

# LG HI-MACS® Natural Acrylic Stone™ – A High-performance Solid Surface for Hospitals, Laboratories and other Healthcare Facilities

a report by

**LG Chem Europe**

## Introduction

LG HI-MACS® Natural Acrylic Stone is a highly versatile, low-maintenance solid surface that is available in a wide range of colours and patterns. It is ideally suited for all healthcare applications.

Developed and manufactured by LG Chem Ltd – one of the largest science and technology companies in Korea – LG HI-MACS® is an homogeneous blend of 70% natural minerals and pigments set in an acrylic matrix that is thermally cured into a solid, durable ‘natural acrylic stone’ with a non-porous, stain-resistant, easily sterilisable surface.

Available in a wide range of colours and patterns, LG HI-MACS® may be seamlessly thermoformed into shapes such as sinks, bowls and shower trays. As easy to cut and shape as wood, LG HI-MACS® can be fabricated into virtually any kind of surface or structure and, if damaged, can be simply and invisibly repaired.

Despite possessing all of these remarkable properties, LG HI-MACS® is extremely competitively priced, and represents outstanding value for money. Every authorised LG HI-MACS® installation carries a 15-year installed limited warranty – a practical indication of its quality and durability.

## LG HI-MACS® in Healthcare – Physical Properties

### Homogeneous

Unlike many common surfacing materials, LG HI-MACS® is not a laminate, but a uniform mixture of mineral granules in an acrylic matrix that is consistent all the way through from top to bottom.

### Hygienic

LG HI-MACS® does not absorb moisture and is highly resistant to staining. Its non-porous surface offers no microscopic footholds for bacteria or fungi to become established and, when wiped with a sanitising agent, becomes 100% sterile and free of contamination within seconds.

### Seamless

Worktops, sink units, shelves, walls, skirting, backsplashes – all can be integrated completely seamlessly, with no need for silicone, grouting or other sealants. As the two LG HI-MACS® surfaces are mated or ‘welded’ together with liquid LG HI-MACS® adhesives to become a single unit, joins and seams are completely inconspicuous (except where contrasting colours are used for aesthetic reasons, when the join can only be detected visually).

### Thermoformable

The product characteristics of LG HI-MACS® make it remarkably easy to thermoform into useful shapes – sinks, basins, baths and showers being the most usual. These prefabricated shapes (either standard or custom-formed) are easy to incorporate seamlessly and invisibly into matching worktops or vanity units, giving the impression that each complete unit is moulded in one piece. The hygienic advantages of such smooth and seamless integration are obvious.

### Customisable

LG HI-MACS® is such a versatile material that it can be fabricated into extremely demanding designs that can, for example, include shelves, drawers, sinks, draining grooves, etc., as well as electrical, air, gas or water supplies, waste-disposal outlets and the like.

With high inherent strength, LG HI-MACS® is as workable as most woods, but without the problems of directional grain and can be drilled, routed, sawed, shaped, tapped and sanded using normal wood-working power tools.

### Antibacterial Grades

While all standard LG HI-MACS® surfaces are completely non-porous and 100% sterilisable. For added security and peace of mind, specially treated antibacterial LG HI-MACS® grades are available for applications where there is an exceptionally high risk of contamination, such as accident and emergency department (A&E) and operating room (OR) facilities



**Box 1: LG Chem – One of the World's Leading Chemical Companies**

Founded in 1947, LG Chem is the largest chemical company in Korea. LG Chem's major businesses are petrochemicals, industrial and building materials and electronic materials. It has eight companies dedicated to production, numerous research centres plus a number of marketing and sales organisations throughout the world. Key products include petrochemical raw materials such as ethylene, polyvinyl chloride (PVC), polyethylene (PE) and synthetic resins; industrial and building materials such as flooring and window frames; automotive materials; electronic materials such as batteries for mobile phone and laptop displays and polychlorinated biphenyl (PCB) materials. The company manufactures many products that are especially suited to the healthcare industry.

For more information, please visit <http://www.lgchem.com>

in high HIV areas, blood-testing laboratories and forensic mortuaries. LG HI-MACS® is hygienically certified by the LGA Institute in Germany.

**Cleaning, Maintenance and Repair**

LG HI-MACS® has been widely used in hotels, restaurants, healthcare facilities and private homes throughout North America, Asia and Europe for some time, and experience shows that it is a highly efficient surface material that is remarkably easy to clean and maintain.

**Normal Cleaning**

Being smooth, seamless and non-porous, LG HI-MACS® surfaces are simple to wash down and wipe clean. The material is resistant to most cleaning fluids such as bleaches and solvents, while the use of mildly abrasives bathroom cleaners and pastes merely enhance its appearance.

**Minor Scratches and Burns**

Should it get damaged, LG HI-MACS® is extremely easy to repair. The pattern goes all the way through and, as a result, small nicks, scratches and minor cigarette burns can be rubbed right out using a normal scouring pad or fine sandpaper.

**Repairs**

More extensively damaged sections can be cut out by an LG-authorized and certified network member and replaced with a matching insert or plug to afford a completely undetectable repair. This ease of maintenance and repair means that any LG HI-MACS® structure will give many years of economical and efficient service.

**Reduced Equipment Damage**

Made primarily of finely-crushed aluminium trihydrate, a by-product of bauxite, LG HI-MACS®

is slightly resilient, meaning that dropped or roughly handled laboratory glassware and delicate instrumentation is less likely to break or suffer

**Aesthetics**

It is a well-established fact that healthcare staff work better and their patients respond better, when what they do is conducted in warm, friendly and aesthetically pleasing surroundings.

