EXPERIENCE

Tradition And Effort
The origin and activity of Tintas Martinez Ayala, S.A. dates from 1932, when Ignacio Navarro Martínez started to manufacture inks in Totana and later, in 1972, it was carried on by Pedro Martínez Ayala, who is currently the president of the company.

During its first years, the company found itself needing to manufacture its own pigments, colouring agents and thickening agents using methods requiring dedication and constancy. The packaging was made in card and cased in wood, assembled in the installations.

With the evolution of offset printing, new pigments and synthetic resins appeared, enabling the preparation of formulas suited to the operational requirements of this new printing system.
Since then, Martinez Ayala S.A. has continued to respond to the continued progress of the printing industry, making the most of its lengthy experience and know-how of the sector.

These efforts have not been in vain. Our clients, the printers, continue to place their trust in our products aware of the fact that in Martinez Ayala S.A., they shall always have a technical and human team at their service.

TECHNOLOGY

Renewal And Innovation
The continuous expansion of the printing industry has led to the need for using inks that are more and more sophisticated and suited to new printing systems.

Aware of this progress, Martinez Ayala S.A. has grown and adapted to the needs of its clients in the firm belief in continuous renewal and innovation.

We have incorporated modern equipment for the analysis and control of production and development for the rigorous selection of raw materials, the design of the
most appropriate formulas and to establish the most appropriate processes for the preparation of inks that respond to current market demands and at the same time maintain a production that is constant, dynamic, flexible and capable of dealing with our clients’ demands of quality, quantity and service.

QUALITY

Responsibility And Commitment
For many years, Martinez Ayala S.A. has developed the manufacture and commercialisation of inks basing ourselves on the requirements shown to us by our clients.
Aware of current market demands and faithful to our commitment to new management tendencies in the area of quality, we not only attend the requests of our clients, but we also guarantee the agreed quality at both product and service levels.

Our commitment to quality has been evident in our UNE EN ISO 9002 standard quality management system, recently updated with the UNE EN ISO 9001-2000 standard.

THE ENVIRONMENT

Awareness And Respect
The growing awareness and respect for the environment has led us to direct our efforts towards two activities:

- On the one hand, we have introduced clean procedures with closed systems to control our production and minimise, recycle and treat our waste correctly and in accord with current legislation.

- On the other, our formulas use rigorously selected materials that make it possible for us to manufacture inks that respect the environment, using natural resins, vegetable oils and organic pigments.

In this way, we obtain inks that offer maximum security in jobs and respond to the demands of our clients, who are becoming more and more aware and respectful of the environment.

SERVICE

Attention And Professionalism
Our constancy, flexibility and dynamism make it possible for us to reach a wide
variety of both large consumer and small and medium-size enterprise clients. Martínez Ayala S.A. has a special manufacturing service of Pantone and special colours for delivery within 24 hours.

Besides customer service and information, the analysis, response to queries and technical advisory services are a continuous commitment with which we achieve a better service for the client and greater differentiation and competitiveness in the market.

Our communications by telephone, fax and Internet, together with the professionalism of our commercial and logistics department, with an extensive distribution network, means that the supply of our products is characterised by its excellent quality of service and fast delivery.

FUTURE

Evolution And Continuity
It is obvious that the future and evolution of the ink market depends largely on two important events:

- One is the joining together of large companies who seek to dominate more and more this market by massive production and taking in large consumers and clients in the printing industry.

- The other, the constant evolution of the printing industry in the field of edition and commercial printing such as packaging and containers, the two pillars of our market.

For this reason, Martínez Ayala S.A. at , we aim to continue along two directions:
• On the one hand, in specialisation and differentiation, offering a better product and service to the printing industry professionals with a view to obtain the best results in their jobs.

• On the other hand, in the development of new products that respond to the demands of new printing systems. In this way, we shall be able to maintain the support and
fidelity of our clients in order to be able to continue facing up to and meeting the new challenges awaiting us in the future.

QUALITY ASPECTS OF INKS

Intensity Or Colouring Strength
By the intensity of an ink, we understand its colour strength, which is the result of the concentration, nature and development of its pigment.

Although they are closely related, it should not be confused with the colour intensity of the printed film, since this is influenced by other aspects: transfer, speed, stock type, etc.

It is measured comparatively with a known concentration standard. For this, each of the inks is degraded with a white ink and the difference in the intensities of each is evaluated.

Gloss
The gloss of an ink is measured by the amount of light reflected from the printed ink and it is a function related to various factors in print production:
- Ink type
- Quantity printed
- Paper used
- Amount of water used

The gloss is measured with a glossmeter with a measurement inclination of 60°. To evaluate the gloss level of an ink in comparison with another, the samples must be taken using the same paper and printing conditions.

