

MERCURIO NEWS

ISSUE #2 • JULY 2018



FOCUSING ON INTERNATIONAL EXPANSION, MERCURIO REDEFINES ITS MISSION, VISION AND VALUES



In 2013, Mercurio revised its mission and values to pave the way for domestic market leadership. The initiative guided the construction of a plant in Marabá and a Distribution Center, in addition to the opening of a branch in Chile.

By 2017, Mercurio had already achieved its goals, becoming the leader of Brazil's conveyor belt industry. Growing consistently in the foreign market, the company planted the seed for a new challenge: international expansion.

To move forward with its plan for international expansion, Mercurio developed a new strategic plan, implemented in October 2017, starting with the revision of its guidelines.

Since the goal was not simply to update the company's principles, but also bring them closer to its employees, the revision of its mission and values and the development of a new vision were carried out collectively in a series of workshops. Held between October 2017 and April 2018, the workshops were attended by a group of approximately 30 people from all sectors of the company, from directors and officers to managers and coordinators. "It wasn't a decision imposed by the board or the executive officers," pointed out Solan-

MISSION

- ▶ Transport wealth to transform, build and feed the planet

VISION

- ▶ Be the number one partner and leader in Latin America's conveyor belt industry

VALUES

- ▶ Act with respect and integrity
- ▶ Exceed client expectations
- ▶ Value people and cultural diversity
- ▶ Quality and reliability are non-negotiable
- ▶ Respect the environment and all forms of life

ge Akiama, Manager at Mercurio's Strategic Planning and Marketing department. "It was a very long process of collective development, which is why it became consistent", she added.

"Realigning guidelines was not the end result of our strategic plan, but the starting point of a process that will lead to new projects and goals," emphasized Ivan Zanollo Ciruelos, Mercurio's CEO. As such, the process led to the development of new goals to be pursued by all sectors of the company, which included updating its indicators.

Ciruelos believes the revision, in the way it was developed, could potentially strengthen the company's internal culture as a whole and help it become a synonym for conveyor belts in the market. "We want to emphasize how proud our employees are to make conveyor belts that transport values to society," he summed up. "As for the market, we wish to be remembered as the company that exceeds expectations, engaging with clients and engineers in order to understand and meet their needs," he explained. "It's not just about conveyor belts, it's about purpose. It's much bigger than the product itself," he concluded.

EDITORIAL

FROM MERCURIO TO THE WORLD

To say that Mercurio manufactures conveyor belts is a correct but incomplete statement. Though accurate, it does not convey our true essence. We are, in fact, leaders of the segment in Brazil, but our activity is not limited to mineral deposits, cement companies and industrial operations.

Mercurio transports values for social development!

That is precisely what we aimed to accomplish when revising our values and mission and building our vision. That is why we didn't resort to hiring a consulting firm that would tell us what to do and what statements to display on message boards across the company.

We opted for a long but authentic process, filled with meanings that are inherent to Mercurio and its employees. We joined forces with representatives of each department to come up with guiding principles we could relate to.

As a result, each sentence written in our mission, vision and values represents the feelings and wishes of every employee in being part of Mercurio and contributing to society through their work.

These are the principles we will abide to in our quest for new markets and contribution to societies worldwide.

Enjoy your reading!

Ivan Zanovello Ciruelos

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APP MERCURIO

MERCURIO NEWS IS NOW AVAILABLE ON THE MERCURIO APP!

The entire content of our newsletter can now be accessed at the touch of a screen on the Mercurio App. In the Technical Library section, for example, you can find success cases featured here or articles published in the Technical Section.

Not only is the app user-friendly, but you can also download a PDF version of the file.

PUSH NOTIFICATION

Mercurio App's Push Notification system was recently launched to keep you up to date with anything on the application. It also notifies users about the technical operation of SMART, reminding them of upcoming conveyor belt replacements, for example.

The Mercurio App is free and available for Android and iOS.



