



The main liming and tanning department at TehChang Leather Products Co., Taiwan

Tannery of the Year: TehChang Leather Products Ltd, Taoyuan, Taiwan

The TehChang tannery in northern Taiwan believes it has the knowledge and the ability to provide a bridge between leather production in Asia and leather consumption in North America and Europe. It is also positioning itself to be an important supplier to consumer brands that want to focus on the domestic Chinese market.

TehChang is a family business, run by a family that has been involved in producing leather in Taiwan for 50 years and counting. It's in the hands of the third generation, with four cousins leading the business now, and the fourth generation, in the form of Jonathan Pai, already on board, in this case in the accounts department.

The grandfather of the current management team got things going in the town of Changhua in central Taiwan. In 1979, four of his seven sons (Ching-Hui, De-Wang, Xi-Chian and Wan-Lai Pai) formed TehChang and moved operations north to Taoyuan, close to Taipei International Airport, taking their time before starting production on May 1, 1982.

Focusing entirely on side leather, with no splits, TehChang, produces 20 million square-feet a year, almost all of it going into

footwear; its three top customers are Timberland, Wolverine World Wide and Clarks. The company is still 100% privately owned, with 17% of the equity now in the hands of the workforce.

This tannery was, in 1993, one of the first in Asia to take up full membership of UK-based leather research and training organisations BLC Leather Technology Centre and SATRA. It won accreditation to ISO 9001 in 2002 and to ISO 14001 five years later. Two audits from the Leather Working Group, in 2008 and 2010, have given it a silver rating.

TehChang has 1,400 hides coming into its beamhouse every day, from which the company makes 70,000 square-feet of chrome-tanned leather for shoe uppers. In the current climate, this volume of hides has become an expensive resource. "High hide prices are here to stay, in my opinion," says one of the cousins, Ming Pai, who



Tannery of the Year Asia 2011: Finalist

acts as general manager. "We've been paying \$90, cost and freight, for raw hides and around \$105 for wet blue. These prices are here to stay, according to our raw materials manager. And, meanwhile, hide quality is going down. It seems to us that over the last three years, farmers have been taking less care of their cattle."

He says his customers in the footwear industry understand that the price of leather has to go up, and that TehChang has done everything possible to manage the situation, including experimenting with yak and camel hides. "The yak is a wild, wild animal," Mr Pai says. "It's hard to control the quality, but some customers like it. It will never replace bovine, but we can secure enough raw material to make between 50,000 and 100,000 square-feet per month and it's good to have an alternative."

For another of the cousins, Richard Pai, the senior member of the TehChang management team (he joined in 1981) and company president, the experience of learning the basics of the business in the UK at the college that is now part of the University of Northampton has stood his company in good stead. "We left enough space to manage environmental issues," he says. "Thirty years ago, there were 30 tanneries in this area; now TehChang is the only one left."

Delivery performance

The Pai family pays great credit for its survival and ongoing success to a gentleman called Ralph Amabile, an industry veteran who has worked in the leather business for 61 years. He started his leather career with Colonial Tanning in New England, and spent a short time with S.B Foot before spending 27 years with Prime Tanning, working his way up to vice-president of sales. Since retiring from Prime in 1998, Mr Amabile has represented TehChang, acting as the company's international director.

The admiration is clearly mutual. He says: "If the Pai family says it will do something, it does it. That's why I keep coming back [to Taiwan]. There is no way you can run a business on a global basis unless you are on top of it day and night. This family lives and breathes the leather business. This isn't a rocket-science business. It's about doing the best you can and living up to that. A lot of companies don't follow up and do what they promise. The best do what they promise, don't promise what they can't deliver, and

don't do smoke and mirrors."

Mr Amabile says he could hand over a long list of companies from North America that are "comfortable with this family". Delivery performance has been "as good as anybody's in the leather business", he says, adding: "I know companies that haven't been able to achieve this level of delivery performance after 25 years of trying. You will not find anybody more co-operative and understanding, of North American customers in particular. The dedication of the Pai family, and their exposure to western thinking and education have allowed them to make this transition easily."

Trends analysis

Another long-serving Prime Tanning executive, Dennis Thams (also a former chief executive of Shanghai Richina Leather), now uses his expertise to interpret colour and fashion trends for TehChang, establishing ranges of "20-odd colours per season" but described "in language people can understand". He follows reports from trend forecast service providers, but also makes a point of looking closely for himself at what is in Italian shop windows when travelling there to attend the Lineapelle exhibition in Bologna each April and October. His view is that catwalks are interesting, but that it takes a minimum of two seasons for ideas to evolve from the runway into real commercial trends.

