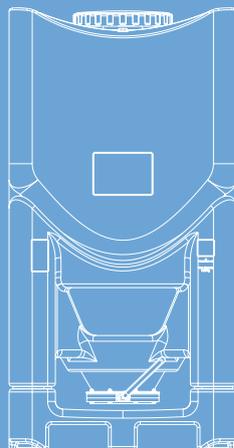


**WASTE WATER
& SMOKE
TREATMENT
DIVISION**



*The smartest designer
for powder handling solutions*





EXPERTISE & TECHNOLOGY

Our clients are often faced with the relative competitiveness and requirements relating to the product quality. PALAMATIC 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 ensures the success of your project.



Storage tanks

4 - Waste Water & Smoke Treatment Division

6 Factory & production line designer

8 - Your project
 • Turnkey solutions
 • Engineering / Audit
 • Exam ples of realisations

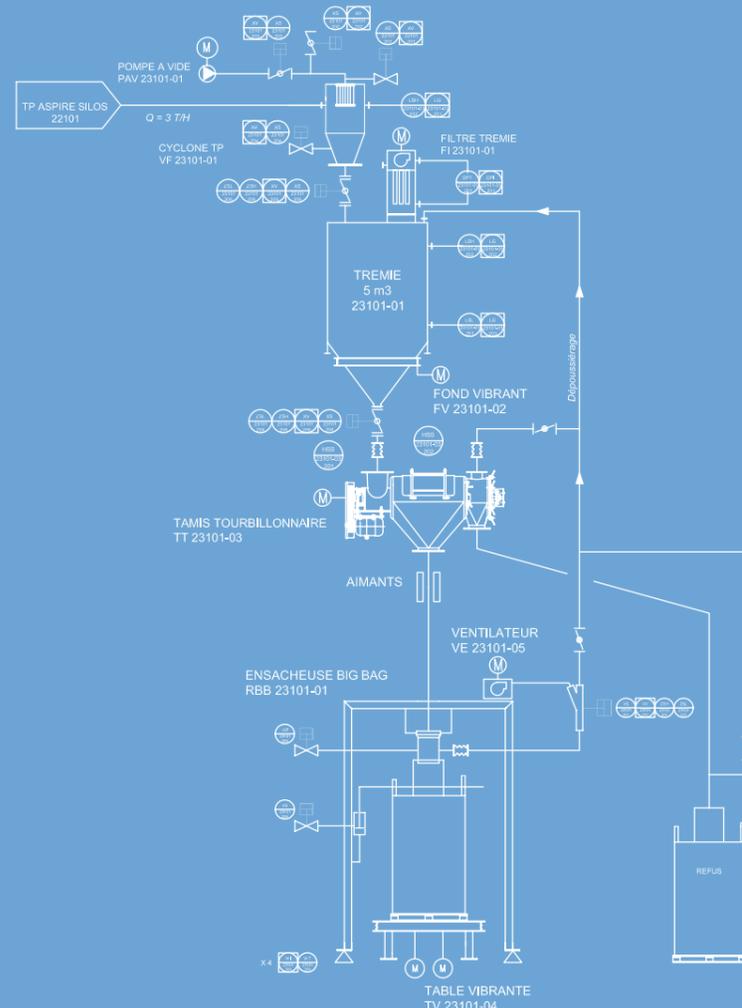
14 -Automation & electricity

16 - Equipment

18 - Services
 • Test plant
 • Assembly
 • Commissioning
 • Customer services

22 - Atex and sectors

SUMMARY



Refom conditioning

RECOGNISED EXPERTISE

Optimal knowledge of the world of waste water and smoke treatment provides PALAMATIC 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.



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

**WASTE WATER
& SMOKE
TREATMENT
DIVISION**



FACTORIES & PRODUCTION LINES DESIGNER

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

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.

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 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.