WORLD CLASS COMPANY

IVAN ZANOVELLO CIRUELOS, MERCURIO'S CEO, TALKS ABOUT HOW THE COMPANY FOCUSES ON STRATEGIC MARKETS TO EXPAND IS HIGHLY SPECIALIZED OPERATION IN THE HIGH-PERFORMANCE CONVEYOR BELTS MARKET

An undisputed leader in the Brazilian market and the largest manufacturer of conveyor belts in Latin America, Mercurio's expansion plans include becoming a synonym for conveyor belts. To achieve this goal, the company engaged employees in developing a new vision, mission and values. "We wanted to build something that our people could proudly relate to," emphasized Ciruelos. An economist with MBAs in Finance and Administration, Ciruelos talked about how he has been leading Mercurio towards achieving a level of excellence that allows it to be recognized as a strategic partner clients can rely on.

What challenges is Mercurio facing today?

Maintaining our leadership in Brazil and accelerating growth in the strategic markets of Chile, Peru and Argentina, in addition to growing in products and services that add value to clients, such as splice kits and vulcanization services.

What are your expectations for these projects?

We're on a path of sustainable growth that is helping us become leaders in South America. It is with great satisfaction that I lead this project and take a company that is 100% domestic on a

path of international expansion among major global players.

What guided the process of revising your Mission, Vision and Values?

As we entered new markets and became leaders in Brazil, we felt that it was necessary to go deeper and rethink how we define ourselves as an organization. We wanted more tangible and objective concepts that would speak to our employees.

How did the employees get involved with the process?

We worked closely with the leaders. We believe that having everyone's contribution allows us to have a clearer understanding of our goals and achieve success. The Board approved the concepts to promote people's fundamental identification with the guiding principles.

How are the guidelines related to the pursuit of new markets?

Our differential when taking the company through a process of revising its mission, vision and values is that we make it clear that we are, fundamentally, a conveyor belt manufacturer. This is something our competitors are not, which is an advantage for us. We strive to exceed the expectations of our clients and want to focus on that more and more.



“ We believe that having everyone's contribution allows us to have a clear understanding of our goals and achieve success. ”

Ivan Zanovello Ciruelos
Mercurio's CEO

What are the actions involved in the plan to visit Latin American countries in 2018?

To assess similarities and opportunities and evaluate cultural and product application issues, because we will need to make adjustments in order to invest in new markets. We must emphasize our competitive advantages to establish a leadership in Latin America.

What are the most relevant investments in innovation development?

We have partnered with Nilos, a world-class company, for the supply of splice kits, and we're also developing our own kit, which should be launched in the market later this year, providing clients with a product of very high quality and competitiveness.

What does Mercurio expect for the next five to ten years?

We hope to continue growing in Latin America and to advance into the global service and custom solutions market. We're looking at strategic markets related to the Mining and Steel segment.



RELIABLE DURABILITY

USE OF CONVEYOR BELT WITH TEXTILE CARCASS PUT AN END TO FREQUENT MAINTENANCE SHUTDOWNS. WITH NINE-YEAR DURABILITY COMPARED TO THE PREVIOUS SOLUTION'S MERE TWO YEARS, MERCURIO'S PRODUCT SAVED NEARLY R\$ 6 MILLION

Every company dreads the idea of having to shut down part of their production. Imagine facing the risk of having to shut down your entire line for a long period of time because a piece of equipment that is vital to the operation has stopped working. Until 2007, that was the case in the operations of a large cement company located in the Brazilian state of Sergipe.

The company's operation was

marred by frequent shutdowns caused by problems in their steel cord conveyor belt. Their conveyor belt supplier at the time was unable to find a satisfying solution.

To make matters worse, that conveyor belt was the only one being used to transport material from the mine to the blending yard. From the yard, the material is taken directly to the furnaces. The problem was that the yard only had capacity to store enough material for 24 hours of operation.

As if the issues with the previous conveyor belt weren't disruptive enough, they would become even more severe when the plan to increase production was completed. With that, the yard would only have capacity to store 16 hours of operation without supply.

Increasing the durability of the conveyor belt, which had no redundant equipment, was imperative for improving the operation's reliability. That's where Mercurio's know-how made a huge difference.

RECONCILING PROPERTIES

The conveyor belt used by the company at the time was provided by another manufacturer and had very low durability. Tears and perforations were frequent. Due to the use of steel cords, any indication of damage required maintenance shutdowns, which were naturally time-consuming. Due to the number of splices, maintenance costs were high and the operation would be shut down for a very long time.