"To have the leathers early, we have to start the base development of our products (retanning, embossing, patterns and so on) at least six months in advance of when the

customer is going to see them," Mr Thams explains. "We have to get the building blocks in place. For example, we have to have leathers for fall 2012 ready for April 2011, and we are already thinking about spring 2013. Some examples of the ideas we have had to work on include the trend towards firmer leathers, and of oily feels becoming drier. We have to combine all of this into a product mix that will interest our customers and suit their needs. That's important because Italian tanners, for example, have consistently presented lots of great fashion leathers, but our customers need things like colour-fastness and durability too. There are systems around that make beautiful leather, but maybe not leather you can sell."

There are other considerations. He believes forward-thinking tanneries have an important role to play in helping customers such as big footwear brands present themselves as companies that are causing less pollution, using less water and taking environmental considerations into account at every turn. "It means we are constantly looking for new chemicals that can offer lower COD (chemical oxygen demand, which measures pollution in water), for example," Mr Thams continues.

He makes the point that leather, owing to the industry's size, will always struggle to command large amounts of research and development budget. Even research organisations across the leather sector are becoming smaller. This means developments from suppliers, of chemicals and machinery, have mostly been evolutionary rather than revolutionary in his view. Some machinery



The main entrance to the tannery is enhanced by Bonsai trees



From a technical point of view

(1) Overview of operations

TheChang tannery commenced production in 1982. It processes 8,400 salted bovine hides per week to the finished state for footwear manufacture. About 90% of these hides originate in the US, although there are small purchases in the wet blue condition including yak and camel leathers. All of the leathers are chrome tanned on site, although the tannery can also produce vegetable tanned leather; 260 people are employed throughout the tannery including 93 women. Leather is also manufactured at two sister plants in China at Dongguan and Zhuhai.

The range of footwear leathers can be divided into three main categories: sport and leisure, outdoor and hiking, and ladies. The leathers range from 1.2-1.4 mm to 2.0-2.2 mm thickness as aniline, oiled/waxy, nubuck, milled and waterproof leathers. Customers include Timberland, Wolverine, Clarks, Meldisco, Nike, Rocky Brands and StrideRite.

(2) Manufacture and processing

All shipments of hides are checked on arrival for putrefaction that includes a bacterial count in the laboratory. Once approved, each hide is weighted for grading into four weight ranges—under 26 Kg, 27-29Kg, 29-33 Kg, +33 Kg. The processes used differ slightly accordingly to these weight categories.

There are four drums for soaking, four for liming, and eight for the tanning cycle. These are 4.2m in diameter and 4.5 m in length, and the input weight is 10 tons. All of the hides are loaded into the selected drum using an overhead conveyor feed system. All of the drums are fitted with recirculation, and floats can be separated on discharge into different wastewater streams.

Four quality grades are established at wet blue sorting, and this selection takes place before samming as the defects can be seen more clearly. After whole hide splitting, the flesh splits are delivered onto a stainless steel table where they are trimmed as whole hide splits. The grain splits are sided on a beam at this stage.

There is a new plant set outside the main factory for dyeing and retanning and finishing for trials and small orders. This is in two sections and 20 people are engaged full time in these experimental and development areas. Very detailed profiles are created for all of the leathers produced from this area, but this also applies to main production where very comprehensive worksheets are used with each pack. These work in conjunction with a long established barcode system at key stages of manufacture.

There are two sets of dye drums in double banks of eight and ten drums in total. These are serviced from overhead mezzanines set at the rear of the drum rows, and Aquamix and Prodo mix systems are used for water feed and liquid chemical additions. All solid chemicals are weighed manually and placed by each drum ready for addition.

After dyeing, the sides are prepared for vacuum drying using a Bause samm/setting machine. About 50% of the production is dried using two five-plate, low temp Cartigliano vacuum driers, followed by airing off by suspension drying from a pole conveyor system. This uses natural air drying, but is supported by forced drying if necessary. The rest of the production is wet toggled using horizontal loading frames and conventional drying cabinets. All of the leather is checked for moisture content after drying.



Salted hides are hooked onto an overhead feed conveyor line that delivers to the designated soaking drum for automatic loading.



After sorting, the wet blue hides are samm/set. The hides are sided on a beam after blue splitting; the flesh splits remain as whole hide splits.