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



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



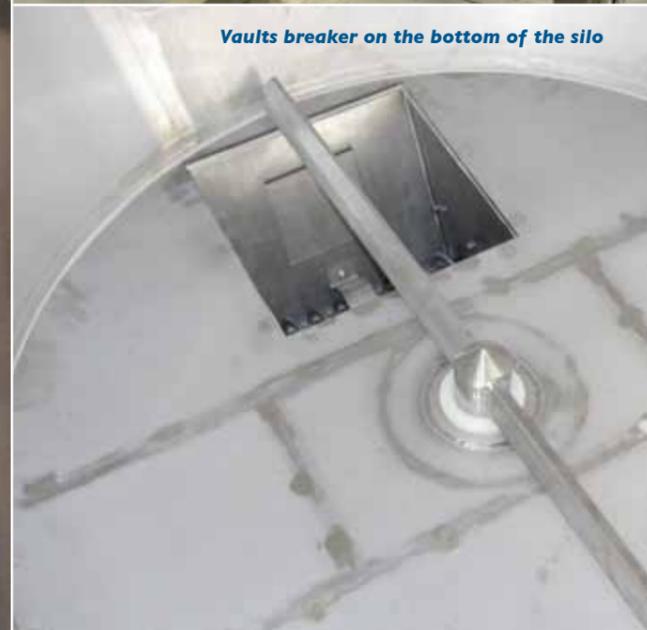
Conditioning and transfer of sewage sludge



Pneumatic conveying and mixing



Vaults breaker on the bottom of the silo



1

TURNKEY SYSTEMS

Your product is unique! Palamatic 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 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 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.



Grinding and homogenizing line

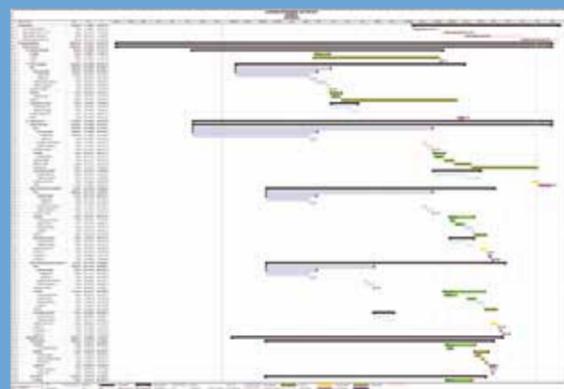
2

« ENGINEERING / AUDIT »

To better fulfill your needs, Palamatic 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 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



Skid for dissolution of urea



Polymer preparation line

REALISATIONS EXAMPLES



► PREPARATION OF BARBOTINE



CLIENT: water treatment plant
LOCATION: North Africa
PRODUCT: activated carbon
OBJECTIVE: preparation of activated carbon barbotine from 25 kg bags

PALAMATIC 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 m³ 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 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 atherothermal 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

