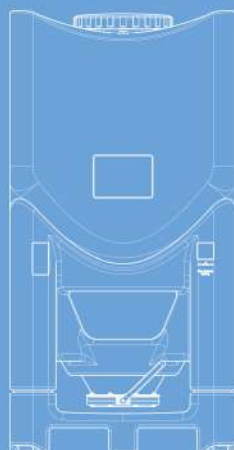


WASTE WATER  
& SMOKE  
TREATMENT  
DIVISION

**PN**  
**Palamatic**  
PROCESS >>> machines • engineering



*Bulk material & powder  
handling solutions*





Storage tanks

4 - Waste Water & Smoke Treatment Division

6 Factory & production line designer

8 - Your project

- Turnkey solutions
- Engineering / Audit
- Exam ples of realisations

14 -Automation & electricity

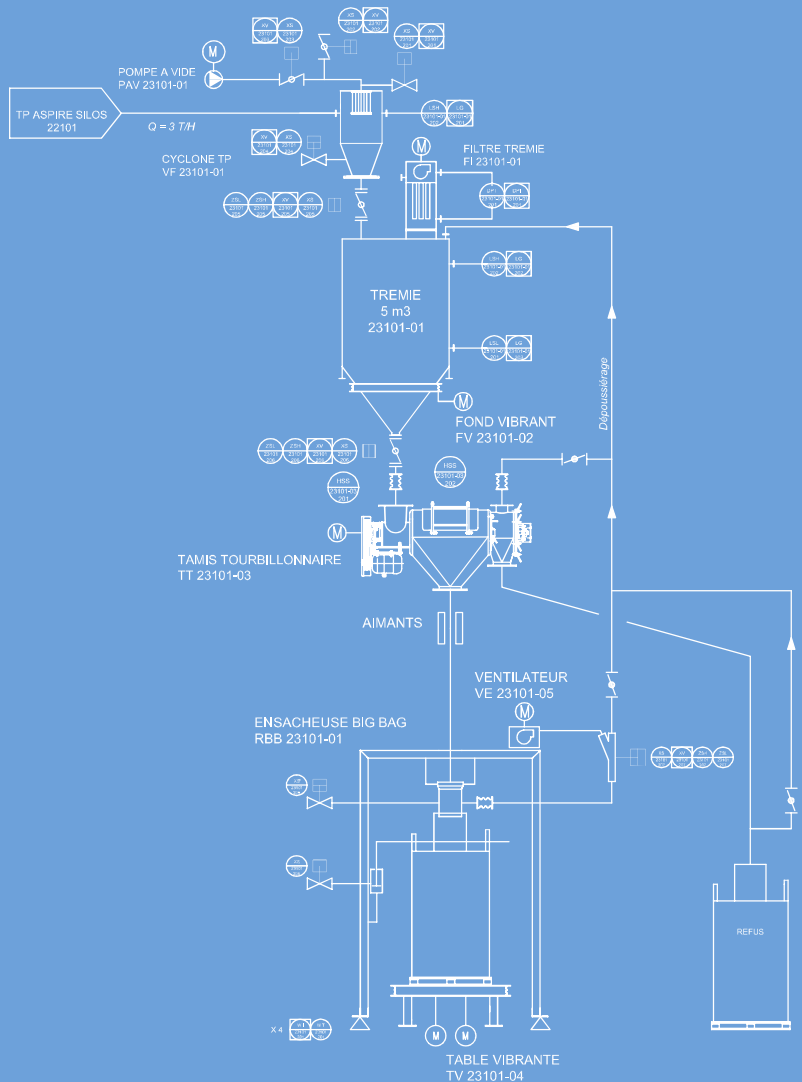
16 - Equipment

18 - Services

- Test plant
- Assembly
- Commissioning
- Customer services

22 - Atex and sectors

S U M M A R Y



# EXPERTISE & TECHNOLOGY



## WASTE WATER & SMOKE TREATMENT DIVISION

Our clients are often faced with the relative competitiveness and requirements relating to the product quality. PALAMATIC PROCESS integrates into its production line designs equipment to meet the constraints of traceability, precision dosing, mixing quality and high production rates.