Part of the small scale and experimental dyeing department. This is adjacent a new small scale finishing and development unit.



After through-feed staking and milling, if required the sides are trimmed and inspected for crust selections. Any trimmings are weighed and recorded for each pack to keep a record of wastage, and this is expressed as weight loss per piece.

There are two roller coating machines dedicated to the application of oily and waxy finish as a wide variety of effects are produced. There are many combinations of oils and waxes and roller speeds used to produce these effects. There is a further roller coating machine for applying pigment based finishes, and seven spraying machines. Each is followed by infrared-ray drying cabinets.

At the final assessment stage there are six grades and as each side is graded, a touch sensitive screen is used to record the selection. This gives a count for each grade, but also the average grade for the pack for comparison to in-house standards. Every piece is marked with its own grading and stamped to show the date of measuring, area, grade, and the manufacturing batch to provide access to the full manufacturing record.

(3) Co-products and solids management

- Chrome tanned whole hide flesh splits are sold to other leather manufacturers.
- Limed fleshings are collected and enzyme treated for grease recovery.
- Lime trimmings and recovered hair are compacted and sold for fertiliser manufacture.
- Filter-pressed precipitates from exhausted chrome tanning baths are sold for reprocessing.
- Blue shavings and trimmings are compacted and hydrolysed externally for fillers and retanning products.
- Leather trimmings are collected, with small leather goods made from the larger pieces.
- Buffing dust is compressed into blocks and waste disposed because of the variety of colour.
- Dewatered tannery sludge from effluent treatment is used as filler within brick manufacture.
- All paper, cardboard, buffing papers, wood, metal, electrical components, barrels etc are segregated. Some is sold and some given away. ☺



After vacuum drying, the sides are aired off by suspension drying on the overhead conveyor system that runs within the factory roof areas.



There are two toggle drying units, and a feature is the closeness of the placing of toggles around the sides to best maintain shape.

companies in particular have been focusing all their efforts on survival in recent years and, therefore, asking them to put millions into research and development would be unfair.

According to Ming Pai, some chemical suppliers are actively helping his company at the moment to save energy and reduce its water consumption. Chrome-free leather is another popular topic and, specifically on this, an Italian leather chemicals company that he prefers not to name is working to help TehChang meet customer needs. "Timberland and other customers are asking us about this," he explains. "Manufacturing methods, transportation, distribution, where the material comes

from and how it was made, and what will happen to it at the end of the finished product's life are all questions that are important to consumers, and Timberland wants to include the information in the way it presents its products."

If money were no object, the TehChang executives are in agreement that suppliers' efforts to innovate should focus on the beamhouse and pollution removal. "An automated beamhouse with zero waste," says Ming Pai. "That would be good." Recognising tanneries' own role in pushing innovation, he goes on to say that TehChang has carried out joint presentations with some suppliers to consumer brands, which have helped

identify ideas that they can work on together. The example he gives is lighter weight leathers. "The density of our material is the key here," he explains. "Softness is one thing, but what consumers want is lighter shoes."

Use of leather among customers

It is clear to observers that, while most high-end footwear companies are maintaining their commitment to leather, others, including some of the biggest shoe brands in the world, are increasing the proportion of synthetic alternatives in their material mix. Cost, look, fashion and branding come considerably higher up their hierarchy of needs than comfort,



The records department where details on production are stored is very extensive. In addition, over the years, the company has created a very comprehensive technical library.

durability, natural breathability and flexibility, all of which leather can offer much more readily.

"It's certainly the case that some brands feel they can no longer afford real leather and are using polyurethane (PU) instead," Ming Pai says, naming a very famous retail brand in North America. He mentions a second customer, a brand that is famous for its women's shoes. He says: "The only type of leather they want to use is nubuck; everything else is PU. We started seeing this change in 2010, clearly because of rising hide prices since 2009. Shoe brands say they can't afford that. This particular brand is only continuing to use nubuck because it can't find a synthetic material that replicates the look and feel. We've never seen anything like this before, and it is certainly linked to the hide price."

He goes on to say that a move—which Ralph Amabile, with his contacts, helped TehChang engineer at the end of last century—into outdoor and performance footwear is standing his company in good stead because many of these footwear brands are still using leather extensively. Yes, there is resistance to increases in hide-prices even among this band of faithful footwear companies, but Ming Pai points out that end-consumers know life in 2011 is more expensive. If they find themselves paying more for bread, milk and everything in their supermarket baskets, it will be no surprise to them if products made from leather have

gone up in price too.

