



PLAFORIZATION™ AND TORAN™

One-Step Organic Pretreatment for Metals

Information about
PlafORIZATION™ and Toran™ -
the one-step, room temperature,
no sludge, and no waste systems
for degreasing and passivating
of metal surfaces.

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One-Step Organic Pretreatment for Metals

PlafORIZATION™ and Toran™ One-Step Organic Pretreatment products for metals are produced by the Chemtec company of Milan, Italy and distributed throughout the NAFTA market and the Caribbean by Carpenter Chemicals, LC of Alexandria, VA. This organic pretreatment system is a truly one-step process to clean, passivate and seal metal surfaces before applying a topcoat. A part is treated for one minute, dripped off and dried, and it is ready for painting.

PlafORIZATION™, the pretreatment choice that has been available for many years world-wide, is in use by more than 500 customers. Toran™ is a new product, operating on the same one-step, no-rinse, room-temperature principles as PlafORIZATION™, but with some very significant improvements in corrosion resistance, adhesion and impact resistance. These are discussed in more detail in the section **Product Performance Range Expanded**.

PlafORIZATION™ and Toran™ organic pretreatments both use no water and are not rinsed. They operate at room temperature – no heating at all. They create no sludge or other wastes, and therefore there is no oil, sludge or water to dump or treat.

In both processes, the polymer seal actually serves two functions. Once cured on the

part, it prevents flash rust for weeks to months on parts stored indoors. But in addition, the polymer resin that becomes the seal actually absorbs process oils and uses them in the process – as a plasticizer to give the seal coat high flexibility and therefore very high impact resistance and adhesion.

The bath is extremely stable, because the chemistry stays in balance. The ingredients in the solution are used up in proportion as parts are treated; the oils are absorbed and used in the process; and the fines that come

in on the parts are continuously filtered out. As a reflection of this chemical stability, bath samples are taken only every 2 months, instead of once or several times a day.

The application can be by dip or spray (very low-pressure flowcoat, 3 – 5 PSI), and can be continuous, indexed or batch. Anything that comes in contact with the treatment liquid - tank, spray zone, risers, pumps and filters -

must be made of stainless steel, polypropylene or polyethylene.

The process, whether dip or flowcoat, consists of a single one-minute treatment stage, followed by drip-off and drying. Normally, drying takes place in an oven at 300 degrees F. for 4 – 5 minutes. However, for small batch production one of the products can be dried at room temperature in a little over half an hour.

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A PlafORIZATION™ or Toran™ system requires virtually no maintenance, since there is no waste to treat or dump and no de-sludging of the tank. Nozzles do not plug up because there is no sludge. About the only maintenance necessary is changing filter bags.

Users save money because of the smaller capital cost of the more compact equipment, and because there is no heating (so no natural gas), no water, very little electricity (fewer and smaller pumps and fans), and very little of the labor associated with conventional system operation and maintenance.

Applications for PlafORIZATION™ and Toran™

PlafORIZATION™ and Toran™ can treat almost any metal – steel, aluminum, galvanized, galvanized, brass, magnesium and others, and can do so simultaneously in the single bath. There is therefore no need to make special runs of particular metals or change the chemistry to treat different metals. This means

that a customer can treat a product that is made up of several metals.

The process is used by some customers in an ingenious application – to treat highly polished metals and stainless steel. The reason is that it very effectively promotes adhesion of the topcoat to the very smooth metal. The polymer adheres to the metal underneath, and also to the topcoat above, by forming both a strong chemical and physical bond.

Industries in which PlafORIZATION™ is used include furniture, store displays, military hardware, all kinds of stamped sheet metal, compressors and filters, indoor and outdoor lighting, indoor and outdoor fencing, handicap scooters, enclosures of all kinds, motor starters, some high-temperature products – in short, various metals in all kinds of applications.

PlafORIZATION™ and Toran™ work with powder coatings and water-based and solvent-based liquid coatings. Topcoats include the full range – polyesters, epoxies, hybrids, Kynar,

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Batch flowcoat unit is compact.