Increasing belt thickness had been the only solution suggested so far. However, that would cost money. "The drive unit would have to be replaced with more powerful drives, which are more expensive and would consume more power", explained Marco Tulio Viana, Account Manager at Mercurio.

Due to its long-term partnership with Mercurio, the cement company asked us to develop a solution that would meet their needs, Viana recalled. Despite having no historical knowledge of the operation, Mercurio visited the company's site for an evaluation. "Our Technical Assistance Manager went to the site to evaluate the issues presented by the conveyor belt and offer a solution," he recounted.

MERCURIO SOLUTION

The manager at the time was Dalton Clermont, Mercurio's current Technical Officer. "Our suggestion was to



replace the steel cord conveyor belt with a PN (polyester-nylon) textile conveyor belt one supplied by Mercurio" said Clermont, referring to a product that can endure severe application conditions.

The positives of the solution were that the material makes the operation easier and supports heavier operations, according to Clermont. In the worst-case scenario where repair is needed, maintenance of the PN textile conveyor belt is both less expensive and less technically-demanding. Mercurio also offers a five-year guarantee for the material.

The downside was that the conveyor belt was 2,800 meters long, therefore considered an LDCB (long-distance conveyor belt). In theory, the recommendation for LDCBs is to use steel cords, due to the risk of stretching. "Textile conveyor belts are usually recommended for shorter systems, which are less subject to impact or tearing," commented Viana. While

PN conveyor belts have a stretch ratio of 1.5%, the ratio for steel conveyor belts is only 0.5%.

TECHNICAL KNOW-HOW

To avoid the risks, Mercurio invested in the project. Calculations were made to determine the required counterweight to prevent stretching, and the conveyor belt cover went from measuring 6 millimeters to 8 millimeters. The cover's excess weight was offset by a lighter carcass, since textile weighs less than steel. That made it possible to continue using the same drives. "Advanced engineering and comprehensive knowledge of both the product and the operation are vital for the development of such a solution," Viana pointed out.

However, neither maintenance nor guarantee were required. The first PN textile conveyor belt supplied by Mercurio operated for nine years, not just five. The second one has been operating for approximately three years with no issues. Neither required unscheduled maintenance. "We replaced a faulty product with a conveyor belt that was specifically developed for the client's demands," Clermont summed up.

In this context, the acquisition cost, which was roughly 50% higher, was quickly offset by the lack of maintenance shutdowns, which used to account for approximately 30% of the previous conveyor belt's acquisition cost. In sum, Mercurio's PN textile conveyor belt accounted for savings of R\$ 5.8 million over the course of nine years of operation, in addition to eliminating operating losses caused by unscheduled shutdowns.

TECHNICAL SPECIFICATIONS OF THE CASE

PRODUCT: Conveyor belt CTR EA 5PN4000 8.0 x 3.0 MM I200MM
QUANTITY: 2,800 m | **SEGMENT:** Cement company | **LOCATION:** Laranjeiras (SE)

	PREVIOUS SPECIFICATION	MERCURIO CONVEYOR BELT
Durability	2 years	9 years
Acquisition cost	R\$ 980,000.00	R\$ 1,471,000.00
Maintenance costs	R\$ 320,000.00	-
Savings (R\$)	-	R\$ 5,850,000.00
Savings (%)	-	450%

CHOOSING THE RIGHT MATERIALS IS VITAL FOR THE PERFORMANCE OF THE CONVEYOR BELT SYSTEM IN SPECIFIC APPLICATIONS



CONVEYOR BELT COMPOSITION

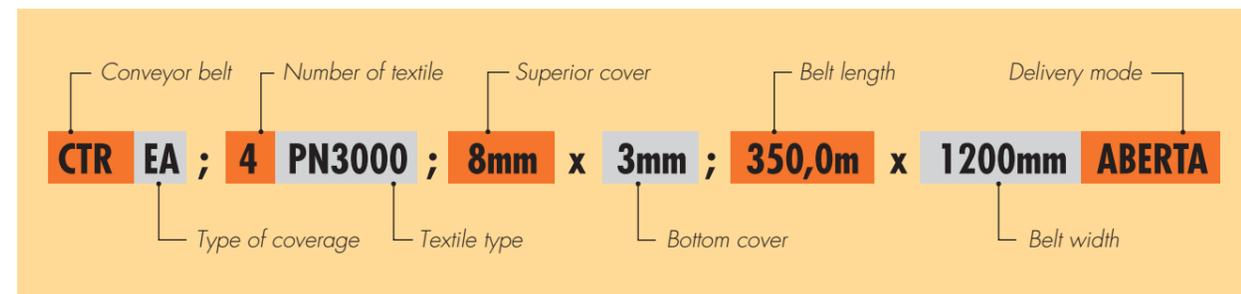
Without a doubt, the most important part of a conveyor belt system is the conveyor belt itself. After all, to sum it up, all other components are there to make the conveyor belt move, keep it clean and secure its correct position. It is the conveyor belt that transports the cargo. Consequently, it is subject to