From the reception of raw material to the packaging of «finished products», we guarantee an optimal process ensuring consistent quality of production and performance under control. Our innovative and high quality equipment is perfectly adapted to waste water and smoke treatment industries. Our engineers master perfectly the problems of these sectors and define the ideal equipment with you.

PALAMATIC PROCESS ensures the success of your project.



Refom conditioning

# RECOGNISED EXPERTISE

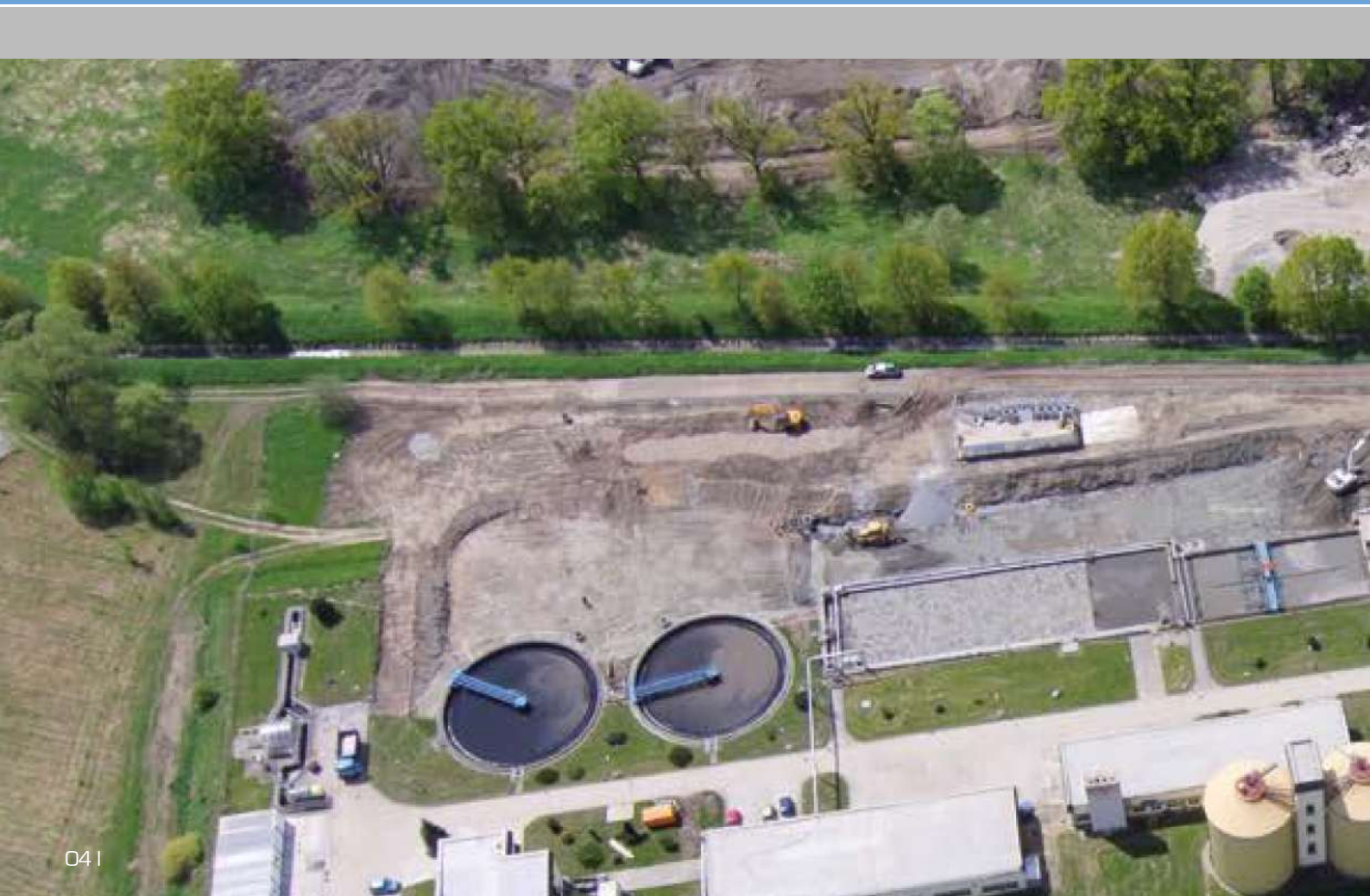
Optimal knowledge of the world of waste water and smoke treatment provides PALAMATIC PROCESS customers an assurance of quality for the success of their production line, and / or integration of new equipment.

