

THE PORCELAIN JUNGLE

Dear colleagues,

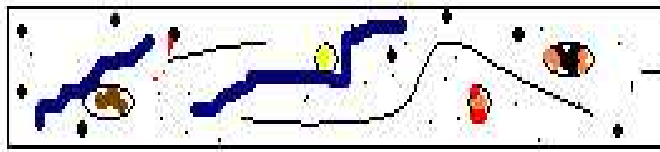
Thank you for willing to read and analyse the following information, I'm very grateful for your attention.

I'm genuinely happy to share with you these general but clear information about the 4 main porcelain which are nowadays flooding both the US and the world wide tile market.

The best way to go through this brief memo would be having samples of the following kinds, so all our senses (visual, kinaesthetic and auditory) will help us memorizing everything in the shortest possible time.

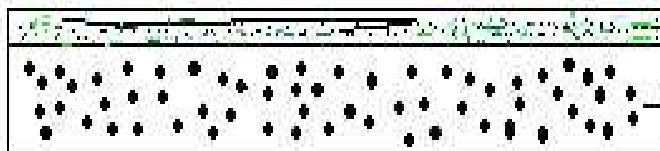
One last thing I feel like stressing before starting the explanation, which is my warm suggestion of not stopping here with this simple and first step, but please, listen, read and check different other inputs out, that might come from different other manufacturers, analyse them as carefully as you can and come up with your personal idea and version of what and how to transmit to your customers, colleagues or everyone who's asking for your professional help; because they trust you and they expect you to be confident with this "Porcelain Product" so what you'll be talking about will have to make sense, be logical and be backed up with crystal clear evidence.

a) FULL BODY PORCELAIN (F.B.P.)



*micronized, speckled,
macro multicolor grains,
etc.*

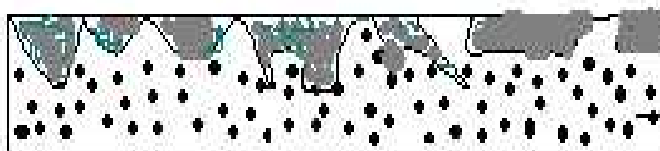
b) MULTIPLE LOADING PORCELAIN (M.L.P.)



micronized

Fine speckled

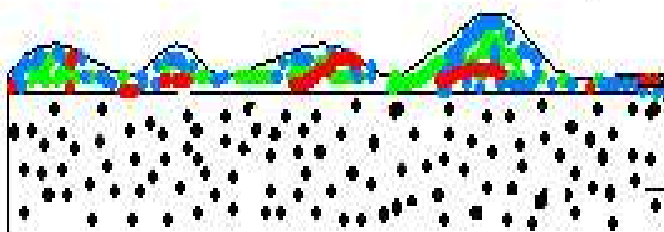
**c) PORCELAIN DECORED WITH SOLUBLE SALTS
(S.S.)**



metal oxides ("stain")

Fine speckled

d) GLAZED PORCELAIN (G.P.)



glaze

Fine speckled

FULL BODY PORCELAIN (F.B.P.)

You can find fine grain speckled versions like "salt & pepper" kind (industrial ranges) and micronized grain ones like "variegated ones", "veined ones" etc The firsts are the first generation (more common & economic materials) the seconds are more unique and dearer.

MULTIPLE/DOUBLE LOADED PORCELAIN (M.L.P.)

It's composed by a fine speckled biscuit (from 75% up to 90% of the tile) similar to the industrial ranges and kind of micronized topping like variegated mentioned above. So a two or more layers item. Everything happens in the press, two/more raw material loadings and one press.

SOLUBLE SALTS PORCELAIN (S.S.)

You can find a super white biscuit or a fine speckled one (still similar to the industrial ranges) on which a kind of gel, composed by metal oxides and water, is spread through a screen after pressing. These so called soluble salts are penetrating the body of the tile and releasing the colours during the firing process.

GLAZED PORCELAIN (G.P.)

It's got the same fine speckled biscuit on which a more or less thick layer of glaze is spread after the pressing, just like the traditional **MONOCOTTURA** (single firing) with different kind of raw materials. Generally better body and better glaze.