**A Better Alternative**

Fortunately, the days of harsh, unsympathetic lighting, shiny chrome and hard white tiles have gone, and it is now generally accepted that cleanliness and efficiency can indeed co-exist with aesthetics. LG HI-MACS® is one of the newer materials that provides a more welcoming atmosphere than traditional steel and ceramics, without in any way sacrificing hygiene and efficiency.

**Welcoming Look and Feel**

Unlike polished stone, glass or ceramic surfaces, LG HI-MACS® is noticeably 'warm' and forgiving to the touch. It is available in a wide range of colours, including many with a fine, random granular pattern that looks like some natural minerals such as sandstone and granite. Particularly attractive are combination patterns of contrasting or complementary colours and visual textures.

**Freedom of Design**

By taking maximum advantage of the extraordinary versatility and workability of LG HI-MACS®, and making full use of the broad palette of colour choices, interior designers and architects have an extraordinarily wide range of design options available, allowing them to create everything from aesthetically pleasing decorative installations in reception areas and patient rooms to highly efficient, practical treatment areas, surgeries and laboratories.

### Hygiene and Fire Certifications

LG HI-MACS® Natural Acrylic Stone™ is hygienically certified by the LGA Institute, which allows it to be used in any application demanding high levels of hygiene.

LG HI-MACS® Natural Acrylic Stone™ is certified for its low-flammability properties 'Building Materials Class B1' in all colours (Norm DIN 4102-1).

### Institutions and Facilities That Can Benefit from LG HI-MACS®

As already observed, LG HI-MACS® is an extremely versatile and practical solid surface material, and the number of applications, especially in the healthcare world, to which it is ideally suited is enormous.

### Typical Facilities

Typical facilities include the following:

#### Hospitals, Clinics and Care Centres

- cafeterias;
- consulting rooms;
- day-care centres;
- emergency treatment areas;
- intensive care;
- laboratories;
- maternity and delivery rooms;
- mental hospitals;
- morgues;
- nurses stations;
- nursing homes and hospices;
- operating theatres;
- paediatric wards and play areas;
- patient rooms and wards;
- pharmacies;
- reception and public waiting areas;
- sick bays (schools, factories, cruise ships, correctional institutions);
- staff rooms; and
- sterilisation facilities

#### Laboratories

- pharmaceutical research and pharmaceutical production;
- clean rooms;
- animal testing facilities;
- radiology;
- blood testing laboratories; and
- biotech research centres.

#### Practices

- doctors;

- dentists;
- veterinarians;
- pharmacists;
- chiropractors;
- physiotherapists; and
- podiatrists/chiroprodists.

### Equipment Manufacturers

- medical equipment (live organ transport, sterilisers);
- dentists' chairs (instrument trays, rinsing sinks);
- hospital and surgery furniture;
- laboratory equipment; and
- laboratory and clean room furniture and work surfaces.

### Where LG HI-MACS® Can Be Used

LG HI-MACS® has a number of advantages over traditional materials and surfaces such as porcelain, glass, stainless steel, baked enamel, laminate, paint and PVC tiling, and lends itself to a variety of applications:

- walls and floors (ORs, A&E, morgues, bathrooms);
- counters (reception desks, nurses' stations, kitchens, cafeterias);
- doors (ORs, morgues);
- seamless skirting, backsplashes, bumper rails;
- tables (patient rooms, cafeterias, staffrooms, laboratories, classrooms);
- cabinets and shelves;
- vanity units (bathrooms, public rest rooms, surgeries);
- showers (including wheelchair-accessible showers); and
- signs and notices (translucent and carved).

### In Summary

LG HI-MACS® enables you to maintain extremely high levels of hygiene to minimise the risk of contamination and to control infection, especially in high-risk areas such as A&E, ORs and maternity delivery rooms. Special antibacterial grades provide even more sure protection.

LG HI-MACS® is economical enough to provide similarly high standards of cleanliness and control of bacteria and fungi in important but somewhat less critical applications such as patient rooms and wards, food preparation and consumption areas, radiology, physiotherapy and laboratory facilities, bathrooms, consulting rooms, out-patient waiting rooms, etc.

Due to their seamless construction, with its associated absence of sharp corners, edges and crevices, LG HI-MACS® installations are extremely fast and easy to clean. This allows maximum utilisation of ORs, A&E and patient rooms, and

**Box 2: Higher Patient Throughput**

A room being cleaned is a room that is not fulfilling its primary purpose of patient care. However, thanks to the speed and ease with which floors, walls and other surfaces made of LG HI-MACS® can be cleaned, turnaround time in crucial areas such as operating theatres, accident and emergency departments and patient rooms can be reduced to a minimum. In fact, indications are that, in a typical operating theatre, the increased availability resulting from more efficient cleaning can lead to as much as one additional procedure a day.

enables more patients to be processed and treated over a given period. LG HI-MACS® is visually attractive (it is widely used in homes and hotels) and warm to the touch. These aesthetic qualities help to dispel the traditionally harsh, clinical image of hospitals by creating a caring, home-like environment that improves the morale of patients as well as that of doctors, nurses and other staff.

LG HI-MACS® is extremely tolerant to abuse and easy to maintain. Scratches and minor burns simply rub out with fine sandpaper and a scouring pad, while more extensively damaged areas can be invisibly replaced. LG HI-MACS® is durable. It does not suffer deterioration over time and, with normal maintenance, will last for many years. LG HI-MACS® carries a 15-year limited installed warranty when fabricated and mounted by an LG-authorized and certified network member.

Whether you are contemplating new construction, restructuring existing facilities or are interested in reducing the costly downtime and disruption of maintenance, LG HI-MACS® Natural Acrylic Stone™ provides an excellent, high-performance solution for all forms of horizontal and vertical surfaces. ■

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