We design your mixing tanks for the preparation of lime milk barbotine or activated carbon.

Our offer includes the incorporation of carbonate in the smoke ducts, the dispersion of activated carbon or the dissolution of urea.

Modes of agitating we offer are varied: homogenization, dissolution, suspension, dilution, flocculation ...

Together we shall define the technical solutions adapted to your production goals and manufacturing requirements related to waste water and smoke treatment technologies. Our innovative and technical experience in the waste water and smoke treatment allow us to offer solutions for turnkey installations or integration of new equipment into your production lines. Our many years of experience in various fields of activity allow us to offer you the benefits of inter-sector synergy.



# WASTE WATER & SMOKE TREATMENT DIVISION



- LIME MILK PREPARATION
- DISSOLUTION OF UREA
- ACTIVATED CARBON TREATMENT
- ALUMINUM SULPHATE TREATMENT
- SLUDGE MANAGEMENT
- TRANSFER
- STORAGE
- COOLING
- SMOKE TREATMENT



# FACTORIES & PRODUCTION LINES DESIGNER

Our engineering team and technicians are trained on different technologies and attentive to our customers in order to deliver adequate optimized installations with specifications that are imposed upon us.

Our conception is modelised in 3D with SolidWorks to give our customers the possibility of a better « in space » visualization of the design and integration proposals. Do not hesitate to contact us for your projects, be they new equipment integration in your production lines or full turnkey installations, we are at your disposal to draft a detailed technical proposal.

- PRODUCTION FEEDING
- TRANSFERRING
- SIFTING
- STORING
- DOSING
- MIXING
- PACKAGING
- AUTOMATING
- ASSEMBLY
- TRAINING



- POLYMER ■ CHARCOAL ■ ALUMINUM SULPHATE ■ LIME ■ QUICKLIME
- MICRO SAND ■ SLUDGE ■ CALCIUM CARBONATE ■ SODIUM CARBONATE ■ CLARCEL
- DIATOM ■ UREA ■ ZINC DUST ■ LIME MILK

### Containers or pneumatic conveyor ?

Based on your production, our engineers select batch and continuous techniques.



### Weighing, by-weight proportioning, additives, micro-ingredients or loads?

PALAMATIC PROCESS integrates the optimal solution by implementing volumetric, weight, or integrated dosing in-line on conveyors. Our many years of experience in the agri-food industry, chemical, pharmaceuticals, and animal nutrition allow us to offer you the benefits of this expertise.

