

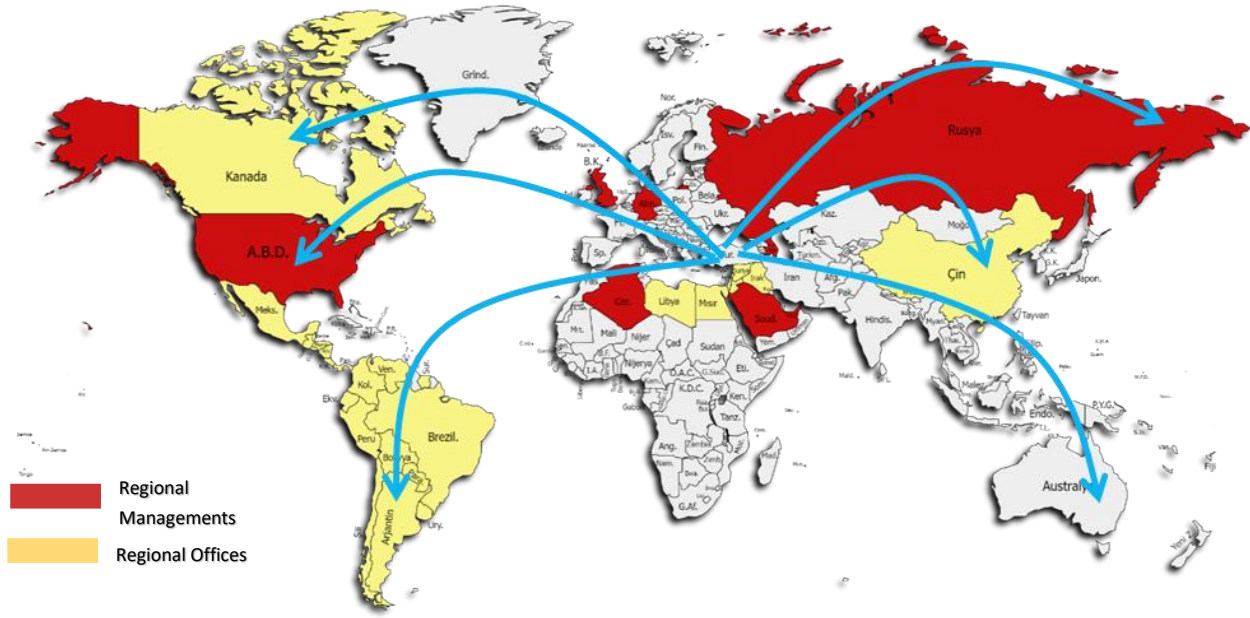
1. Company, Plant / Factory Profile



Sölen, one of Türkiye's brave and innovative brands, conducts its activities to add value to the land on which it was born and its people, through the brave investments it has made and the employment it has provided.

Established in Gaziantep in 1989, Sölen has been serving its rich product portfolio in the categories of snacks, children's products, gifts and treats with over 30 years of experience. Sölen continues its activities by focusing on food safety, human and quality with its innovative vision.





Incorporating brands such as Biscolata, Ozmo, Milango, Boombastic, Luppo, Lokkum and Nutymax, which have achieved formidable success worldwide, Solen exports over 200 product types to over 120 countries from the USA to Belgium, from Japan to the Maldives. Solen also has regional offices in Dubai, Algeria, Azerbaijan, the USA, Saudi Arabia, Germany, Russia and England; and regional directorates in the Levant Region, Canada, China, Latin America.



Making a difference in every work it performs with passion and not compromising its values, Solen makes production at high standards for its consumers from all ages with its most of 2 thousand employees in its 2 facilities in Gaziantep and Istanbul. Solen has become a pioneer in its sector and Turkish economy on Industry 4.0 with its dream factory of 140 thousand square meters located in Gaziantep 4th Organized Industrial Zone having equipment and competencies considered as a role model not only in Türkiye but also throughout the world. Solen is the first company in Turkish food

sector having R&D center under a single legal entity at 2 different locations with its R&D centers in Gaziantep and Istanbul. Ranking among the top in all lists in its sector both in Türkiye and the world, Solen ranked 54th in Candy Industry TOP 100, one of the most important candy lists in the world. Solen was awarded with the “Snack of the Year which Increased its Reputation Most” award in “Snack Sector” category in “The ONE Awards Integrated Marketing Awards” which was organized by the cooperation of the marketing magazine Marketing Türkiye and market researches company AKADEMETRE and which measures the increase in the reputation of the brands by observing the activities of them within the year, and with the “Special Award” in Global 100 Awards organized by Platin Magazine with its works in Industry 4.0 field, and it ranked second among the most favorite companies in “Biscuit - Chocolate” category in the survey of Capital Magazine.