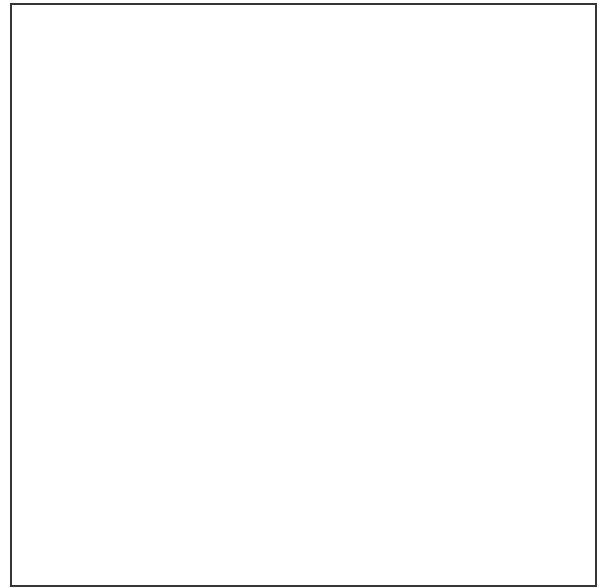
FULL BODY PORCELAIN LOOK:



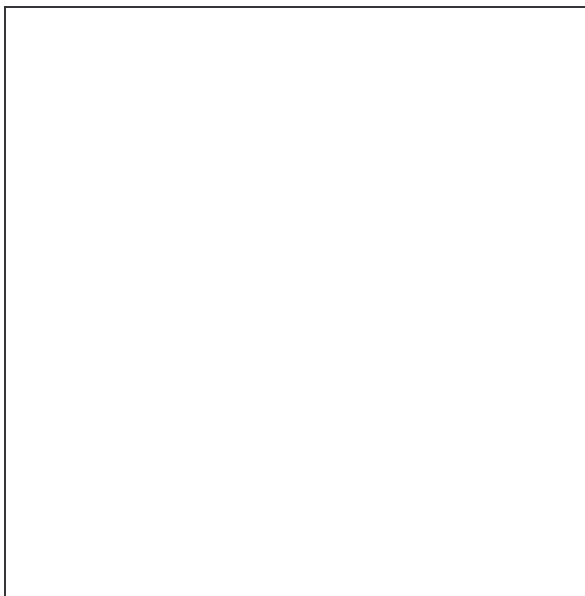
sections of marble and granite full body porcelain



**micronised veined, multicoloured
macro/micro grained**



veined marbolized



rustic multicoloured fine speckled



basic salt & pepper fine speckled

DOUBLE LOADED PORCELAIN LOOK:

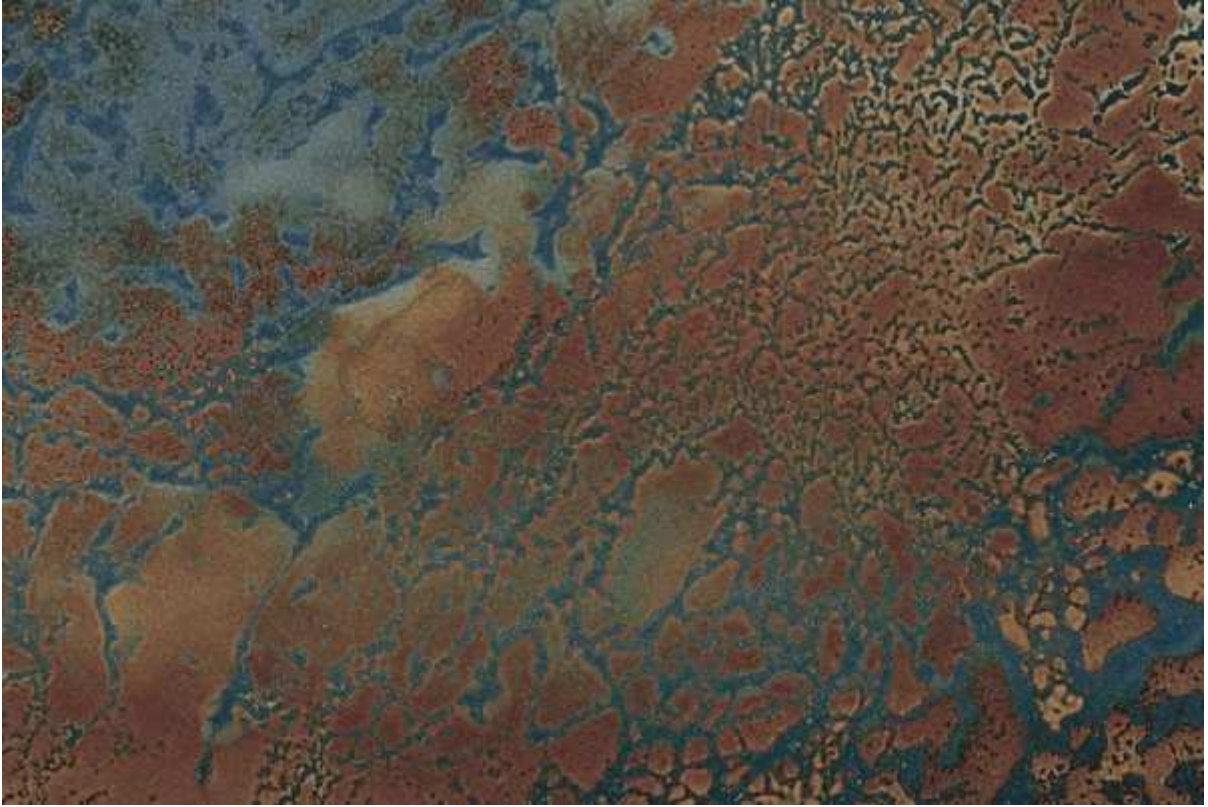


regular double loaded polished/mat version



structured version

SOLUBLE SALTS PORCELAIN LOOK:



heavily decorated appearance



heavily decorated appearance

GLAZED PORCELAIN LOOK:



dry glaze application, even through the press



regular glazing process after pressing

In order to successfully effect our work, we would need to bear in mind the following three key factors.

- **Knowing ourselves** (get a good knowledge of our products and their characteristics)
- **Knowing our markets** (I'm sure you're experts of the taste and service requirements of the area you're taking care of)
- **Knowing our competitors** (again to be professional and in order to really help, not to mislead, it's important to be aware who we're competing with, their pros and cons).

As you've noticed already, I'm kind of repeating the same concept over and over again, this is because "repetition is the mother of the skill", it's important to remember that by reading this memo only once or twice won't make any difference in our work and we'll soon forget or have a limited view of what is really out there.

We would need to take action and look for physical samples!

Through constant comparison of what it's written or displayed here and what we can get hold of from our customers, colleagues and friends, we can certainly develop a relatively quick professional attitude that would definitely need to be expanded with other information, impossible to be included in this initial brief memo.

RESIDENTIAL & COMMERCIAL APPLICATIONS

Having identified the 4 main groups (other combinations are also available in the market, like double loaded with soluble salts, etched multiple loading and an incredible number of full body or double loaded items coated with a transparent layer of

glaze...to improve maintenance) next natural step is positioning them according to their application.

F.B.P. + M.L.P. + S.S. were/are generally used for commercial application.

G.P. was/is identified as an upgrade of the white clay single fired tiles and therefore used for residential applications.

Thanks to the continuous evolvement of the market taste, to the technical improvements which allowed better looking tiles at more affordable prices, the a.m. distinctions are no longer "absolute" and very often we can have a home owner choosing a **F.B.P./M.L.P./S.S.** marble/stone/granite looking product over a glazed version since the premium to pay it's not too high (or even less expensive) and the aesthetic of the firsts are much richer than their glazed alternatives.

It's also true that some **G.P.** have reached some technical characteristics that in several occasions (exp. Dry Glaze) have been used in commercial applications, even if when heavy commercial no glazed material is recommended. We can easily name many **G.P.** more expensive than the above technical products, but this is due to their look, brand recognition, exclusivity and different other emotional reasons rather than technical ones.

FINISHES DESCRIPTIONS

This is a very treacherous path to venture on, there are several finishes called in several ways, that have different kind of production processes or mechanical treatments, it's therefore

very difficult and sometimes confusing naming all of them, so we'll try to gather the most known or important ones, i.e.:

Unpolished (mat) = this finish is common on **F.B.P.** + **M.L.P.** versions. Rarely in the **S.S.** ones for lack of aesthetic (metal oxides are not very visible if not polished). The production technique is very simple, after the pressing and the drying process, tile is fired and packed.

