

Company: **Klabin**
Factory: **Lages Plant**
Product: **Industrial Sack Kraft Bags**
TPM kick off date: **October 2006**

1. Organization Profile

Klabin is a producer of timber, pulp, packaging papers, carton board, corrugated boxes and sack kraft bags, acting in domestic and international markets based in its sustainability principles for all activities related to its products and services. Founded 123 years ago, it has 22 units in Brazil and one in Argentina. It is the biggest paper producer, exporter and recycler of Brazil and worldwide leader in its acting segments. The company has a sales volume of 3.189 million tons showing gross revenue of R\$ 4.3 billion (US\$ 1.03 billion). We are the only Brazilian company in the pulp and paper sector to be included in the World Sustainability Index of Dow Jones, which highlights the companies with the best global performance based on economic criteria, environmental and social in long-term.

Sack kraft value chain (paper and conversion) takes 10% of the company revenue, and Lages Plant has an annual capacity of 106.000 tons, and 790 million bags, which makes this the biggest industrial bags plant in the world. In Brazil we have 52% of the market share.



Lages Plant Portfolio showing our multiple products.

Lages plant counts on 1015 collaborators, and production operates 24 hours / 7 days week in rotational shifts journey. The main processes are distributed as:

- A) Sack kraft paper coils warehouse with material handling of 9.000 ton/month;
- B) Paint production area with capacity of 160 ton/month;
- C) Printing pre process machines with capacity of 2.100 ton/month;
- D) Eleven production lines divided into tuber and bottomers with capacity of 66 million bags/ month.
- E) Outbound area processing 30.000 pallets/month.



Lages Plant

2. Milestones on the Journey of Manufacturing Excellence

In October of 2006 we launched in Lages Plant the TPM philosophy named as “Klabin Superar Program”, which was an expansion of the program started on Klabin paper plants.

Beyond 2006 and 2014 the constant certification maintenance of ISO-9001, ISO14001, and FSC – Forest Stewardship Council brought the implementation of several improvement projects.

By the beginning of 2015, with the support of PCM consultant, Lages started to implement the TPM methodology based on the JIPM concepts, and the pillars started to work with master plans and tools aligned to the plant vision, which was Security as a value, quality for customer satisfaction and costs waste elimination.

To evaluate performance in continuous improvement, always focusing on delivering excellent results, the Klabin SUPERAR Seal was created on 2020. Recognition includes seals, which range from from bronze to diamond, in the following categories: basic, intermediate and advanced. Klabin SUPERAR seal was created to strengthen the integration and unity of all around an objective: valuing people and improving processes.

“Klabin Superar” turned into our management system, and next step is the integration of the Superar seals implementation and the aiming for TPM Awards. The journey is to begin by 2023 with the aiming of “ Award for TPM Excellence, Category A”as shown below.

Plant	2023	2024	2025	2026	2027	2028	2029	2030	2031	
LAGES	 Seal	 EXCELÊNCIA A Award	 Seal	 CONSCIÊNCIA Application	 CONSCIÊNCIA Award	 Seal	 ESPECIAL Application	 ESPECIAL Award	 Seal	 CLASSE MUNDIAL Application

Plant vision road map for internal and external TPM certification

3. Benefits Achieved

Impact of the TPM implementation on our PQCDSE vision.

	KPI	Unit	Better	Present status from 2018 to 2023
P	Productivity for main products	Vol/HC/Month	↑	223,52% increased
	OEE - Main Products	%	↑	26,39% increased
	Breakdowns - A Equipments	Breakdowns/ year	↓	55,26% reduced
Q	Number of customer complaints	Number/year	↓	52,18% reduced
	In-line defect rate (scrap)	%	↓	9,67% reduced
	Total Waste	%	↓	13,59% reduced
C	Cost index	Cost/Unit Cost/Kilogram	↓	28,18% reduced
D	Production volume	Unid/Day	↑	4,26% increased
S	Frequency rate	Number of occupational accidents with leave for 1 000 000 worked hours	↓	40,84% increased
M	Number of Employee Suggestions	Number/year	↑	76% increased
E	Environmental Index	%	↑	18% increased

4. Key of our Manufacturing Excellence

Klabin has established as the first item of its sustainability policy the search for competitiveness quality aiming the sustainable improvement of the results, process continuously improvement, products and services to attend our customer expectation, workers, shareholders, community and suppliers. Based on this premises, Klabin has done the major volume of investments of its history.

We invest in a management system that allows us to develop people through their growth within the TPM implementation.

Our main strategy is based on a concept named pyramid inversion, where we put shopfloor people on the top focus, making areas and pillars work as support to develop their autonomous and decision make abilities.



Employees gathered after the 2st Assessment Excellence Award

Our strategy for long term is maintaining the competitiveness and market leadership based on Security, quality of our products, qualification of our workers and in the relationship with our customers and suppliers through continuous innovation and adequate costs.

Valuing people, improving processes, that is our compromise.