From holidays to special days, Solen sweetens life with flavors suitable for different tastes for every moment of the day, and continues its efforts to turn every moment into a celebration.

1.1.Production Range,Process Technology,Management Organization and Staffin Structure

1.1.1.Production Range

Solen product family is full of amazing tastes. Covering a wide range from snacks to gift brands, from kids products to Turkish delight, it offers a visual feast chocolate lovers. Some of our brands;



Diversifying its products under the scope of Solen with Maxbar , Milango and Octavia brands in the treats and chocolate gifts category, Ozmo in kids products, Biscolata in filled cookies and coated crackers, along with Winergy and Duomax in chocolate covered snacks, Mojee in candies, the company is keen on its mission as a pioneer brand of today and the future, creating value for all its shareholders.

1.1.2. Process Technology

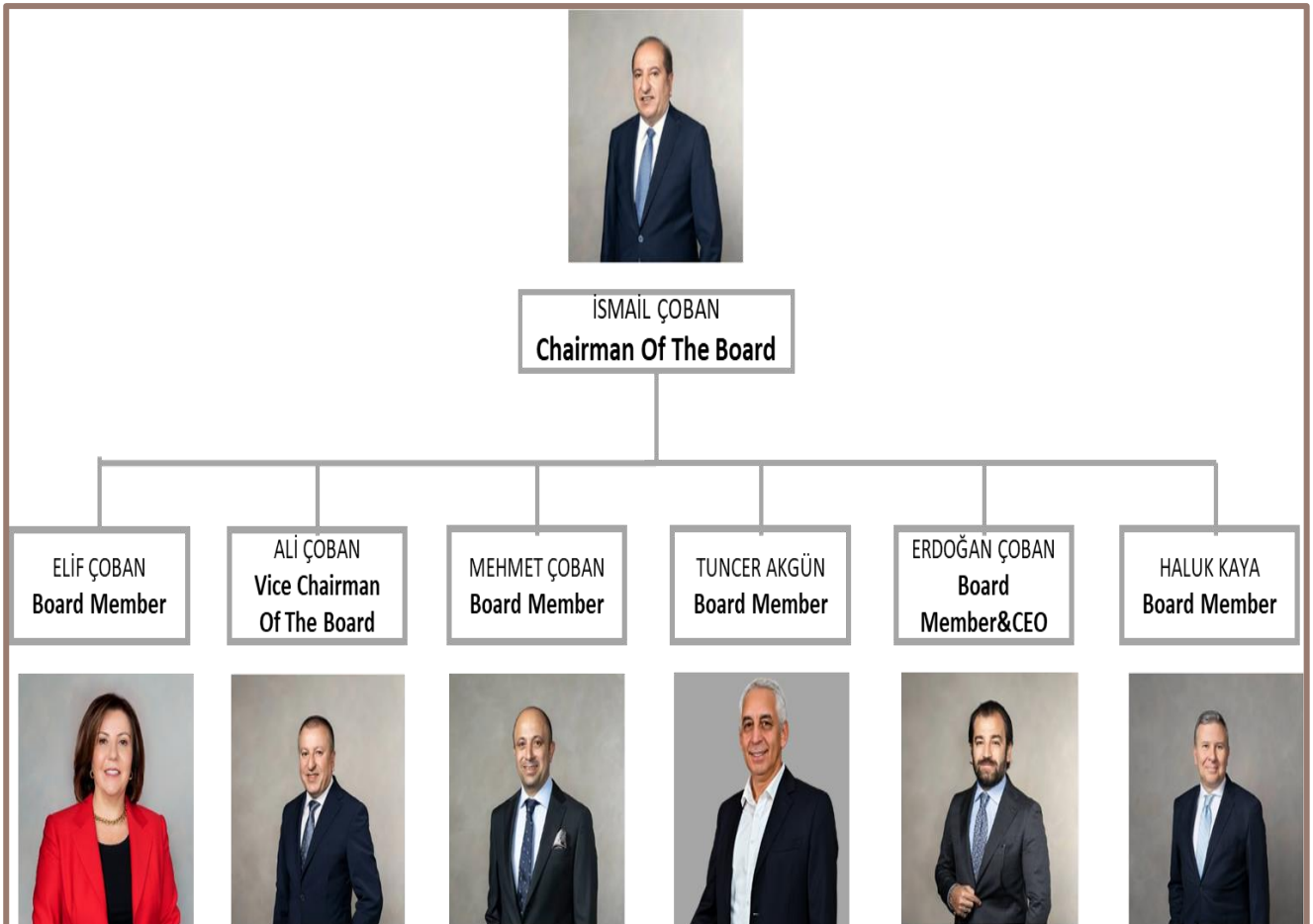
Our key processes are changing for product variety. We have cooking and non-cooking process. For example; while producing wafer, respectively; first dough is prepared, baked in the oven, cream coated, cut off, chocolate coated, cooled and packaging. While producing chocolate, patterns are made with depositors, pouring chocolate into molds, cooled and packaging. So; Solen has a large equipment variety. In 2 floors; there are 59 lines, which are 1 to 15 years old. All lines are included in Autonomous Maintenance and A lines are included Planned Maintenance applications.