adversities such as abrasive and sharp materials, impact, extreme temperature, corrosive materials, etc.

Depending on the characteristics and conditions of the environment and transported materials, the conveyor belts are required to have specific properties. These include, for instance, being self-extinguishable, anti-static, resistant to cuts and tears, flexible, etc.

To meet so many demands at once, conveyor belts rely on the properties of the raw materials used to make them. Which is why the composition of a conveyor belt is not limited to what we see when the product is ready.

The coding of Mercurio's conveyor belts allows for the identification of its properties:



BASIC COMPONENTS

Conveyor belts are made of three elements: top and bottom covers, adhesion rubber and carcass. Each element has a specific function.

► **COVERS:** their main function is to protect the carcass from attacks to

the transported material; they are resistant to cuts, wrinkles, abrasion, impact or attack from oil, grease, acid, temperature, fire, etc.

► **CARCASSES:** responsible for supporting the load, stretching, bending and impacts affecting the con-

veyor belt during its operation. It is considered the element of strength of the conveyor belt.

► **ADHESION RUBBERS:** responsible for keeping the set cohesive and flexible. They keep the covers adhered to the carcass.

CONVEYOR BELT MANUFACTURE

Early stages include preparation of rubber compounds to manufacture the covers. These are then pressed to achieve the desired thickness. Textile conveyor belts also undergo a preliminary stage known as dipping. Dipping is a chemical treatment to make the fibers more adhesive, flexible and resistant.

Then the textiles are given a rubber cover and an adhesive layer.

These are overlapped and pressed for perfect adherence.

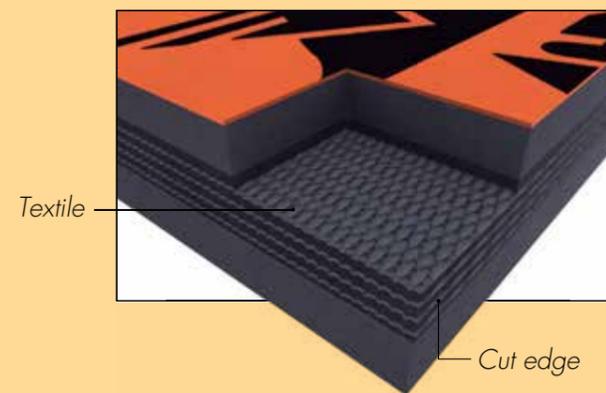
After that, the top and bottom covers are added to the carcass, which is then vulcanized. In steel cord conveyor belts, the cover and adhesive rubbers are overlapped and pressed onto the cords. After this process, they are finally vulcanized.

Choosing between molded or cut edges will depend on the application. Overall, molded edges are recom-

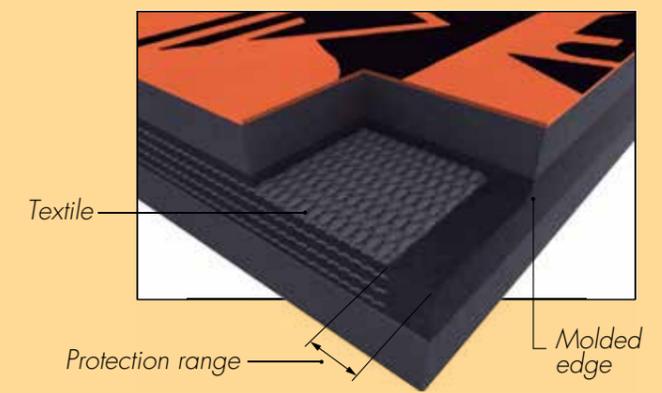
mended for transporting high-temperature materials, or those with the presence of oils or acids that could affect the carcass.