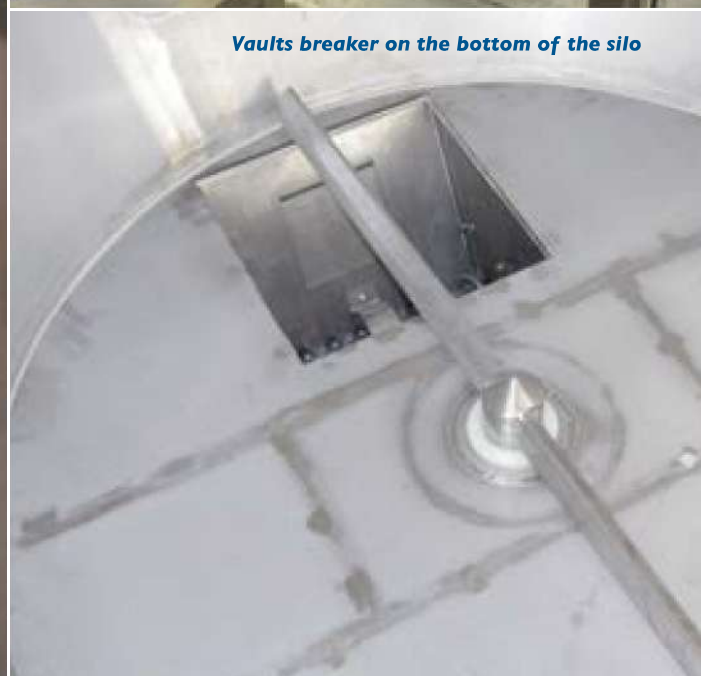


# 2 APPROACHES

TO ENSURE THE SUCCESS  
OF YOUR PROJECT

## PROGRESS OF PROJECTS

- 1 DESIGN-ENGINEERING
- 2 PLANNING
- 3 MANUFACTURING-PRODUCTION
- 4 AUTOMATION & ELECTRICITY
- 5 ASSEMBLY
- 6 COMMISSIONING







Conditioning and transfer of sewage sludge

# 1

## TURNKEY SYSTEMS

Your product is unique! PALAMATIC PROCESS integrates innovative optimal solutions with custom equipment defined by our highly skilled experienced engineers.

With attentiveness, reflection, and projection, our sales engineers provide you, through on-site visits, personalized studies and recommendations based on your current and forecast production. The wide range of feeding, conveying, mixing, lump breaking and milling equipment mastered by PALAMATIC PROCESS and the possibility of conducting tests in our test plant guarantees the success of your project and your production line's reliability.

### Project management

To meet your deadlines, we give importance to the establishment of a detailed schedule on MS Project for each project. This planning stage guarantees a better visibility of project progress to meet the contractual delivery dates.

Upon receipt of order, PALAMATIC PROCESS edits a program and plans for approval.

Validation of equipment, as those of our designs or integrated equipment, forms the subject of a special undertaking in order to comply with the specifications.

Any subcontracting is also subject to qualification and strict control. All equipment and systems are subject to provisional acceptance. The technical folder is elaborated throughout the project to make it complete and ready for commissioning.



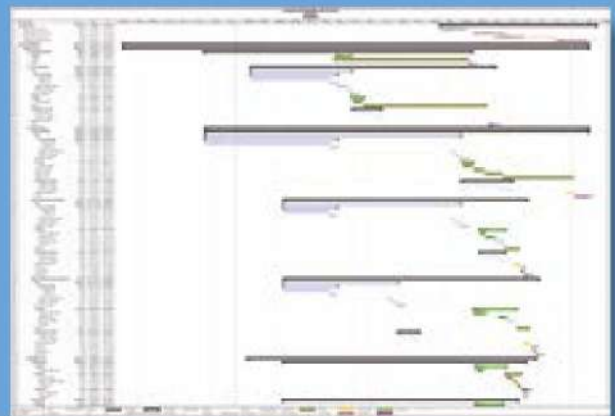
## 2

# « ENGINEERING / AUDIT »

To better fulfill your needs, PALAMATIC PROCESS proposes advancing step by step. This approach corresponds to delegating a specialist engineer or team of engineers to your site at any stage in your project: simplified preliminary draft (SPD), detailed preliminary draft (DPD), detailed technical specifications (DTS), tender package (TP), construction monitoring... With this engineering configuration, PALAMATIC PROCESS is positioned as a catalyser for your project's progress.

Given our strong experience and the specific competence of our design engineers, you are ensured to get the best results regarding flow management, production machine

occupancy rate, equipment layout configurations, building volumes, standards and regulations (ATEX) and precise budgeting of your project.