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polyurethanes, etc.

Product Performance Range Expanded

The PlafORIZATION™ line of products has been available on the market since the 1970s in Europe and in an ever-expanding geographical market in the years since then.

Improvements have been made over time – for example, eliminating chlorinated components, improving the resins, and introducing products with a range of flashpoints to accommodate differences in process requirements regarding drying/curing and regarding evaporation and emission rates. Now, Chemtec has developed two new products. One is a modification of the polymer that can be added to an existing PlafORIZATION™ bath to greatly improve

adhesion. Tests demonstrate that products treated with the new PlafORIZATION Plus™ can now pass such difficult adhesion tests as water immersion and hot water and boiling water immersion.

In addition, in a completely new rendition of the one-step organic pretreatment family,

Toran™ 3 has been released in the market and there are several new plants in operation in Europe. Toran™ 3 brings to the pretreatment market a completely new method of bonding the polymer resin to the metal, with the result that adhesion, impact resistance and corrosion resistance are very significantly improved over even the existing PlafORIZATION™ line of products. Like

PlafORIZATION Plus™, the Toran™-treated and topcoated metals pass the difficult water-immersion and hot water tests. This makes Toran™ 3 particularly well suited for higher-end performance requirement applications, more on the line of zinc phosphating.



Low-pressure flowcoat, 3 - 5 PSI

Equipment requirements

There are certain rules applicable to use of the PlafORIZATION™ process, requiring

some differences in equipment over conventional pretreatment systems. Anything that remains in contact with the treatment liquid must be stainless steel, polypropylene or polyethylene. A mild steel tank, for example, is not suitable because the chemical would be continuously treating the tank itself and thus would be wasted. And





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most plastic materials would eventually be softened by the chemical.

There are also differences in liquid pressure (in a spray system) and air flow that must be taken into account. Liquid is applied at 3 – 5 PSI rather than at the much higher pressures of conventional pretreatment, so the risers and nozzles must be modified accordingly.

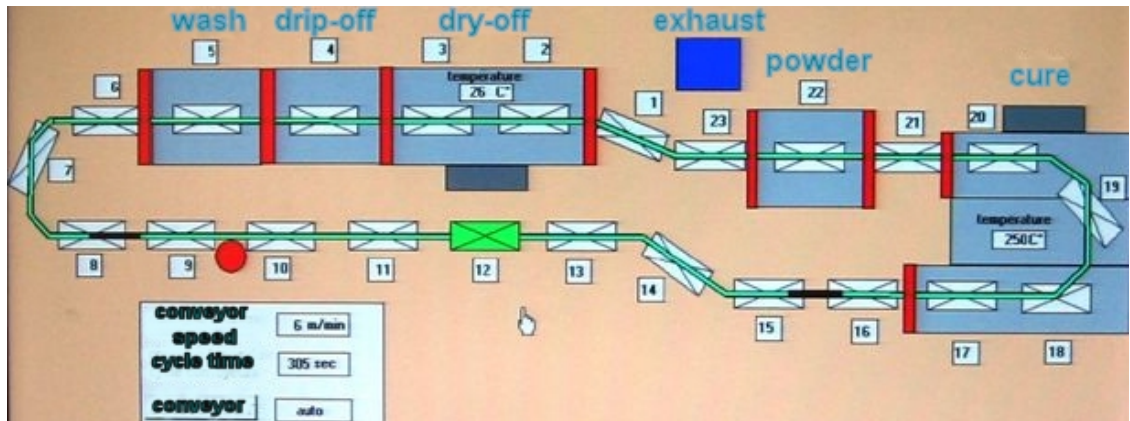
Air flow is actually very different in a PlafORIZATION™ or Toran™ system. A conventional process creates lots of pressure, atomization and chemical-laden steam, which must be removed from the treatment area and the plant by means of a strong exhaust flow. With the one-step organic process, it is almost the reverse. The vapors of the chemical are much heavier than air and will sink if left undisturbed. Since the chemicals are recycled and re-used in the process, it is important that they be returned to the tank efficiently. This is

accomplished by designing the system with only very minimal exhaust from the ends of the treatment tunnel, as far from the spray zone as possible. Also, air curtains or

polyethylene curtains are placed at strategic locations in the tunnel to reduce air flow in the tunnel, and most importantly in the spray zone, to as close to zero as possible. This avoids wasting the treatment chemicals.