Solen uses the advanced technology. Solen is in partnership with many of the world's leading companies in this regard. Bosch, Sollich, Schubert, Yaskawa, Azo, Schaefer, Rheon...

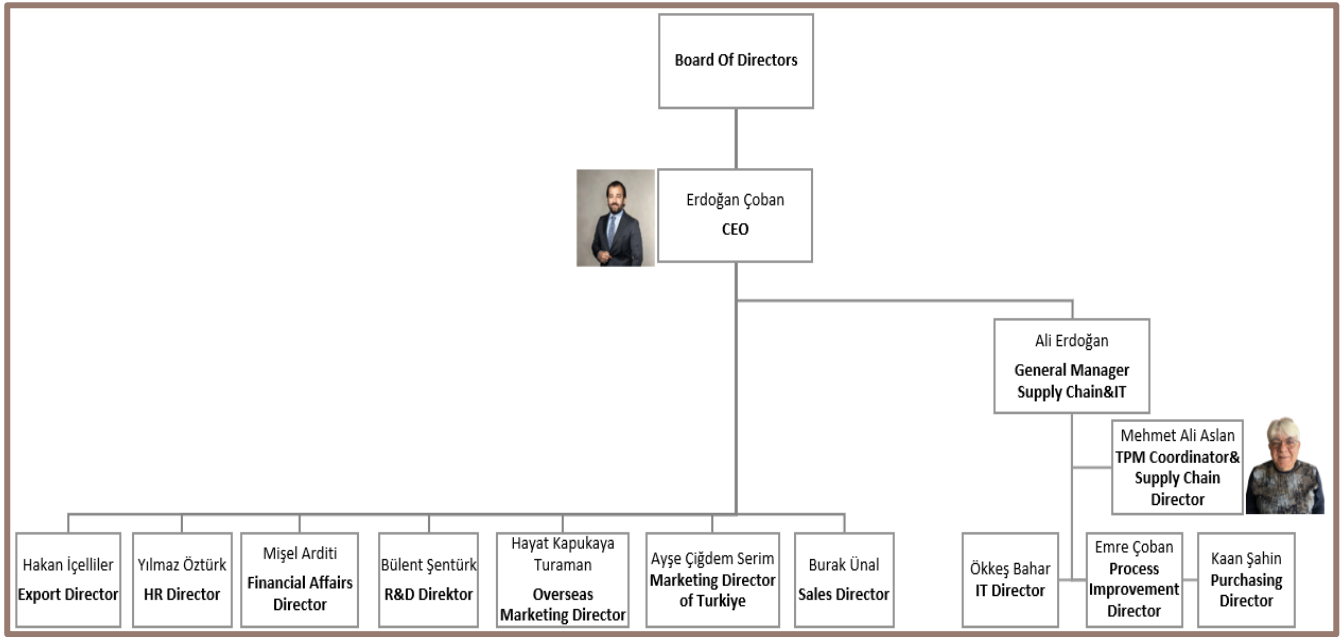
At the same time, it also manufactures its own machines. When this machines are producing, Solen engineers are designing with "zero accident, zero breakdown and zero customer complaint" philosophy.