*MS Project planning*



*Grinding and homogenizing line*



*Skid for dissolution of urea*



*Polymer preparation line*

# EXAMPLES OF INSTALLATIONS



## ► PREPARATION OF BARBOTINE



**CLIENT:** water treatment plant

**LOCATION:** North Africa

**PRODUCT:** activated carbon

**OBJECTIVE:** preparation of activated carbon barbotine from 25 kg bags

### **PALAMATIC PROCESS EQUIPMENT:**

- an automatic sack opening system Minislit 3000 ensures a rate of 6 bags/min. (9t./ h.)
- the activated carbon is then transferred by pneumatic conveyor (transfer under high pressure) to storage silos
- the silos with a capacity of 150 m<sup>3</sup> are located outdoors and have integrated all control and safety equipment integrated (filters, valves, sensors, explosion vent)
- the fluidization in the bottom of the silo and dosing screws ensure the introduction of the product for barbotine dosing





## ► SOLUTION OF DeNOx MANUFACTURING

**CLIENT:** DeNOx solution supplier for thermal power plant in order to reduce emissions of nitrogen oxide.

**LOCATION:** Caribbean

**OBJECTIVE:** to design a skid for preparation of liquid urea to be delivered in tanktainer from bulk urea.

### **PALAMATIC PROCESS EQUIPMENT:**

- urea is delivered in bulk and is then repackaged into big bag and then introduced and metered in the dissolving tank
- feeding and dosing is ensured by a bucket elevator combined with a weighing hopper
- demineralized water is pumped, filtered and heated by a aerothermal group with heat exchanger
- the endothermic reaction is controlled and regulated by the heating group. The DeNOx solution passes through a filter to ensure the safety of the downstream process
- business transactions are carried out by calibrated and controlled flowmeters

**RESULTS:** daily deliveries of tanktainers allow the thermal power plant to inject liquid urea to reduce nitrogen oxide emissions.





Power cabinet



Pal'touch®

# AUTOMATION & ELECTRICITY PAL'TOUCH® technology

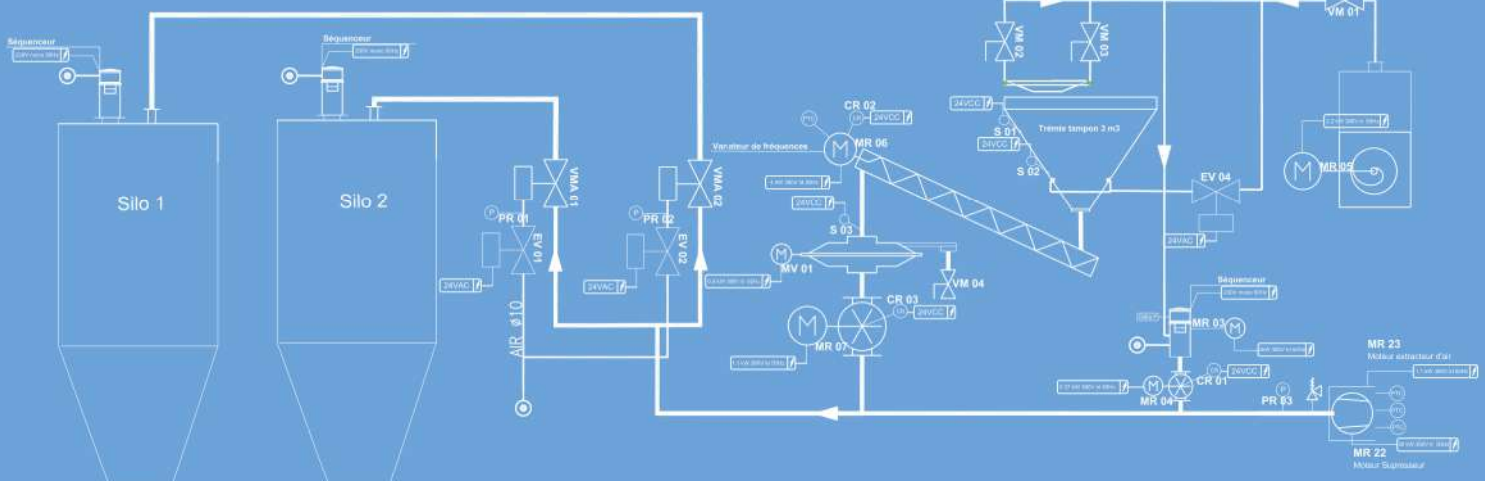


As a designer of complete production lines, PALAMATIC PROCESS associates ergonomically and visually programmed PLCs with its production units. Production monitoring is as important as the result. This is why PALAMATIC PROCESS's automation and computer engineers include fool-proofing in raw material inputs, lot traceability, operator identification and dosing reliability. The production line steering screens provide ergonomics and comfort with continuous dialogue during the project execution phase between your production team and our design office.

