Mint Green

450 C



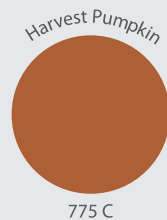
Lemon

750 V



Vibrant Orange

775 V



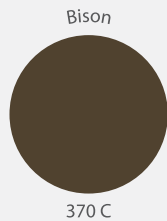
Harvest Pumpkin

775 C



Flame Scarlet

650 V



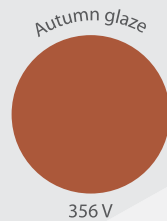
Bison

370 C



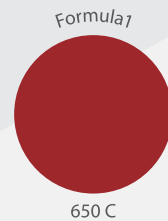
Coco Shell

356 C



Autumn glaze

356 V



Formula1

650 C



Potting Soil

380 C



Boulder

320 C



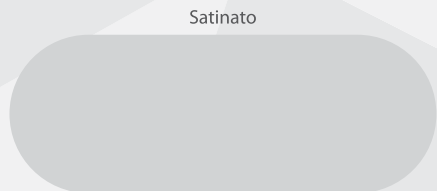
Safari

320 V



Bleached Aqua

104 V



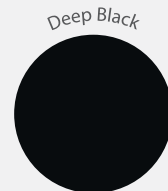
Satinato

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Gun Metal

140 C



Deep Black

199 C



**Ghazvin Glass Co.**  
Legacy continues...

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