1.1.3. Management Organization

Below is the organizational chart that shows the board and directors of Solen Chocolate. The Board consists of 6 members and one chairman.



As seen in figure, TPM department reports to the general manager.



1.1.4. Staff Structure

Solen Chocolate Gaziantep Plant employs more than 2000 employees; with 267 white collar includes 102 engineers and 2096 blue collar.

Blue collars are divided three. Production foreman, operator and worker. Production foremans are generally working more than 10 years at Solen, they are autonomous maintenance leaders and they support planned maintenance, kaizens. Operators are supporting autonomous maintenance, planned maintenance and kaizens. Workers are hanging F-Tag, support some autonomous maintenance activities.

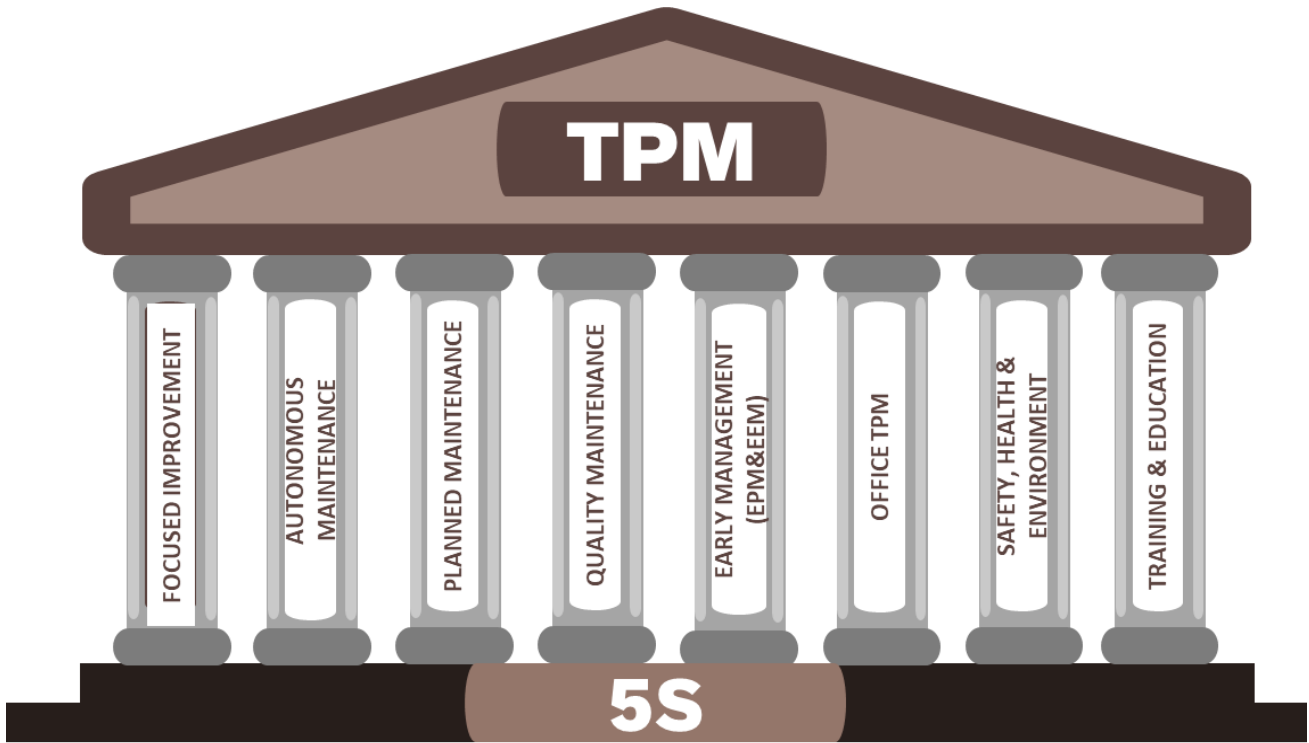
Operations are generally running non-stop with 3 shifts operating 6 days a week. Employees are required to work 45h/week.

