

## A. General - The Material

### I. Supporting the Circular Economy

MAGNA Glaskeramik represents one of the latest innovations in building and Interior design materials.

From a circular economy aspect MAGNA Glaskeramik is absolutely within the Zeitgeist as the material is 100% recycled waste and as the cycle is completed when the MAGNA Glaskeramik itself is discarded at the end of a long life.

It can be broken down completely by a local glass processor and used to create new products. Production sheet or bottle glass from glass manufacturing always has a 5% ratio of trade waste "seconds" or imperfect glass.

This is the sole raw source of our material to produce and form a crystallized upcycled MAGNA Glaskeramik, which contributes to sustainable buildings projects by LEED points and a Cradle to Cradle certificate.

### II. How and where is MAGNA Glaskeramik made?

MAGNA Glaskeramik is certified and manufactured in Germany, in our factory in Teutschenthal. Our innovative technological know-how, in combination with our comprehensive quality control management is the basis of our promise to consistently deliver the highest quality to our customers.

The waste glass goes through a complicated sintering process such that every detail of crystal growth, glass cullet sizes and tension is controlled, giving us very unique slabs with randomized fine details made entirely one by one. It has a unique, translucent optical feature that is fully enhanced when lit up.

It's available in three possible surfaces, finely polished to show the crystalline structure and a natural patinated finish which offers a spectacular haptic, scratch resistance and a half reflectivity. The matte surface convinces with its unobtrusive and discreet nature, but in no way loses its elegant and distinguished appearance.

### III. Where does the waste glass come from?

All glass used by MAGNA comes from industrial plants and glass bottles fabricators. The colour of the final slab will depend on the original colour of the waste glass used, therefore:

**Ice Nugget:** made from recycled 6-8mm thick industrial white low iron glass waste.

**Polar White:** waste glass from solar panel protection glass (ultra-white glass).

**Jade:** made from recycled float glass, the green tint coming from the iron content.

**Green:** made from recycled green glass bottles, mostly beer bottles (Heineken).

**Ocean Blue:** recycled blue tinted sparkling water bottles.

**Champagne Brown:** beer and champagne brown bottles are the raw material source for this colour.

**Black:** waste from grey tinted float glass.

**Raindrop:** made of toughened safety glass, which was used as cover glass for thermal solar collectors and photovoltaics

**(Light Grey:** made from waste glass with sun protection coating.)

#### IV. Why does MAGNA Glaskeramik make the difference?

The combination between sustainability and exclusivity for a very wide range of applications makes MAGNA Glaskeramik a unique material. Each slab follows a delicate procedure in which some steps require to be hand-made.

Therefore, a lot of time is devoted to make sure that the finish of the slab or the object being produced meets our high quality standards. MAGNA Glaskeramik itself is not just a recycled material for which valuable LEED-points can be achieved, it also follows an environmental production process where electricity is obtained from our own solar panel plant and the water used in the process is also being filtered and reused.

No resin, epoxy or additives are used during the production, making MAGNA Glaskeramik a full sanitary, stain-resistant material, which is not just easy to clean but also very durable and fade-resistant over years, both for interior and exterior applications (no effect from any chemical products, acid rain or UV radiation).

#### V. Can other colours be obtained?

For special request and projects of a certain size demanding exceptional colours we are flexible to produce slabs with special (search for new trade waste in desired colour) or mixed (add coloured pigments to glass granulate) colours to obtain unique and individual results. There are almost no limits for the combination of different colours.

#### VI. What formats are available?

The standard sizes of MAGNA Glaskeramik slabs are 2800 x 1250mm in patinated surface and 2700 x 1200mm with the polished surface. New formats up to 3500 x 1500mm in patinated surface and up to 3400 x 1400mm with the polished surface are available. Furthermore, half and quarter panels are possible and nevertheless, we offer cut-to-size pieces according to the requirements of the project in any colour or surface.

#### VII. What are the thickness standards?

The standard thickness is about 21 mm (ca. 55 kg/sqm). It is possible to produce any individual thickness between 12 (37 kg/sqm) and 21mm on request. The exception is the color Ice Nugget, where a thickness of 16mm to 21mm is possible.

Slabs up to 40 mm are technically possible and available on special request. The tolerance for patinated surfaces is +/- 1.25 mm and +/- 1.10 mm for polished surface

## B. Use/Application

### I. How can MAGNA Glaskeramik be used?

MAGNA Glaskeramik can be used in a very wide range of applications.

The popular ones include countertops, vanities, shower walls, room partitions, kitchen worktops and backsplashes, tables, flooring, fireplace surrounds, wall cladding, light walls and feature entrances, artwork, but also all type of external facades both closed and open clad structures like rainscreens cladding.

Also a combination with other materials such as wood, stainless steel, natural stone or concrete promises creative application possibilities.

### II. Advantages of MAGNA Glaskeramik?

The main advantage is that this is a new material category and thus the unlimited number of uses it can be applied in, also it is a performance material with tested and proven capabilities. Creative freedom is the only boundary.

Architects, interior designers, artists and those who would like to have any project made of it are contributing to environmental sustainability, whilst specifying an exclusive material.

### III. Has MAGNA Glaskeramik any limitations when applied internally?

The material is not designed for structural loading, but as a cladding it achieves a higher than Class A (class 0) fire rating as it has no additives.

### IV. Which fixation/subjecton methods can be used for internal applications?

MAGNA Glaskeramik can be fixed via glass glue, silicone or mechanical fixing methods. For kitchen countertops or table surfaces, Glaskeramik slabs are quite heavy so self-weight will go a long way to secure a slab into position. If vertical fix is needed, we recommend the products used for adhesion of very thick glass, like clear silicone in combination with angles or full U profiles. Please discuss your needs with us as we also offer an edge slot fixing solution.