General Pros & Cons

Pros:

- Slip-Resistant in dry & wet environments
- High resistance to scratches
- Inexpensive
- Mat rough look

Cons:

- Requires more maintenance since rougher
- Flat look. Little depth.
- Some "glazed versions" can be shiny & glaze can wear off with high traffic.

Polished (shiny) = this version is gaining popularity because of the very competitive prices introduced by the Chinese. It's

generally offered in the **F.B.P.**, **M.L.P.**, **S.S.** versions, rarely in the **G.P.** since it'll require a very thick layer of glaze. The production process is exactly like the one above but before the packing process, tiles go through a polishing & rectifying process (respectively brushing the rough part of the tile off the surface and squaring/bevelling the edges).

General Pros & Cons

Pros:

- Very easy to maintain since dirt has nothing to grip on
- Rich and high-end appearance
- Generally stronger than Marbles or Granites which require constant sealing & maintenance processes.

Cons:

- It can be slippery in wet conditions
- It can be expensive
- Shiny look might not be accepted
- Might have high porosity
- Require sealing procedures to avoid staining

Semi-Polished (mat/shiny) = this version is mainly offered in the **G.P.** material. Since in most of the cases the layer of glaze is very thin, we cannot apply a full polishing process. Sometimes this finish is also available on the other versions especially when structured. This light polishing process is carried out the same way as the one mentioned above, but the brushing is very light

or just on the peaks of the tile surface so to create the shiny-rough look.

General Pros & Cons

Pros:

- Exclusive look
- Not as slippery as the full polished when wet

- Affordable price

Cons:

- "heavy-busy look", used as accent

Satin (honed) = this version is only offered on the three technical versions. The production process is like the polished one but skipping the last polishing pads/heads, that means avoiding the shiny mirror effect.

General Pros & Cons

Pros:

- smooth surface without the shiny look
- velvety look
- more slip resistant than the polished

Cons:

- grinding marks might be visible (not using the last pads is like not finishing the polishing job properly)
- high maintenance

Pre-Polished (honed) = this finish can be obtained in two ways, directly in the press (particular device) or right after the press (light brushing heads). While the second version can only be offered with **F.B.** porcelains (all the rest have two or more layers which cannot be touched before the firing process) the first one is also possible to obtain with the **M.L.P. & S.S.** versions. Newer technologies have almost replaced this version.

General Pros & Cons

Pros:

- Anti-slip in wet and dry conditions
- Stain resistant
- Scratch resistant
- Easy to maintain
- Honed look
- Affordable

Cons:

- If coated with transparent glaze, the honed look, the anti-slip features and the scratch/wear resistance are compromised.

Structured, Bush-hammered, and highly Anti-slip surfaces, are all obtained in the press, and if not coated with transparent glaze behave as the *Unpolished* finish.

The use of all the mentioned finishes must be dictated by particular requirements, indoor or outdoor needs, commercial,

residential applications, façades, countertops or backsplashes special needs, etc.

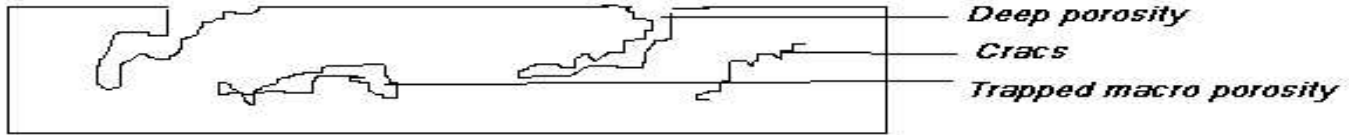
To better understand the importance of a careful finish selection and therefore its application, it's vital to be aware of how the porosity issue works, so the last but not least part of our Porcelains overview will be dedicated to the porosity explanation, its comparisons with the natural stone ones and eventually its remedies or actions to take in order to minimize possible "after installation problems".