2. Milestone on the Journey of Manufacturing Excellence

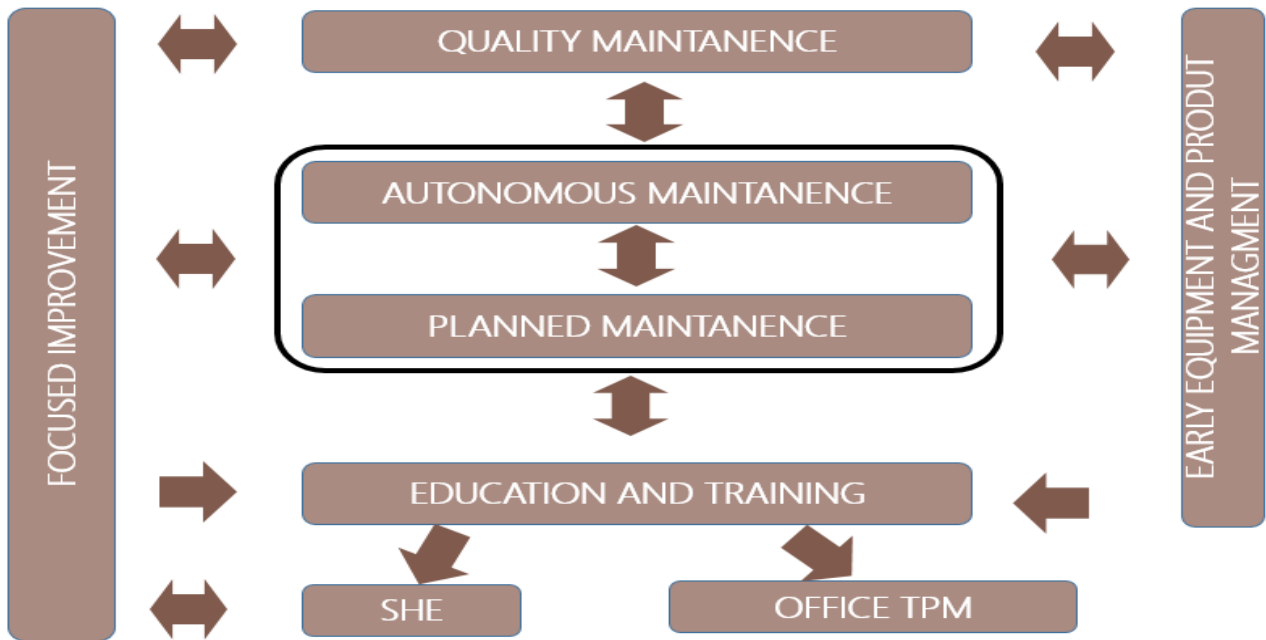
2.1. Solen and TPM

Made investigations in order to achieve and provide our policies, strategies and our values, we saw the TPM model. We decided to work together under the roof of TPM, to go on continual improvement and eliminating our hidden and non-value added activities with learning organizations.

As seen above Solen has a large equipment variety. It is important to have reliable processes to manage lean manufacturing. Before TPM, machine operators and maintainers did not know to differences between normal and abnormal situation for their machine. Breakdowns were repaired by maintenance staff.



We considered all these losses, we decided to start the TPM. We kicked off at İstanbul Plant in 2015, after that Gaziantep Plant kicked off in 2018. Our activities began with 5S and we established 8 Pillars. All activities are continuous under the roof of TPM.



After TPM with the organized technical trainings, operators can understand the reasons of breakdowns, abnormalities and deterioration. Now our operators and maintenance teams believe, with daily autonomous controls and planned maintenance, zero breakdown and zero defect targets can be achieved.

Most important of our achievements we managed with TPM is a developed top-down and bottom-up approaches to deploy our strategies.