So, an existing system can be converted if it is new enough to make it economically feasible and if it is a stainless steel system at least in the treatment area and tank. Such a system can be converted by using only one stage (usually the second) and removing the others, and using the rest of the tunnel for entry, drip-off and blow-off, and exit. Changes must be made to the risers and nozzles, and pumps and filters to adjust the liquid and air flow in the system. And the tank itself will almost certainly be much smaller than the conventional tank (it can be walled off to reduce its size), because the low-pressure spray requires less reserve in the tank to feed the risers and nozzles. PlafORIZATION™ and Toran™

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are not suited to all pretreatment requirements, as no product is. Where parts to be treated are rusty, or have mill scale or laser dross on them, such surface contaminants must be eliminated first. After removal (by, for example, sanding or blasting), the metal can then be treated successfully.

Where metal surfaces that have high melting point waxes such as paraffin, or animal fats such as calcium stearate, on them, these must also be removed before Plaforization™ or Toran™ pretreatment.

Benefits of One-Step Organic Pretreatment

The Plaforization™ and Toran™ organic pretreatment process is very simple to operate and maintain. The system can be turned on and can start to work immediately, because there is no waiting for liquid warm-up.

Maintenance is almost non-existent, and wastes are not a factor.

Moreover, the product is very “green”. It uses much less electric energy and no natural gas, and there is no water in the system anywhere, obviating water purchase, treatment and dumping. This is particularly important in areas of water shortage, or where waste water disposal is prohibited or expensive.

The application can be by dip or spray (very low-pressure flowcoat, 3 – 5 PSI), and can be continuous, indexed or batch.



The process also reduces carbon dioxide production by about 90% in comparison to conventional pretreatment. Very large amounts of carbon

dioxide are created when natural gas or other fossil fuels are burned to heat water tanks in conventional systems. In contrast, Plaforization™ and Toran™ work at room temperature.

The Plaforization™ and Toran™ organic pretreatment

process is an



Toran™ system - converted from Plaforization™





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economical and environmentally sound technology that is suitable for a wide range of metal treatment needs and can be used in a variety of equipment (batch, indexed or spray) to fit customer requirements. The newest grades now make it an excellent choice for even higher performance requirements.

Contact

To find out more about these exciting options, please call or e-mail us, or use the enclosed handy fax-back form.

We look forward to working with you to improve product performance, simplify your process, and save you money.

**HIGHER FUEL COSTS COULD
STOP YOUR BUSINESS**



Energy costs continue to rise,

and the expense of heating your pre-treatment bath is causing your profits to fall. How long are you prepared to let this continue? If you could take the steps today that are necessary to position your company for increased profits and long-term viability, would you act today?

Let us tell you about PlafORIZATION™ and Toran™ the one-step, no waste, no water and no heat methods for pre-treatment - processes that have thrilled their users - and shown results that are **second to none.**

Can you *really* afford *not* to call us?

CALL TODAY

866-683-1570



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FAX-BACK REPLY

Please help us to help you - send us this fax and tell us how we can be of assistance.

To: Carpenter Chemicals, LC

Fax: 703-683-4131

From: _____

Company: _____

Address: _____

City/St/Zip: _____

E-Mail: _____

Tel. & Fax: _____

Please give me a call as soon as possible.

Please send me additional information on the PlafORIZATION™ and TORAN™ process and products.

I'd like to refer you to the following contact person(s):

Be sure to visit our website at <http://www.cc-lc.com>
and please feel free to call us at
(Toll-Free) 866-683-1570, fax us at 703 683-4131
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