POROSITY INTRODUCTION

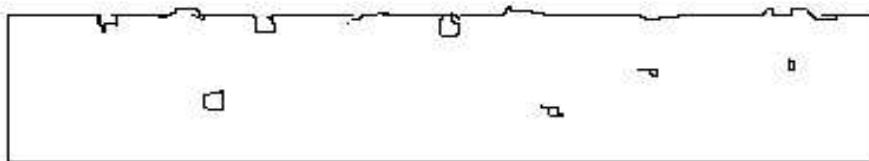
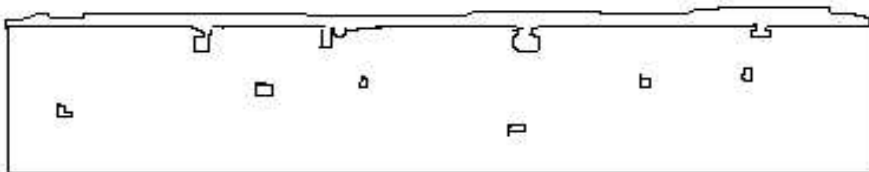
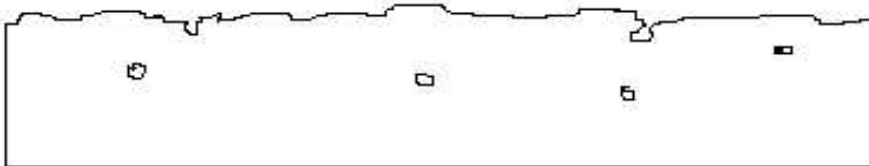
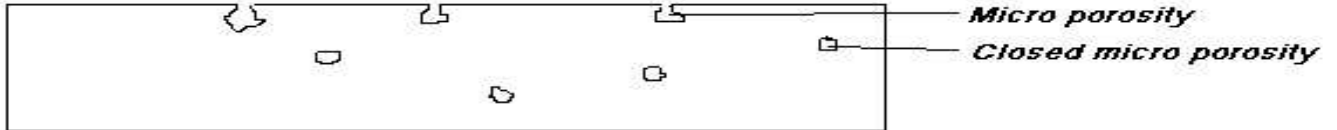
This phenomenon affects **F.B.P.**, **M.L.P.** & **S.S.** products only. In fact all more or less glazed products do not have surface porosity. Glaze acts as sealant on top of any surface it's spread, no matter whether it's a red clay body, a white clay one or a porcelain of more or less quality, that's why what will be explained in this chapter won't affect **G.P.**...at least as long as glaze lasts. Let's remember that glaze is glass, that's why, stain resistant and easy to clean but also slippery in wet conditions (unless corundum is ad), generally not heavy wear and scratch resistant and if the glaze wears off, look (shiny and mat), maintenance and initial "low budget" (cheap tiles) are irrevocably compromised.

Let's take a look at the following drawings and immediately notice the difference between stone cavities and porcelain micro porosity.