### V. Can MAGNA Glaskeramik be laminated and be used in safety sensitive areas?

MAGNA Glaskeramik can have added break-safe character through anti-shatter film application or laminated glass according to EN ISO 12543-4.

This opens up options for the development of insulated glass, as well as laminated safety glass for projects such as shower walls, room partitions, closed curtain facades in public areas or overhead glazing.

Despite its minimal thickness of 12mm, the material is due to its chemical properties can be compared with a natural stone slab, which is characterized by high resistance to fracture.

### VI. Can MAGNA Glaskeramik also been used for flooring? What's about the slip classification of the product when used as a floor?

MAGNA Glaskeramik is generally applicable for flooring projects. The natural patinated surface has even a R9-R10 anti-slip resistance. Special surface treatments like sandblasting, milling or special films etc. can improve the anti-slip rating from R9 to R11.

## VII. What are the different possibilities to hang MAGNA Glaskeramik on an external wall?

There are various fixing technologies available to MAGNA Glaskeramik. We are constantly looking out for new systems:

- A. Rainscreen cladding undercut anchor FZP\_15x15,5 M8/16 G-Z especially for façade Glaskeramik panels developed by German fixing specialist Fischer is fully approved by European Technical Assessment (ETA) EAD 13-33-0030-06.01 Undercut anchors are mounted into the back of every panel in our factory Teutschenthal, according to the required structural engineering. Structural glazing of façade panels is also suited to mount our material on interior walls or other vertical applications.
- B. U-profile, cassette or standard post-and-beam system for thick MAGNA Glaskeramik for laminated and monolithic solutions.
- C. Bonding to supporting concrete plate - Lithodecor sandwich panels solution
- D. V-Clip nut system by labelfacade

## VIII. What are the possibilities to light the MAGNA Glaskeramik?

MAGNA Glaskeramik, thanks to its unique translucent effect, can be illuminated artificially or using natural light. The main advantage of MAGNA Glaskeramik is its internal crystalline structure which results in many light reflections and a very homogenous light distribution using simple standards LED or similar illumination technology.

It is not possible to illuminate full sheets evenly by edge illumination but we recommend an LED lightsheet which give full even distribution from behind the slab or using a light box solution with fluorescent tube.

## IX. Are there curvature possibilities?

MAGNA Glaskeramik can be slump curved to certain 2D rather than 3D forms. This adds extra processing cost but is achievable for certain dimensions and radius.

Polished surfaces if slumped will gain a slight light ripple effect; this is regarded as very pleasing to the eye.

## X. Where can I buy MAGNA Glaskeramik?

You can ask one of our local distributor or partners for an offer according to the requirements of the project or approach us directly for technical consultancy.

## XI. Where can I get samples?

Please contact us directly for all sample requests or via the service on our homepage.

## XII. Will the slab look exactly like the sample?

Because of its unique nature, no two pieces of MAGNA Glaskeramik are exactly the same. Our engineers try to reproduce slabs of the same mix that are as close a colour match as possible. Your MAGNA Glaskeramik pieces will likely exhibit variations in colour, shade, glass cullet size and air bubble distribution.

Any sample of your chosen mix should be considered a general representation of the final appearance of your surface. These variations are not structural and are part of the beauty and distinctive pleasure of owning a genuine MAGNA surface. No one will have a surface exactly like yours.

## XIII. Is Glaskeramik sensitive to heat?

Glaskeramik is not resistant to shock heat. Slow heating up to a certain temperature is feasible. Recommendation currently no more than 60 degrees Celcius.

## C. Processing, Care and Maintenance

### I. How can MAGNA Glaskeramik be processed?

MAGNA Glaskeramik can be processed using means similar for marble, quartz or ceramics. MAGNA offers detailed processing information according to our experience, which can be used as a guideline at the time of processing with MAGNA Glaskeramik.

Please find the processing guideline in our technical documentation. In addition MAGNA also offers regular training courses and seminars on the correct processing of the material in our production facilities in Loitsche and Teutschenthal.

### II. How do I clean and maintain Glaskeramik?

MAGNA Glaskeramik is impervious and, given that it is made 100% of recycled glass with no resin, epoxy or additives used during the production, MAGNA Glaskeramik is a full sanitary and stain-resistant material, which has no special requirements when it comes to maintenance or cleaning, especially not requiring any chemical sealants or impregnator. Generally, MAGNA Glaskeramik material is resistant to patrols, acetones and ethanol type substances; additionally it is very resisting to chemicals generally but can be scratched by abrasive cloths or metals. Please refer to our cleaning, care and maintenance guideline.

## E. Transport and Guarantees

### I. Does MAGNA Glaskeramik organize the transport?

Transport costs for private customers will be organized by MAGNA Glaskeramik, if requested

and then they are included and shown in our offers. For commercial customers, an agreement on transport options and costs must be agreed upon in advance.

## II. How are panels transported?

MAGNA Glaskeramik is normally transported in special non-returnable, but re-usable, wooden crates in three standard sizes and the standard Euro-pallets.

Nevertheless, as every project is different, we customize or build ourselves boxes and crates to secure in the best way the piece of MAGNA Glaskeramik that is about to be sent. Therefore, the packaging will be adapted according to the size and weight of the material.

A very good protection against moisture, weather influences and collisions by other objects, is thus always guaranteed.

## III. Which kind of guarantee covers MAGNA Glaskeramik?

MAGNA Glaskeramik offers a standard 10-year warranty for facade projects. For interior projects, a two-year warranty is standard.

## IV. If MAGNA Glaskeramik piece breaks or gets damaged, what do I do? Which is the procedure?

In such a case, please contact us as soon as possible. The exact circumstances depend in principle on many factors, in which the piece is damaged, like transport conditions, handling and assembly conditions etc.