Schneider, Siemens, Rockwell, Omron, Philips, Intouch, Pc Vue, Vijeo Designer...

## FEATURES

- SUPERVISION
- MANAGEMENT OF MANUFACTURING ORDERS
- MONITORING OF DOSAGES
- FORMULATION OF INGREDIENTS
- MANUFACTURING HISTORY
- REMOTE CONTROL OF THE PLC





# WASTE WATER & SMOKE TREATMENT DIVISION



*Dosing – microdosing – traceability – history – supervision*

# EQUIPMENT



## UNLOADING

## FILLING

### Big bag discharging system

To facilitate the flow and containment ensuring ergonomics and operator safety

### Manual sack opening system

Bags opening, handling with manipulator, reduced size device

### Automatic sack opening system

Automatic opening with respect for fragile products and high cadence deconditioning

### Truck loading spout

Efficient loading of powdered and granular materials into tankers or open trucks



## MIXING

## PNEUMATIC CONVEYING

### Mixer

Mixing 100% solid materials or incorporating liquids up to high viscosity

### Cyclone

Vacuum transfer in dense phase for all types of powders without retention and with line purge

### Hopper

Vacuum transfer system with integrated weighing system for introduction into melters

### Cyclofilter

For receiving powder on pneumatic conveying line





## AUTOMATING

### PalTouch

Lot traceability, operator identification and dosing reliability... Production monitoring is as important as the result



## DOSING

### Trough and tubular screw conveyor

Mechanical conveying for pulverulent



### Product feeding with pneumatic conveying

Weight or volume feeding for powders and granulates



### Rotary valves

Gravity or blow through rotary valves for the dosing of powders and the feeding of pneumatic conveying



## GRINDING

### Blade grinder

Micronization of your powders, blades technology, pins and hammers



### Granulator

Crushing of materials that tend to form clumps and ensure the fluidity of the product



### Centrifugal sifter

Implementation of the sieve on a pneumatic conveying line



### Vibratory sifter

Sieving for the protection of the line, elimination of agglomerates and foreign bodies



## PRODUCTION FEEDING

### Big bag filling station

Manual or automatic bagging unit for bulk and granular powders



### Big bag packaging

Conditioning of all types of big bags in a contained manner with densification and commercial weighing



## STORING

### Silos / Hoppers

For storage of your powders and granules, steel, stainless steel or aluminum manufacturing and flexible silos



### Stainless steel / steel container

For storage of your powders and granules, standard or customised models from 500 to 2500 l.

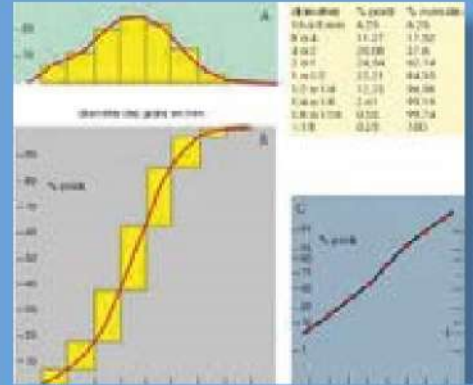


## ▶ TEST PLANT

Always with the aim to satisfy and provide you, the client with the best solutions for powders, Palamatic can perform tests thanks to its in house **test centre** and its **demonstration equipment**.

- Pneumatic dense phase suction conveying
- Dosing
- Big bag unloading
- Milling
- Sifting

Thus, we validate the parameters required for your own products. This allows you to judge the performance of the PALAMATIC PROCESS equipment and secure your investment.