Porosity in a polished/honed natural stone



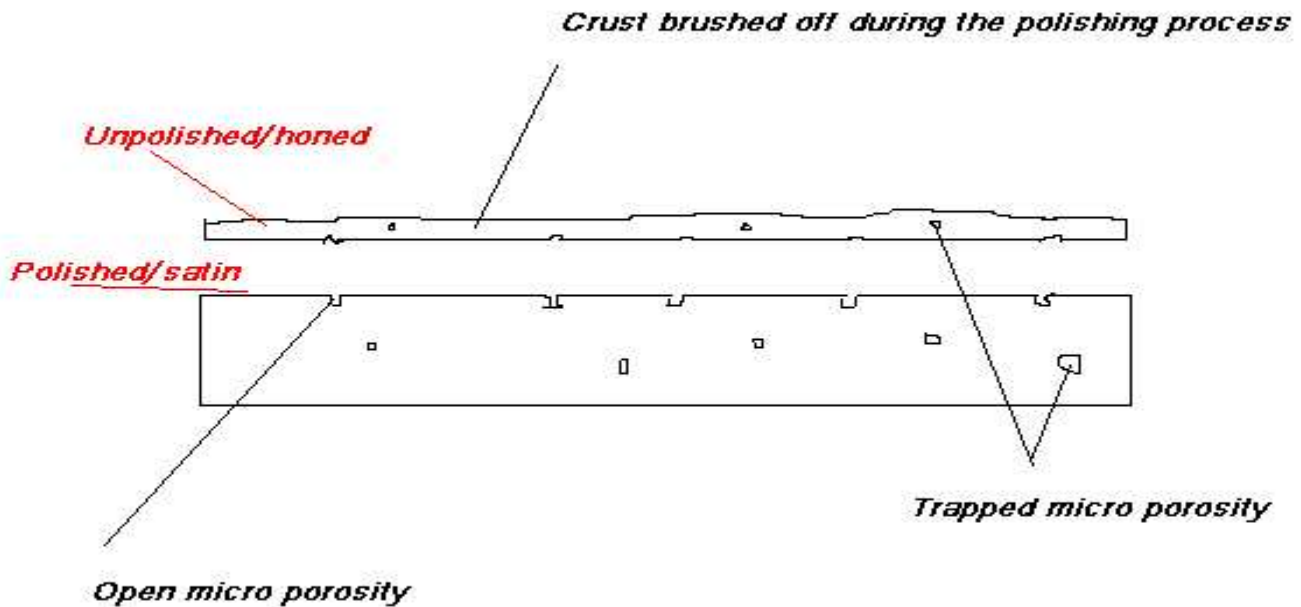
Porosity in a polished porcelain



All Porcelains have trapped porosity, the better quality is the porcelain and the less porosity remains trapped during the firing process.

This trapped closed porosity, shows up even more when the Unpolished/Honed product goes through the polishing process.

What happens is the following:



Since we're smart and intelligent people, we've already understood why some polished porcelains perform better than others.

It's also easy to understand at this point why some manufacturers use a transparent glaze over the Unpolished/Honed porcelains.

Several polished porcelain manufacturers nowadays impregnate their products in order to facilitate maintenance and cleaning procedures after installations.

In fact there're some particular colours like, solid ones, ultra whites or super-blacks that are more likely to be effected by:

- Increasing strength of cement/epoxy grouts
- Malpractice of some "speedy tile installers"
- Lack of maintenance of the home owners

These applied sealants though, are different from the ones used for natural stones, they need to be special, more fluid to penetrate the tiny, shallow micro-porosity and as you can imagine, don't last! The wear will soon remove this thin film and that's another reason why maintenance is very important and quality is always less expensive in the medium-long run!

Installation is a very delicate moment, it's when and where the majority of the immediate and future problems start, here is a classic example:

- If cement is not removed completely with water and acid, a film can remain on the tile surface and this invisible film will be a real "trap" for all kind of dirt. It can really absorb anything, giving the impression that the tile is defective.
- If worse comes to worst, like applying a sealant on top of the cement film....than we're really in trouble,...since the majority of the sealants can't be removed with acids (at this point we would need to get instructions from the sealant manufacturers for the sealant composition), but solvents are needed in this first phase, after which acid is supposed to be used to completely remove the cement off the surface...I'm sure you've already figured out the

- amount of frustration and hassle our customer, ourselves and our bosses will go through....
- If we find ourselves in a unhappy situation where epoxy has dried up...(epoxy is generally acid proof) replacement will be needed (if what's stained is a polished product) and the amount of money involved it's enormous...and we really don't want to find ourselves in these situations. If it's Unpolished/Pre-polished, we could still use a combination of brushing machines (which apply an heavy mechanical abrasion) and strong acids (chemical abrasion)...and hope for the best!

After installation though we still have to educate the final customer to regularly maintain its floor, counter, wall or anything else they've used **F.B.P.**, **M.L.P.**, **S.S.** porcelains for.

Below I've included a stain chart and obviously the way stains need to be cleaned.

Again, this very chart is particularly important for all the above mentioned products which have no glaze coating, that includes polished products.

Pls. note that the following recommendations are not valid for natural stones.

Natural products will be effected by acids, alkali and solvents and that's another reason why Porcelain is increasing its popularity.