Ideas that the TehChang tannery has for growth include doing more business with European footwear brands, and an interesting-looking side-step into leather covers for electronic devices. A first project, for electronic book reader device the Amazon Kindle, will swallow up around five million square-feet of TehChang leather this year.

On promoting leather

The team at TehChang believes in efforts that have sprung up across the sector in recent years to promote leather, to footwear manufacturers, their end-consumers and others. But the common belief in the Taiwanese tannery's boardroom is that these efforts will take money and co-operation across the industry, plus co-operation with brands that are serious about leather. "They're the ones that are in the public eye," Dennis Thams comments. "With their support and their drive, who knows what might be possible. There have been so many campaigns in the past, such as brands in my native Australia agreeing to put special swing-tags on leather shoes in the 1980s, as long as the leather industry paid for the tags. For a small industry we've spent a lot of money on these ideas, without achieving much mileage. Today, I'd have a high-profile celebrity to act as an ambassador for leather, the way tennis star Roger Federer acts as an ambassador for high-end watch brand Rolex."

His other suggestion is to focus a campaign on the domestic market in China, where consumers, in his opinion, understand leather and perceive it as a luxury material. Because of this appreciation, and because of the numbers of consumers involved in China, a campaign there could have a big impact, he thinks.

A suggestion from Ralph Amabile is that forward-thinking tanners such as TehChang should prepare a presentation on the beauty and benefits of leather and deliver it during the tours they already make of the major footwear brands. "Bring these ideas to the attention of people at the highest level in these customer organisations," he says.

Relationship with China

Under the brand name Joinland, the Pai family also runs two tanneries in China, in the southern cities of Dongguan and Zhuhai. It set up the Dongguan site as long ago as 1995, but only for finishing. It has no beamhouse there and is buying in crust from TehChang, from local suppliers and on the open market. Since 2008, the Dongguan tannery has been producing finished leather exclusively for the domestic Chinese market. If it's true that domestic footwear consumption is set to double (this message comes from the China Leather Industry Association), the local demand for leather will increase dramatically.

The Zhuhai tannery came into operation in 2003. Here things start from wet blue, but Ming Pai makes it clear that the company has a permit in place to add a beamhouse when the moment seems right. Finished leather from this facility is for the export market. Life is complicated for tanners in China at the moment. Mr Pai explains that tanneries focused on exports are permitted under current regulations to import wet blue, raw hide and chemicals without paying import duty or value added tax. If you sell your leather on the domestic market, importing those materials does incur tax and duty.

"My feeling is that, in five years' time, China will have just one system and we'll be able to run an export and a domestic business from the same facility," Ming Pai explains. "But the domestic market in China is becoming very interesting and we cannot wait for five years before addressing it, so that's what we are doing. We have an advantage. We speak the same language in Taiwan, and we have experience. We are innovative and we have good financial resources, so issues such as the strict



From a technical point of view

(4) Environmental management

WATER TREATMENT

Water used in leather processing is mainly drawn from wells, although there is some municipal supply. The consumption from each source is recorded, and expressed as litres/m² of leather produced.

The tannery operates a hair saving process where hair is continuously removed from the processing drum as part of recirculation. When the drums are finally drained and washed, the liquors are collected in a sump, then run through wedge wire screens to remove residual hair and solids. These screened sulfides containing liquors are then aerated in an enclosed building to oxidise the sulfide content. The air is continuously extracted from this building through trunking for wet scavenging to remove any odour. Once the sulfide has been removed the wastewater is chemically dosed with aluminium salts and polyelectrolyte, clarified, and the supernatant discharged to the main effluent treatment plant.

The exhausted liquors from chrome tanning are separated, and pumped into tanks where they are dosed with sodium hydroxide. Once the chrome sludge has settled the clear supernatant is discharged to the main effluent treatment plant, and the chrome precipitates dewatered using a dedicated filter press.

Discharged soaking liquors and the wastewaters from dyeing and retanning are screened, and then run directly to the main effluent treatment plant.

The mixed effluent is held for three days within activated sludge treatment in a series of concrete tanks, the air being provided by diffusion aerators. This area is enclosed and covered with plastic mesh to avoid any wind-blown odour. Following secondary clarification, any remaining suspended solids are removed by flotation.