Granulometric curve





*Palamatic workshop*

## ▶ ASSEMBLY

We perform or supervise every step of your project from assembly to final commissioning. We can offer you a complete quality service with respect for your deadlines. The installation of our equipment in your premises is performed by our technicians anywhere in the world. The assembly of your production line includes handling, mechanical assembly, supporting piping and electrical wiring.

## ▶ COMMISSIONING

The commissioning stage provided by PALAMATIC PROCESS ensures the respect of your specifications. It includes:

- Final adjustments of the whole system by qualified personnel
- Checking of electrical connections
- Conducting of production tests

### **Training :**

PALAMATIC PROCESS provides comprehensive training to ensure optimal use of your production line. All your production, line conducting and maintenance teams are trained throughout the start phase.

A comprehensive and customised technical start up documentation is supplied with every installation.



*Plant installation*





*Quick lime feeder*

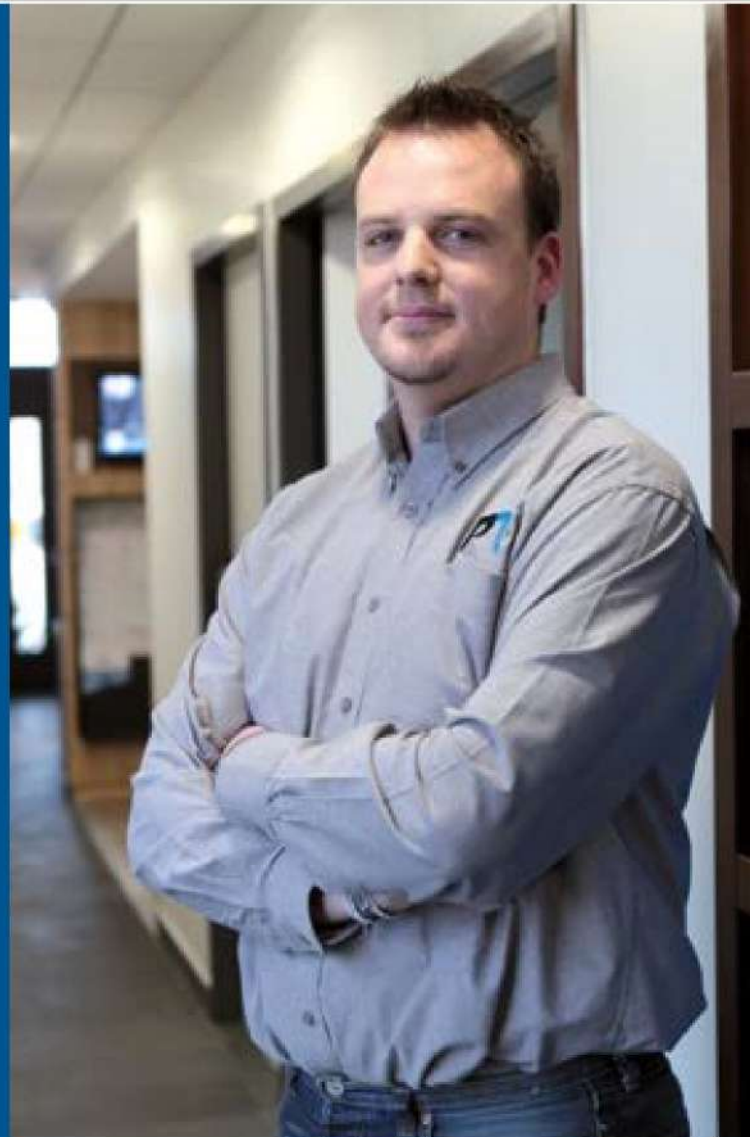
## ► SERVICE

### **Customer services and maintenance on site**

We guarantee after-sales service and quick delivery of spare parts and worn parts. Our service also proposes maintenance contracts adapted to your need.

PALAMATIC PROCESS after-sales service technicians move on site to provide the best solutions to your problems. Regular visits from one of our technicians guarantees operating efficiency and extends the life span of your installation.