TIPO DI MACCHIA STAIN FLECKENART TACHE TIPO DE MANCHA	SOLVENTI (benzina*,acqua-ragia*, acetone*, trielina*, diluente alla nitro*)	ACIDI (acido muriatico*, acido cloridrico*)	Detergenti a base alcalina Alkaline based detergents Reinigungsmittel auf basischer Grundlage Détergents alcalins
	SOLVENTS (benzene*, turpentine*, acetone*, trichloroethylen*, nitre-based thinner*)	ACIDS (muriatic acid*, hydrochloric acid*)	ALCALI (candeggina*, soda caustica*)
	LÖSUNGSMITTEL (Benzin*, Königswasser*, Azeton*, Trichloräthylen*, Nitroverdüner*)	SÄUREN (Chlorwasserstoffsäure*, Salzsäure*)	ALKALI (Bleach*, Sodium Hydroxide*/Caustic Soda*)
	DISSOLVANTS (essence*, térébenthine*, acétone*, trichloréthylène*, diluant au salpêtre*)	ACIDES (acide muriatique*, acide chlorhydrique*)	LAUGEN (Bleichlauge*, Ätznatron*)
	DISOLVENTES (gasolina*, aguarrás*, acetona*, tricloroetileno*, disolvente de nitro*)	ÁCIDOS (ácido muriático*, ácido clorhídrico*)	ALCALINS (eau de javel*, soude caustique*)
		ÁLCALIS (lejia*, sosa cáustica*)	
Birra - Beer - Bier - Bière - Cerveza			■
Caffè - Coffee - Kaffee - Café - Café			■
Calcare - Calcar - Kalk Calcaire - Restos de cal		■	
Catrame - Tar - Teer - Goudron - Alquitrán	■		
Cemento - Cement - Zement Ciment - Cemento		■	
Cera di candela - Candle wax Kerzenwachs - Bougie (cire)	■		
Coca Cola			■
Colla - Glue - Klebstoff - Colle - Cola	■		
Gelato - Ice cream - Eis - Glace - Helado			■
Gomma da masticare - Chewing-gum Kaugummi - Chewing-gum - Chewin gum	■		■
Gomma di pneumatico - Tyre marks Gummireifen - Caoutchouc de pneus Caucho de neumático	■		
Inchiostro - Ink - Tinte Encres - Tinta	■		■
Nicotina - Nicotine Nikotin - Nicotine - Nicotina			■
Pennarello - Felt pen - Stift Feutre - Rotulador	■		■
Resine - Resine - Resine Resine - Resinas	■		
Ruggine - Rust - Rost Rouille - Herrumbre		■	
Smalto per unghie - Nailvarnish Nagellack - Vernis a ongles Laca de uñas	■		
Sangue - Blood - Blut - Sang - Sangre			■
Sigaretta - Cigarette - Zigarette Cigarette - Cigarrillo		■	
Vernice murale - Wall paint Wandfarbe - Peinture Pintura Mural		■	
Vino - Wine - Wein - Vin - Vino Olio - oil - öl - huile - aceite grasso - grease - fett - gras - grasa			■

* Dove è consentita la vendita e l'utilizzo - * Where use and sale is permitted - * Wo Verkauf und Verwendung zugelassen sind - * Où la vente et l'utilisation en sont autorisées - * Donde la venta y el uso están permitidos.

CONCLUSIONS

Dear colleagues let me genuinely thank you once again for willing to "stay tuned" for so many pages.

Believe me I really tried to "squeeze" every concept or subject as much as I could, still trying to make sense of what we were analysing together.

I'm sure we all have understood that, despite it's immediate appearance, this memo is only a general one. In fact since the tile industry's pace is very fast, constant news and exceptions to the above descriptions, arise every year. Circumstances, and more or less accurate explanations of the "actual facts" can only add confusion to the whole picture, that's why we chose "Porcelain Jungle".

My personal invitation is once again to take the first step, do something to improve, and apparently you've done it already.

The second is to avoid procrastination and follow up on this path, by researching more, trying to put yourselves in the attitude of helping your customers, your friends and you'll see ultimately you're going to help yourselves.

Professionalism and success come from right decisions, right decisions come from experience, experience comes from...wrong decisions! So don't be scared to make initial mistakes! It's the only way to make it happen.

So let's get started practicing all the above information and commit in constant improvement of the above GENERAL INFORMATION.

I remain at your complete disposal for any in-depth you wish to take.

I would also love to hear your comment, should you wish to share them to me, in the meantime I'd love to send you my genuine best regards.

Sergio Barro

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