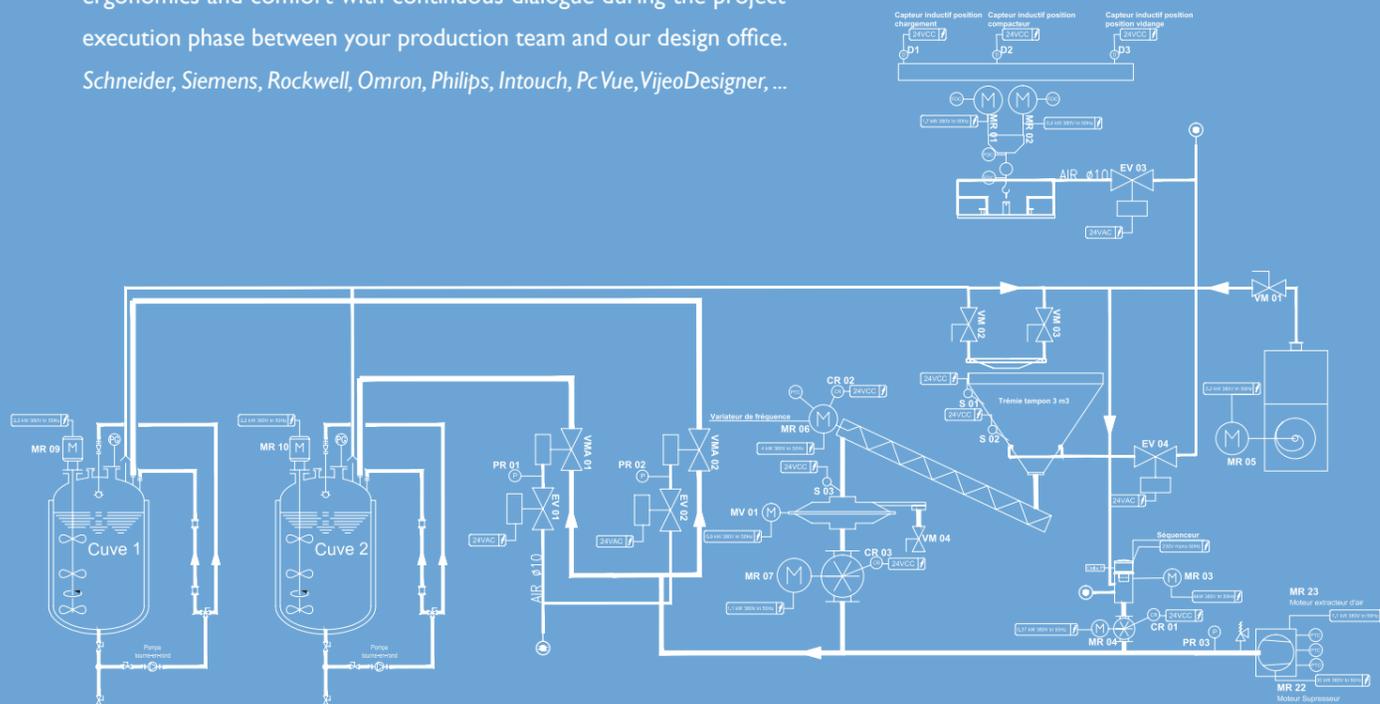
Monitoring room



AUTOMATION & ELECTRICITY

PAL'TOUCH® Technology

As a designer of complete production lines, Palamatic associates ergonomically and visually programmed PLCs with its production units. Production monitoring is as important as the result. This is why Palamatic'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, PcVue, VijeoDesigner, ...*



Dosing – microdosing – traceability – history – supervision

EQUIPMENT



AUTOMATING	DOSING		
Pal'Touch	Trough and tubular screw conveyor	Product feeding with pneumatic conveying	Rotary valves
Lot traceability, operator identification and dosing reliability... Production monitoring is as important as the result	Mechanical conveying for pulverulent	Weight or volume feeding for powders and granulates	Gravity or blow through rotary valves for the dosing of powders and the feeding of pneumatic conveying

UNLOADING		FILLING	
Big bag discharging system	Manual sack opening system	Automatic sack opening system	Truck loading spout
To facilitate the flow and containment ensuring ergonomics and operator safety	Bags opening, handling with manipulator, reduced size device	Automatic opening with respect for fragile products and high cadence deconditioning	Efficient loading of powdered and granular materials into tankers or open trucks

GRINDING		SIFTING	
Blade grinder	Granulator	Centrifugal sifter	Vibratory sifter
Micronization of your powders, blades technology, pins and hammers	Crushing of materials that tend to form clumps and ensure the fluidity of the product	Implementation of the sieve on a pneumatic conveying line	Sieving for the protection of the line, elimination of agglomerates and foreign bodies

MIXING	PNEUMATIC CONVEYING		
Mixer	Cyclone	Hopper	Cyclofilter
Mixing 100% solid materials or incorporating liquids up to high viscosity	Vacuum transfer in dense phase for all types of powders without retention and with line purge	Vacuum transfer system with integrated weighing system for introduction into melters	For receiving powder on pneumatic conveying line

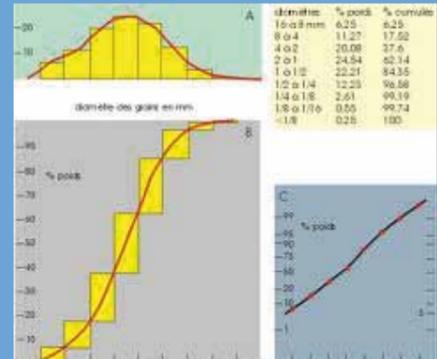
PRODUCTION FEEDING		STORING	
Big bag filling station	Big bag packaging	Silos / Hoppers	Stainless steel / steel container
Manual or automatic bagging unit for bulk and granular powders	Conditioning of all types of big bags in a contained manner with densification and commercial weighing	For storage of your powders and granules, steel, stainless steel or aluminum manufacturing and flexible silos	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 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 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 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 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 uses teleservice systems allowing remote diagnosis and support in a short time even if the clients are located far away.



Active carbon barbotine 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 provides its expertise to classify your risk zones based on the nature, frequency or duration of the presence of an ATEX regulation. Today, PALAMATIC delivers to its customers ATEX installations certified by notified organisms (Inéris, LCIE ...). PALAMATIC 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 ensures safe operation and full compliance with these standards.

5 SECTORS

Palamatic 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 WHITEWASH ■ DISSOLUTION OF UREA ■ TREATMENT OF ACTIVATED CARBON ■ ALUMINUM SULFATE TREATMENT ■ SLUDGE PROCESSING / TRANSFER / STORAGE / COOLING





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for powder handling solutions*



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