In other applications, the edges cannot be protected. That is the case of pulp or citrus juice extraction companies, for example. These activities cannot afford to take the risk, even if low, of an edge cutting loose and contaminating production.

CUT EDGE



MOLDED EDGE



USE PROPERTIES

The intended use determines the properties of a conveyor belt, including the covers, carcasses and size. The type of rubber used to make the cover, in turn, is determined by the properties of the material to be transported. When the system's inclination is too high, the cover can have protrusions that will prevent the material from sliding.

In some cases, the transported material is placed on the conveyor belts in an almost incandescent state. In such applications, it is imperative for the cover rubber composition to include specific elements

to resist high temperatures. For this purpose, Mercurio has a wide range of cover types available for a variety of needs.

The same applies to carcasses. The steel cord is usually chosen in situations where the application requires maximum tensile-strength, long-distance transportation, low stretching and flexibility.

Textile conveyor belts are used in applications that require resistance to impact and high temperatures, high flexibility and excellent finishing.

Textile carcasses are made from polyester, nylon or aramid, with

the latter performing better in severe applications.

Conveyor belts may also include built-in accessories that mitigate the action of cuts and tears and improve impact absorption.

For a longer useful life, conveyor belts can be partially restored by replacing damaged stretches through splicing. The procedures vary according to the carcass type of the conveyor belt. After all, the procedure seeks to reestablish the functionality and performance of the conveyor belt. Splicing procedures include hot splicing, cold splicing and mechanical splicing.



MARABÁ DELIVERS CONVEYOR BELT MEASURING 480 METERS AND WEIGHING 35 TONS

TO AVOID VULNERABILITIES, CLIENT REQUESTED A CONVEYOR BELT WITH NO SPLICES. DUE TO ITS MODERN FACILITIES, THE MARABÁ PLANT WAS ABLE TO MEET THE DEMANDS OF THE CHILEAN COPPER MINE

Launched in late 2016, Mercurio's Marabá plant has already accomplished great things. Its most recent achievement was the production of a 35-ton, 480-meter-long conveyor belt. It is one of the longest conveyor belts ever manufac-

tured by Mercurio and, without a doubt, the biggest in the last decade. Conveyor belts with this length are usually manufactured in smaller segments that are later spliced together at the installation site.

However, due to the nature of its operation, this client needed a conveyor belt

that wasn't exposed to any kind of vulnerability resulting from splices. Few companies are able to meet such demands.

Produced to be installed at the world's largest copper mine, located in Chile, the conveyor belt was rolled around an oval reel. The goal was to guarantee its safe transportation to the final destination. Had it been rolled in the conventional way, the product would've ended up being higher. That would've increased the risk of toppling, and the product would not pass under tunnels or overpasses across the more than 7,900 kilometers between the plant in Marabá and the client's facilities in Chile.

Even though it was rolled around an oval reel, due to its height the conveyor belt had to be shipped through the Paso de Jama customs, on the border between Argentina and Chile. The facility has sufficient capacity to ship items of this size. To get there, after leaving Marabá, the conveyor belt was taken to Jundiaí (state of São Paulo) and then Uruguaiana (state of Rio Grande do Sul). From Uruguaiana it traveled to Paso de Jama and Antofagasta before reaching its final destination.

MERCURIO PRESENTS SUCCESS CASE AT COST REDUCTION EVENT

On May 15 and 16, Mercurio took part in the 9th Workshop on Cost Reduction at Mines and Plants, in the city of Belo Horizonte. In addition to sponsoring the event, Mercurio presented to the audience of its ninth edition the success case of mining company AngloGold Ashanti. The solution developed for the client in question was featured in the previous issue of Mercurio News.

At the workshop, Mercurio's account manager Alan David Souza disclosed the positive financial results and productivity improvements obtained from using an aramid conveyor



belt in the client's iron ore extraction operations.

Organized by the magazine Minérios & Minerais, the workshop is a traditional event in the industry for promoting debate and presenting cases with a focus

on cost reduction opportunities in various mining operations. The target audience of this workshop is highly qualified. Participants usually include officers, engineers, managers and technicians who work directly at the mines.