

## 1. Company, Plant/Factory Profile

Tetra Pak Packaging Material Sunne AB



*Figure 1: Lamination in Skoghall, Tetra Pak is inside the blue area*



*Figure 2: Tetra Pak in Sunne Printing and Side Sealing*

## 1. Company, factory profile

### 1.1 Company Profile

Tetra Pak was founded 1951 by Dr. Ruben Rausing, with a unique idea of packaging dairy products in tetrahedron shaped carton packages. Since then, Tetra Pak has grown to be one of the largest suppliers of processing, packaging and distribution systems for milk, fruit juices and other food products. The company is privately owned and has 48 production sites for packaging material and closures worldwide, with sales in more than 160 countries and around 25000 employees worldwide. Tetra Pak's sites are organized in four regions based on geographic location.

Tetra Pak's packaging systems fall under two categories: ambient and chilled products. The development of aseptic processing liquid food machinery and packaging together with the Ultra High Temperature (UHT) technology provided a possibility to produce aseptic milk packages.

### 1.2 TPPM Sunne, One organization and Two locations

TPPM Sunne produces fiber-based packaging material through the following main operations: coating, printing, and side sealing. The factory is divided in two locations, Skoghall and Sunne. The distance between the two location is 67 km. In Skoghall we have one laminator line (25). In Sunne we have one pre-press department, one flexo printing line (61), three offset printing lines (62-64), five side sealing lines (81-85) and one palletizer (72).

We produce Tetra Rex cartons in more than 150 quality-size- variant combinations.



Figure 3: Tetra Rex carton produced in Sunne/Skoghall and milk specification as an example of the coating layers.

TPPM Sunne started its production in 1992. We produced 1,7 billion standard packs in 2022 and shipped them to more than 30 countries. We have 260 employees: 210 blue collars 50 white collars. The factories operate 7 days per week, 24 hours a day.

The management organization consists of Factory Director Robert Ekevik and management from maintenance, production, and support processes. The TPM management consists of the Factory Director, TPM manager, pillar leaders, and section managers, which form the Steering Committee, guides the TPM work at the factory, putting the factory strategy in place by starting new teams, and involving all staff in the TPM work. Sunne/Skoghall factory was awarded with ISO 9001 Quality Certificate in 1996, ISO 14001 Environment Certificate in 1997, BRC/IOP hygiene standard in 2003 and ISO 45001 in 2020.

## 2. Milestones on the journey of Manufacturing Excellence

In 1999 decision was taken that Tetra Pak should introduce TPM in the factories worldwide. The target was to improve safety, cost, quality, and delivery reliability. The introduction of TPM to Sunne/Skoghall started in the year 2000. A major change in our production introducing the offset printing technique, and an increase of staff took place in 2004. This was the main reason for the re-launch of TPM in Sunne/Skoghall that took place in 2005.

In 2005, we re-started the existing seven pillars AM, PM, FI, QM, Safety, Education & Training & Office TPM. We also started the Cost pillar this year. After re-launching TPM we continued to build the pillar organization and added the Supply Chain Management pillar in 2006, Environment pillar in 2007. The Expansion Phase continued in 2008 with the decision to merge the pillar organization in Sunne and Skoghall. This was a crucial step to optimize our resources within the whole organization and to strengthen the opportunity to prioritize our improvement possibilities. In 2010 we implemented the 11<sup>th</sup> Pillar, Early Management.

In 2010, the Sunne/Skoghall site achieved the Award for TPM Excellence, category A. 2014 we received our second award the Excellence in Consistent TPM Commitment, and we continued to progress on our TPM Journey.

In 2016 we started a study to improve the quality and appearance of our offset printing that led us to start to print with 7 colors as a base (Multi Color Print) and we invested in a 7<sup>th</sup> Print unit in printer 62. We also made another large investment a new offset printer, 7 print unit printing press 64. In addition, our laminator in Skoghall was going through a major change due to new investments during 2018/2019 installation of a new Unwind unit, Slitting station and a Safety upgrade. These major changes took focus of our organization, and we realized that we had to re-vamp our TPM journey and address gaps connected to organization, governance, methodology and commitment. We took the decision to adjust our Pillar structure and how we organized in 2019. We implemented an 8-pillar structure, and we reorganized our line organization into a process cell concept around our main processes Lamination, Pre-Press & Printing and Sealing & Palletizing. This organizational change was implemented in full early 2020 and we are measuring progress of this change starting with 2018 or later as baseline.

Our progress has been evident and recognized in Tetra Pak and we have received approval to apply for a renewal of the Excellence in Consistent TPM Commitment award.