Finally, the treated effluent receives tertiary treatment by chemical dosing with aluminium salts, a tertiary clarification, and then filtration through sand filters. The treated effluent is then discharged to the river which discharges into the sea close to the tannery. Development work is taking place in conjunction with a local university to further improve the effluent using a membrane bio-reactor.

There are no limits set for sodium chloride or sulphates. The effluent is checked daily in the laboratory, and tested externally with reports sent to the Taiwanese International Leather Association. Records show for the month of December 2010 that the COD was reduced by approximately 95% to an average value of 150 mg/l, the suspended solids to 10 mg/l, and the pH 8.1. This is within the limits for discharge set as COD 200 mg/l, BOD 30 mg/l suspended solids 30 mg/l, Total Cr 0.15mg/l, Grease <0.5 mg/l.



The moisture content of the drying operations is carefully controlled, and all of the leathers are staked using a feed through staking machine.



Part of the production is milled after staking. There are six milling drums of various design, all fitted with control of temperature and relative humidity.



Velour leathers are part of the production, and are carefully handled to avoid marking.

environmental requirements that the Chinese government has begun to impose on tanneries are good news for us. Yes, we have to watch the payment terms when dealing with footwear manufacturers down there, but it's important to point out that the Chinese are very entrepreneurial and our

customers are keen to develop the market with us."

He and his cousins are confident of excellent opportunities emerging for the TehChang tannery from across the Taiwan Strait in the near future. Their information is that tanneries processing fewer than

300,000 hides a year may be forced to shut their operations on the mainland, the idea being that they will be too small to make the necessary investment to meet the environmental demands the government in Beijing is making, and will continue to make, of the leather industry. Smaller operators will



ENERGY MANAGEMENT

To reduce the consumption of heavy fuel oil the tannery has just started to purchase steam generated from waste. This service is provided by an industrial co-operative which supplies more than 40 companies located in the industrial park.

Staff members are trained to recognise areas for energy savings and to reduce waste and costs. All switches are labelled with energy saving reminders and the air conditioning is not turned on unless the temperature is above 27°C.

Electricity, gas and heavy oil consumption are recorded as Kwh/sq ft, Kg/sq.ft., and Kg/sq/ft respectively each month. It is the intent to reduce electricity, oil and gas consumption by three percent in 2011.

NOISE, AIR EMISSIONS AND RESTRICTED SUBSTANCES

Sound level values outside the facility is measured and controlled, and preventative maintenance is established to minimise the noise levels of machinery. Noise levels measured at one metre around the tannery boundaries are controlled to be under 85dB. Air emissions from boilers and spray units are monitored and controlled to meet SO₂, NO₂, SS and VOC levels to conform to local standards. There is a quarterly review of the restricted substance policy with customers. 🌱



Both ram presses and through feed roller presses are employed in the finishing department.



Sulfide oxidation is performed in an enclosed building. A negative pressure is maintained to ensure that odour is fully contained, and the vented air directed via trunking to an air scrubbing unit.



After full biological treatment, the effluent is polished by chemical dosing and settling. Before final discharge from site, the treated effluent is passed through sand filters.

be able to continue if they form clusters and have access to an adequate common effluent treatment plant.

This demand from the Chinese government has still to be confirmed, but a main point is that the regulations seem to change quickly in China and the rules Beijing imposes can make an enormous difference to leather production. TehChang operates to high standards of its own, but it is immune to these changes. This is not a new thing. A regulation called Article 17 came into force in 2007, prohibiting the export of wet blue and crust from Chinese tanneries. Leather producers were given only three or four months to react. "This is making our position

stronger," Ming Pai says. "We have an operation here in Taiwan that will not be affected by these sudden changes imposed by the Chinese government."

Bilateral trade between the two has a value of \$110 billion at the moment and an Economic Cooperation Framework Agreement that they signed in June 2010 should make it easier to grow this total. One of the consequences is that leather trading across the Taiwan Strait is duty free.

Care for tannery workers

Three meals a day are available on the premises, with the company subsidising the price workers pay. Breakfast costs about 50

US cents, but workers opting to eat their first meal of the day at the tannery pay just 25 cents. For lunch and dinner, workers pay around 75 cents, with the company subsidising more than half the real cost.

The workforce includes a number of employees from Thailand, who have the option to live in a dormitory that TehChang has set up on the site. This facility includes air conditioning, laundry facilities, television lounges and kitchens. "Air conditioning is unusual in a workers' dormitory," Ming Pai says. "But it gets very hot here in July and August and we want to make sure our workers have a good rest after their shift." The company carries out two types of health



check on employees each year, paying for medical professionals to come to the tannery for the exercise.

