PROCESS FILTRATION & LIQUID EQUIPMENT

www.prayon-profile.com
With more than a hundred years’ industrial experience, Prayon is a world leader in the phosphate sector. The Group manufactures an extensive range of phosphate and fluorine products that are used in food and industrial applications, fertilisers and other products such as pharmaceuticals.

PROFILE is the Equipment Division of the Prayon Group.

PROFILE designs and sells process equipment, most of it developed for phosphoric-acid production units.

PROFILE focuses on the following activities:

**FILTRATION**: Industrial companies consider Prayon’s tilting pan filter a highly reliable and efficient tool to produce phosphoric acid.

PROFILE has also developed a new belt filter.

**AGITATION**: PROFILE has designed special agitators to keep solids in suspension and ensure optimal crystallisation with low energy consumption.

**GAS SCRUBBING** and droplet recovery.
When designing its equipment, PROFILE takes special care to ensure it is reliable and easy to maintain.

To guarantee high quality, all parts of our equipment are fully designed, drawn and dimensioned mechanically by our design and engineering department.

For this purpose, new CAD 3D software is used to:

+ Make drawings;
+ Calculate stresses;
+ Simulate relative movements between the various parts (e.g. cell tilting).

PROFILE ensures the quality of its equipment by conducting systematic quantitative and qualitative tests of its parts before delivery.
THE PRAYON FILTER

Over 300 Prayon tilting pan filters have been sold since the 1950s, and approximately 250 installed in phosphoric-acid production units. The rest are used in other fields such as:

+ Copper, cobalt, zinc and uranium hydrometallurgy;
+ P₂O₅-impregnated active carbon washing;
+ Phosphate washing;
+ Acid filtration in general.

MAIN DEVELOPMENTS

+ A special compact vacuum box for separating gases and the various filtrates;
+ A fast-drain filtration cell (pan) which can increase filter capacity and filtration yield;
+ An automatic system to keep the pans horizontal;
+ A new tilting-track design for higher rotation speed and filtration capacity;
+ Support rollers designed for heavy loads;
+ A robust rotating frame with a replaceable wear plate;
+ A new waterproof cloth-fixing system meaning that the cloth can be replaced in a very short time;
+ A high filtering surface to base area ratio.

MAIN BENEFITS

+ High level of reliability due to their robust design; indeed, a number of filters sold in the 1960s are still in operation;
+ On-stream factor of over 95%;
+ Excellent capacity / extraction yield ratio, due to batch filtration and a high authorised maximum vacuum level;
+ Extremely energy-efficient;
+ Negligible recycling of the solids recovered during cloth washing, meaning that the cake discharged from Prayon filters contains very little free water;
+ Able to benefit from Prayon’s proven track record with very large filters (e.g. 30-240 filter with a surface area of 275 m²).
Following a number of experiments with partners, PROFILE has developed its own belt filter.

Specific features of the PROFILE belt filter:

+ A polygonal vacuum box for pre-separating gases and filtrates;
+ A pneumatic vacuum-box lifting system offering easy access for maintenance;
+ A single centred wear belt with transversal grooves allowing transversal displacements of the main filtering belt and enhancing vacuum tightness;
+ A main carrier belt with sloping grooves, supported by water-lubricated rollers;
+ An automatic system for maintaining the tension and position of the filter cloth.
AGITATION

Prayon has developed and built hundreds of special agitators for its own use and its processes.

This experience means that PROFILE can now offer reliable agitators requiring minimal energy consumption for the following applications:

- Setting solids and holding them in suspension in a pulp (up to 50% in certain cases);
- Acid attack on ores;
- Suspension, formation and enlargement of crystals in a pulp.

DEVELOPMENTS

- In cooperation with Prayon Technologies, each agitator is optimised using 3D simulation software;
- To increase products’ service life and cut maintenance costs, electron beam vacuum welding is used for certain critical welds;
- PHTZ blades are used to optimise through-flow and the shearing effect.
GAS SCRUBBING

01 | This compact scrubber, which is divided into compartments, cleans gas by centrally spraying water into each compartment.

02 | This separator is used to collect droplets from gas to reduce the contamination of the water used to condense the vapour in the gas.
ON-SITE SUPERVISION

If requested by the customer, PROFILE will send out engineers and technicians to perform the following tasks:

+ Supervision of equipment installation at new production sites;
+ Supervision of work during equipment revamps;
+ Technical audits of existing equipment.

A TEAM DEDICATED TO SERVING YOU

E. Desmet
General Manager

A. Martin
Project Manager

P. H. Legros
Purchase Engineer

V. Van Erck
Project Engineer

S. Michel
Executive Assistant

V. Decoeur
Quality Control

D. Lentini
Designer Draughtsman

R. Vigneron
Designer Draughtsman

Ph. Robert
Technician

www.prayon-profile.com