Each of our technicians has received comprehensive technical training. Remote diagnostics are integrated into the automatons for increased reactivity. PALAMATIC PROCESS uses teleservice systems allowing remote diagnosis and support in a short time even if the clients are located far away.



# WASTE WATER & SMOKE TREATMENT DIVISION



*Active carbon barbotline and lime milk preparation*

# ATEX REGULATIONS

## AUDIT AND COMPLIANCE



In your production processes, you are very frequently faced with the explosive nature of several materials like powder, gas or liquid. Explosions have huge consequences. When the atmosphere is explosive, a small spark (e.g. that of an electric switch or from the mechanical heating of a part of the machine) is enough to cause an accident or a disaster.

For many years, authorities and industries have worked on developing safety rules governing work conditions in such dangerous environments : explosive atmospheres. The new regulations, called ATEX regulations, were published and are effective as of the 1st of July, 2003.

PALAMATIC PROCESS provides its expertise to classify your risk zones based on the nature, frequency or duration of the presence of an ATEX regulation.

Today, PALAMATIC PROCESS delivers to its customers ATEX installations certified by notified organisms (Inéris, LCIE ...). PALAMATIC PROCESS has developed as a standard some equipment conforming to ATEX 0-20 / 1-21 / 2-22. Our engineers perform the zoning and drafting of risk analysis on new equipment and new facilities. PALAMATIC PROCESS ensures safe operation and full compliance with these standards.



**Palamatic**  
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DESIGNATION : VIDE SACS  
NUMERO DE SERIE : D 120.404.C  
ANNEE DE FABRICATION : 2012  
En conformité avec les exigences de la directive 94/9/CE  
L'équipement a été conçu, fabriqué, essayé et vérifié que la machine d'usage pour laquelle il est destinée a été conçue et fabriquée en conformité avec la directive sur les machines 2006/42/CE

**CE Ex** ATEX II 2/3D T240°C  
ATEX II 2/3G IIA T4  
Tamb. -10°C / +40°C

# 5 SECTORS

*PALAMATIC PROCESS created five specific divisions to offer customers an efficient project team sensitised to constraints of these sectors.*

## FOOD & FEED

- BABY FOOD ■ SPICES AND FLAVOURINGS ■ MILK DAIRIES ■ ANIMAL NUTRITION FOR LIVESTOCK
- PETFOOD ■ MILLS ■ BAKERIES ■ SUGAR INDUSTRY ■ CONFECTIONERY ■ BEVERAGE AND JUICE MANUFACTURING ■ DIETARY SUPPLEMENTS
- PRE-PREPARED MEALS



## CHEMICAL INDUSTRY

- PETROCHEMICALS ■ PLASTICS ■ PAINT
- PIGMENTS AND DYES ■ PESTICIDES AND FERTILIZERS ■ PAPER PRODUCTION
- TEXTILE MANUFACTURING



## FINE CHEMICAL INDUSTRY

- PHARMACEUTICALS ■ COSMETIC COMPOUNDS ■ BIOTECHNOLOGY
- PRODUCTS ASEPTIC TREATMENT
- DETERGENTS AND WASHING PRODUCTS ■ AROMAS



## MINERALS & BUILDING INDUSTRY

- CEMENT PLANTS ■ QUARRIES
- INDUSTRIAL PLASTER (BOARDS AND POWDERS) ■ GLASS MANUFACTURING
- MINERALS AND METALS



## WASTE WATER & SMOKE TREATMENT

- PREPARATION OF WHITWASH
- DISSOLUTION OF UREA ■ TREATMENT OF ACTIVATED CARBON ■ ALUMINUM SULFATE TREATMENT
- SLUDGE PROCESSING / TRANSFER / STORAGE / COOLING





[www.palamaticprocess.com](http://www.palamaticprocess.com)



*Bulk material &  
powder handling solutions*



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SAS au capital de 331 822 euros • R.C.S. Rennes B 384 894 093 • APE 4669B • N° T.V.A. : FR 14 384 894 093

The know-how of our teams ⊕ the energy of a group

GRUPE  
**FIDEIP**