Rub Resistance
The rub resistance of an ink corresponds to the greater or lesser tendency of the printed work to suffer from deterioration by rubbing with other unprinted stock of the same material and, besides the ink, it also depends on other factors, such as:
- The stock used
- The printing conditions

It is measured with an apparatus called “Rub Tester”, which has an arm with a weight (normally from 1 to 2 kg). The printed sample is placed below the weight and on another sample of the same stock, which is immovably fixed in place. The highest resistance corresponds to the highest number of cycles one sheet of stock can be passed over the other before any deterioration of the printed work occurs.
Transfer
This is the capacity of the ink for transferring from the plate to the blanket and from there to the stock. To obtain correct printing, the highest possible transfer of ink must take place and for this, the following factors must be taken into account:
• The hardness of the rollers and the rubber blanket, together with high speeds, reduce transfer levels.
• The increase in the smoothness and compactibility of the stock improve ink transfer.
• Appropriate ink viscosity, yield value and tack are determining factors in transfer.

Inks Drying
We can say that the drying of an offset ink is its capacity for passing from a liquid to a solid state and it is usually carried out in two phases:

• Drying by absorption (setting), where the most fluid components of the ink separate and penetrate into the paper.
• Drying by oxidation (polymerisation), where the rest of the components are oxidized and polymerised, solidifying on the paper.

The external factors that can affect the drying of the ink include the following:
• Temperature
• Stock (coated type, acidity, porosity, humidity)
• Humidity
• pH of the fountain solution

Viscosity
The viscosity of an ink is the resistance it shows to flowing when a certain force is applied to it and it is the main factor characterising its rheological behaviour. Furthermore, there are other physical concepts related to viscosity, such as yield value and thixotropy.

Yield value is the minimum force required for an ink to begin to flow and corresponds to friction between its largest particles (usually, the pigments).

Thixotropy is an apparent viscosity which gives the ink its body and a paste-like appearance, where when shaken, it tends to flow easily, returning to its initial status when left to stand.
An appropriate combination of these three physical phenomena will improve the dot sharpness, it will favour the distribution of the ink on the rollers and provide an appropriate ink-water balance.
Tack

The tack of an ink is the resistance of a film of printed ink between the two surfaces in which it stands. In other words, the tack of an ink expresses its level of stickiness.

With offset printing, this property of the ink is very important and has the following influence:
- The distribution of the ink on the press rollers.
- Its tendency to emulsify with the water.
- The dot gain in the section.

In particular, the transfer of the ink to the stock, since the effort the stock must make to separate the ink from the blanket can cause difficulties.

Resistance To Light And Chemical Agents

The resistance to light of an ink is its capacity to maintain the shade and intensity of its colour under natural or artificial light and depends almost exclusively on the nature of the pigment.

The resistance to light of an ink is measured on a scale of 1 (very low) to 8 (very high).

The resistance of an ink to chemical agents is a fundamental property of the pigment and results from its capacity for maintaining the shade and intensity of its colour under the direct action of chemical agents such as acids, alkalis and solvents. In this case, the scale runs from 1 (very low) to 5 (very high).

Colour

In Graphic Arts, colour may be defined as the type of light reflected on the printed work and it is an optical property of the ink that is intrinsically related to the nature of the pigment with which it is made.

In order to measure the light reflection values in different inks, a Spectrophotometer is used to read the printed samples converted into values of the CIE L*a*b* system, which gives a numeric expression of the colour differences. By using this method, it is possible to determine the number of shades and tones that are visibly distinguishable on the printed work.

Whatever the case, the exact shade can be changed
in accord with the spectral composition of the light and the characteristics of the stock.

**Color Obtaining Techniques**
To make an ink of a certain colour or according to sample means giving it the qualities required for the specific work to be printed. Once the viscosity, drying and setting properties, etc. have been adjusted, the exact shade requires a high level of care and precision. For this, current and appropriate technology must be used for the type of ink we wish to achieve.

First of all, a spectrophotometer measures the exact colour to be obtained, which, connected to a formulation computer programme enables us to determine the proportions that intervene in each colour.

With precision scales, we weigh the exact amounts of these proportions and once they have been well mixed and homogenised, we make a printed sample of the product. We then individually measure the colour, checking that the values obtained agree with the defined standard.

**OPAQUENESS AND TRANSPARENCY**
The opaqueness of an ink is its covering power and determines the property of the printed film for hiding what it has underneath, whether it be the stock or another ink. It depends basically on the pigment used and consequently on its capacity for absorbing the light and deviating it in an endless number of directions.

The transparency of an ink is based on its capacity for allowing the passing through of the colour the ink below reflects and constitutes a further determining element for establishing the best sequence of colours in the print of the inks of a specific range in order to obtain the best performance of each of the colours and obtain the best results in:
- Contrast
- Gloss
- Trapping
- Intensity

**ADDITIVES**
The formulation of an offset ink is always aimed at giving it the qualities required for it to have immediate setting, fast drying, colour intensity, rub-resistance, etc. in such a way that the image is transferred exactly in a controlled way and with maximum quality onto the stock.

Often, the printer, either to attend the urgencies and demands of his clients or as a result of the different factors that may occur during printing: temperature, humidity, stock type, water, etc., needs to highlight or vary certain properties of the inks. For this reason, certain additives which, although their excessive use is not advised, in certain circumstances help to obtain better results in print jobs.