

1. Company, Factory Profile:

1.1 Factory Profile

Bright Dairy started business at year 1911. The core businesses are the development, production and sells of dairy products. During more than 100 years development, the Group has been the leader of Chinese high-end dairy industry. The Group has world-class dairy academy and use world-class equipment and process to produce fresh milk, fresh yoghurt, lactobacillus, normal temperature milk, normal temperature yoghurt, milk powder, cheese, butter, etc. Tianjin Bright & Mengde Dairy Co., LTD is a joint venture created in November 2002 which located in Tianjin Beichen Wind Power Industry Zone and covers an area of 100 thousand square meters. It has 322 employees, 12 A3CF filling lines, 3 Fino filling lines , one A3 speed filling line, one TBA22 filling line, one thin cream filling line, one PET filling line. The total output of the factory was 121 k Ton in 2023.

1.2 product and management organization

The process of the factory is divided to processing, filling and distribution. There are five kinds of products Including fermented milk, sterilized milk, mixed milk, thin cream, milk beverage, the main products are fermented milk and sterilized milk. The technology of fermented milk is to prepare and ferment after UHT sterilization, and fill yogurt after forming. The technology of sterilized milk is to fill pure milk directly after UHT sterilization. The management structure of Bright Tianjin factory includes one general manager, one GM assistant who support GM to manage the production, and 8 departments which work together to insure good quality delivery including production, quality, equipment, safety, raw milk supply, integrated management, finance and project departments. Production, quality and equipment three departments run 24h work by three shifts.

2. Milestone on the Journey of Manufacturing Excellence

Bright Tianjin factory arrange production according to the production order given by Bright Group. Bright group distribute the total production order to different Bright factory according to their performance of quality, cost and productivity. To improve Bright Tianjin factory business by getting more production order, the factory must improve the general performance including quality, cost, productivity, safety and employee competency. In order to improve the competitiveness of the factory, enhance profitability. After SWOT analysis, the factory set the vision as to be the performance leading factory in the dairy industry and determine seven strategies as optimizing marketing strategy, enhancing product added value, making common progress of the whole industrial chain, reducing cost and increasing efficiency, improving quality, improving morale, and building safe, healthy and energy-saving factories were determined. TPM implementation will help factory to achieve these strategies.

Since the implementation of TPM activities, the factory first established the TPM management committee, determined the project coordinator and the chief of each pillar, carried out the AM, PM, QM, FI, EM, OM, SHE, E&T eight pillars, and determined the operating mechanism of TPM activities. The shop floor was divided to units. The employees from quality, equipment and production departments in each unit recognized as a team and review the performance of the unit together every day and then take

actions. Unit leaders review the performance of the entire factory together with supervisors and managers every week. More and more common workers take care of the factory performance, so that factory performance can be improved.

The Management committee sets the campaign strategy, monitors the progress of the campaign and tracks the achievement of the target. In the Award for TPM Excellence stage, we strengthened the factory system, reduced manufacturing costs, and won the Award for TPM Excellence in 2017; In the Award for Excellence in Consistent TPM Commitment stage, extended the system strengthening activities to the supply chain, focusing on total cost losses, and won the Award for Excellence in Consistent TPM Commitment in 2020; In the Special Award for TPM Achievement stage, we enhanced the ability to cope with environmental changes, improved competitiveness, and enhanced the profitability of the factory, realized the growth of factory orders and the improvement of profits, and challenged for the Special Award for TPM Achievement in 2023.

3. Benefits Achieved

3.1 Tangible business results

The factory has setup 178 improvement teams in 9 years and 300 persons have taking part in the teams. The factory has collected more than 1800 suggestions, 19900 tags and the total loss has been reduced by 27 million RMB. The volume of orders increased year by year, resulting in a substantial increase in turnover, up by 23%. Continuous improvement of product cost resulted in a 27.1% reduction in product cost. In addition to the continuous improvement of product cost, the equipment efficiency was also continuously improved. The failure strength rate decreased from 3.6% to 0.44%, the zero failure line increased from 0 to 10, and the OEE increased from 57% to 82.7%. The improvement of product quality is our constant pursuit. By reducing defective products, the zero defect line increased from 0 to 10, and the complaint rate decreased from 3.5ppm to 0.8ppm.

3.2 Intangible improvements

Personnel capability has been continuously improved, at the very beginning, all the Kaizen teams leaders are managers and now even shop floor workers have the capabilities to be a Kaizen team leader. Through the safety and environment improvement activities, the safety awareness of all staff is enhanced, and the safety accident will not happen again, and the environmental protection and healthy working environment is created, which enhances the satisfaction of employees to the factory, and enhances the cohesion and enthusiasm of staff

4. Key of our Manufacturing Excellence

According to the strategy, the factory finds out the critical success factors. And then divide the CSFs to KPIs. The management committee oversees factory TPM activities and setup pillars to implement. Different employees in different department join in pillars. Each pillar manages its related KPIs. When KPIs achieved, the targets of each department also achieved. So, all employee participation is the recipe of success. Through the participating in interesting activities every year, employees gain happiness in TPM activity. Through internal awards every year, employees gain passion to improve together with the factory. In the following activities, we will focus on

enhancing our ability to cope with environmental change, enhance competitiveness and enhance the profitability of the factory. Then we will continue to improve according to TPM approach, finally, achieve world class level.

5. Achievement Record

Category	Index	Unit	BM 2020	Actual Status 2023
S	Number of work-related accidents requiring days off work	Cases/ year	0	0
S	Number of work-related accidents not requiring days off work	Cases/ year	0	0
S	Accidents	events	0	0
P	personnel efficiency	%	82.65	92.5
P	OEE(or Overall Plant Efficiency)	%	82.5	82.8
P	0 Breakdown lines	Line	4	10
P	failure intensity rate	%	0.79	0.45
P	MTBF	Hour	133	150
P	MTTR	min	23	16
Q	0 defect line	Line	5	10
Q	Defect rate	PPM	2400	390
Q	Customer complain rate	PPM	0.89	0.8
C	Maintenance cost	RMB/ton	129	85.67
C	Package utilization	%	98.96	99.55
C	product costs	RMB/ton	7233	6830
D	Production Lead time	Hours	254.1	184
D	On time delivery	%	100	100
M	Employee satisfactory	Score	90.3	92
M	Improvement suggestions	numbers	194	230
E	carbon dioxide emissions	KG/ton	43.3	37.68
S	Number of work-related accidents requiring days off work	Cases/ year	0	0