On the first working day of most calendar months, the whole company gathers for a meeting. Any worker with a birthday in that month receives a voucher to buy something from a local store, and their colleagues sing 'Happy Birthday' to them. Any newcomers receive a formal welcome at the same monthly meeting.

There is paid overtime for the workers when production levels demand it, plus a well ordered production bonus scheme. Another benefit is a scholarship programme for workers to complete adult learning courses in their free time, and a separate educational assistance scheme for the children of employees who are performing well academically. The entire workforce receives gift certificates at the time of major festivals, and a party for all employees and their families marks the Lunar New Year.

Once a year, TehChang organises company trips, paying the way for each employee plus one family member. Further friends and family can come along too if they pay for themselves. There have been plenty of trips to tourist attractions in Taiwan, but plans are in place to broaden things out in 2011, with the Tokyo Disney Resort and the holiday island of Bali as possible destinations.

Back onsite, there are tai chi classes and courses in leathercraft. TehChang employees have also been given the opportunity to attend outside courses run by Dale Carnegie Training (focusing on interpersonal relationships, stress management and fast-changing workplace conditions), and by Brian Tracy (for entrepreneurship and business success). Company communications are interactive, with the workforce encouraged to submit articles, drawings and ideas for in-house publications.

Encouraging good communication and participation is something the tannery has extended into its links to the local community. It has supported competitions among local high school students to promote ideas for saving energy in school and in their homes. Schools often ask local businesses to help with meal programmes, library projects (buildings and books), sports events and musical activities. A member of the TehChang team, Jennifer Hsu, coordinates the tannery's contact with local schools. She says this work is richly

Control and accreditation

LABORATORY/RECORDS AND CALIBRATION

There are two laboratories. One is dedicated to physical testing, the other to wet analysis of leather and for effluent management. Testing procedures are very comprehensive and are to the official methods of analysis. The tannery also checks all leathers to their own standards during manufacture and as finished leathers, and also as finished leathers to specifications required by customers.

There are eight people permanently working within the two laboratories and all are accredited to SATRA standards.

All of the equipment in the factory is calibrated once per week, being managed from the physical testing laboratory. This calibration includes all of the substance gauges, thermometers, and scales.

There is also a very comprehensive library containing a full record of technical literature including ALCA, *World Leather*, and Chinese publications. This is adjacent the laboratories and the company training area. Training for new employees is carried out on site, but also courses that provide a better understanding of leather for customers.

APPROVAL AND CERTIFICATION:

- Member of BLC since 1993.
- Member of SATRA since 1994.
- Nike QA Laboratory approved and certified since 1999.
- SCOTCHGARD approved by 3M since 1999.
- SATRA grade B laboratory approved and accredited since 1999.
- GORE-TEX products approved by GORE since 2000.
- SATRA grade A laboratory approved and accredited since 2002.
- SATRA Summ Accredited leather graders approved since 2002.
- ISO 9001: 2000 approved and certified since 2002.
- Timberland TM series certified and approved by SATRA on behalf of TBL since 2005.
- TEFLON approved by DUPONT since 2005.
- LWG Audit: Silver rating (2008 and 2010).



The two laboratories are extensive, and a full range of physical and chemical analysis to specifications as required is possible.

rewarding; when she goes to the schools, she causes a degree of excitement because the pupils associate her with good news. Another of her areas of responsibility, health and safety, has won her and TehChang recognition from the Taiwanese government and she is now helping other manufacturing companies in Taoyuan to improve in fields such as accident prevention, and fire and evacuation procedures.

Conclusion

Ming Pai confirms that he and his cousins consider TehChang to be different. "We are a Taiwanese tannery," he says, "with more than just a traditional Chinese management team. We have studied in the United Kingdom and in Canada. We feel we can offer the best of Asian and western

mentalities."

He points out that Taiwanese footwear companies—including Pou Chen Corporation and Stella International—control between 30% and 40% of the global shoe industry, and that the TehChang tannery has good relationships with them. "Sometimes, western tanneries can come over as being a bit distant," Ming Pai says, "with an attitude that because they come from the west, the footwear manufacturers should listen to them. Instead, it should be a partnership. We are organised, systematic (my background is in engineering), we produce good quality and we are competitive. We can operate without being affected by decisions made by the Chinese government. So we are in the Chinese market, but outside it too." 🌐