### 3. Benefits achieved

#### 3.1 Tangible business results

Since the baseline year (2018), the following tangible business results have been achieved until 2023:

- ✓ 100 % reduction of number of accidents/year (LTA)
- ✓ 71 % reduction Technical Issues
- ✓ 24 % improvement in Employee Engagement
- ✓ 15 % increase of Productivity
- ✓ 15 % improvement in Perfect Order
- ✓ 29 % reduction of defect material waste
- ✓ 11 % reduction of total material waste

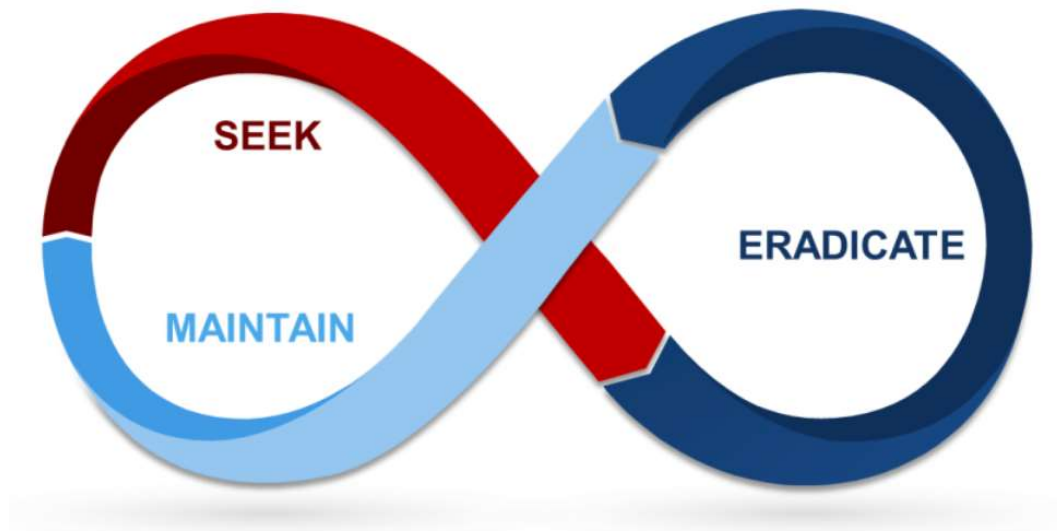
#### 3.2 Intangible improvements

Since the start of the re-vamp of the TPM program 2019, 67 improvement teams have been consolidated. This has involved our employees; their dedication and engagement are of strong importance. By giving the operators more responsibility and training them in autonomous maintenance of their machines, the work engagement, work pride and competence to act proactively has increased. By continuously starting teams, new challenges motivate the employees to drive for loss eradication. We also continually work with individual development by offering opportunities for education and training for all employees.

### 4. Key to our Manufacturing Excellence

The key to our manufacturing excellence has been the drive of the TPM methodology throughout the factory. By driving the pillars and teams, the focus on eradicating losses in the factory remains and constantly driven forward to push the development and knowledge within TPM. The pillars have continued to grow and deepen their knowledge since they started and can support the teams that starts on a regular basis, as well as to drive and support the factory strategic priorities. Pillar interactions are increasing, pillars strategies are aligned and the links between the members of different pillars are carefully worked out. The pillars composition and exchange of knowledge is of the essence to create and maintain a learning organization.

The infinity loop regarding improvement and maintenance cycles is an excellent guidance not only to improve but also to maintain the gained improvements.



*Figure 4: WCM Infinity loop*

By working with the infinity loop continuously and systematically, the skill levels of TPM and using TPM tools among the employees are strengthened and the mindset of eradicating losses grows. The development of the E&T pillar has been a key element in developing the skill levels of individuals. Improving employees' skills is vital, and investments in time and facilities to provide a good base for developing people is essential.

Since the introduction of the TPM program, the involvement and engagement of the employees have been, and still are, important ingredients to our success in Manufacturing Excellence. The TPM program has contributed to engage all employees in the strategic priorities which has contributed to significant results for safety and quality.

## 5. Achievement sheet

TPM Award Assessment Achievement Sheet					
Company & plant name	Tetra Pak Packaging Material Sunne AB				
TPM Slogan/Objectives	Everyday Safety with Quality Excellence at Optimized Cost				
			▼ Please fill in the range of data you are collecting ▼		
Category	Index	Unit	BM (TPM Started or last time awarded)	Actual Status	Target
Enter the year →			2018	2023	2023
S	Number of work-related accidents requiring days off work	Cases/ year	5	0	0
S	Number of work-related accidents not requiring days off work	Cases/ year	8	1	0
P	Productivity for main products	Index	100	115	117
P	OEE (or Overall Plant Efficiency)	%	34.4	33.71	36.8
P	Availability	%	63.4	65.8	68.5
P	Number of breakdowns	Breakdowns/ year	1095	970	914
P	MTBF	Hour	30	32	33
P	MDT	Hour	1.8	1,8	1.8
Q	Number of customer complaints	Index	100	29	33
Q	Total material Waste (scrap)	Index	100	89	84
Q	Total material defect Waste (scrap)	Index	100	71	69
C	Cost index (ECTC index)	Index	100	102,2	100
D	Production Lead time (committed lead time)	Days	14	14	14
D	Delivery performance (perfect order)	Index	100	115	109
S	Frequency rate	Number of occupational accidents with leave for 1 000 000 worked hours	18.3	0	0
M	Number of Employee Suggestions	Number/year	3994	4560	5500