Theoric & Practice Educations



Gemba Tours with Senior Management



Kaizen Activities



Consultant Visits

3. Benefits Achieved

3.1. Tangible Effects

- **Cost:** Conversion cost was reduced by 15.7% at the end of 2021 compared to 2018. Although labor, raw material and all costs have increased at a high rate due to the economic crisis in 2022, the increase in conversion cost has been kept to a minimum with the Kaizen studies. At the same time, sales increased 738%. We have reduced our electricity and gas consumptions.
- **Productivity:** We have decreased our productivity by 17,9%. Machine conditions have been restored to basic conditions and improved through Kaizen. We have improved OEE values of our all machines in factory by 7,75%.
- **Quality:** In the last 5 years, we have gained new customers with TPM activities. We decreased our customer complaints by 47,8%. We accepted social media about customer complaint since January 2022, so customer complaints started to increase.

As a result; we had good cost savings and improvement in company culture.

3.2. Intangible Effects

Information sharing and communication development in both horizontal and vertical hierarchical relations.

- **Moral:** Together with each training, suggestions from blue collars increased. With team work, the dialogue between personnel and managers improved.
- **People:** We have increased information and skill levels of all employees.
- Increasing the awareness of all employees with visual management.
- Being conscious of the improvements made, replication.
- Development of knowledge, skills and confidence of employees.
- Development in performance measurement system.
- Being conscious of losses and decreasing losses with teamworks.
- Both white and blue collars have improved in determining root causes of problems with utilization of analysis methods. "Zero Defect", "Zero Breakdown", "Zero Accident" belief is now common.

As a result, we had good improvement in company culture.

4. Key of our Manufacturing Excellence

In order to achieve our targets, we first aim to have the following principles into our company culture with the help of TPM methodology;

- Deployment of SHE conscious to all workers
- Active participation of all employees in improvement studies
- Expansion of Team Work among employees
- Defining losses correctly and selection of correct Kaizen subjects
- Increase in creativity
- Defining root causes of problems correctly
- Taking quick actions
- Expansion of standardization

5. Future Plans

Our future plan is maintaining continuous improvement with the participation of all employees. Also in 2023, we want to receive TPM Excellence Award. We will continue TPM activities through Consistency Award up to the World Class Manufacturer Awards.

For this reason, we will add more committees into our TPM Organization such as, SCM – Supply Chain Management Committee etc. Our main aim is to build "Solen Production System".

6. Achievement Record

Gaziantep Plant KMI&KPI Targets			Unit	Year 2018 (BM)	Year 2019	Year 2020	Year 2021	Year 2022	Year 2023	Year 2024	
KMI	Q	TPM Effect as Seen From Quality Wiewpoint (Q)			Target	0	0	0	0	0	0
		Customer Complaints	Number/ Year	Actual	529	500	320	301	754	683	-
	C	TPM Effect on Cost (C)			Target	1336	1603	1870	2593	4923	7730
		Sales	Million TL	Actual	1336	1700	1995	2896	6441	11199	13438
	D	TPM Effect on Delivery (D)			Target	97	97,5	98	98,5	99	100
		Production Plan Compliance Rate	%	Actual	97	97,5	97,9	98,1	98,9	96,6	-
	S	TPM Effect on Safety (S)			Target	0	0	0	0	0	0
		Major Accident	number	Actual	0	0	0	0	0	0	-
		Minor Accident (LTA)	Number/ Year	Target	0	0	0	0	0	0	0
				Actual	66,0	68,0	57,0	37,0	37,0	7	-
	M	TPM Effect on Moral (M)			Target	2	2	2	2	2	2
		Turnover	%	Actual	23	16	17	32	16	1,98	-
KPI	P	TPM Effect on Production (P)			Target	56	55	54	52	49	46,5
		Productivity	man.hour/tonne	Actual	56,7	55,4	54,7	51,7	50,6	46,8	-
		OEE	%	Target	80	83	85	85,50	86,50	87	87,20
				Actual	80	82,10	83,40	84,50	85,02	86,30	-
	Breakdown (A&B Lines)	Number/ Year	Target	1865	1625	1400	1250	1000	750	550	
			Actual	1865	1775	1687	1393	1320	892	-	
	Q	TPM Effect as Seen From Quality Wiewpoint (Q)			Target	3,10	2,80	2,60	2,40	2,15	1,39
		Rework Loss	%	Actual	3,10	2,90	2,85	2,70	2,46	1,86	1,11
	C	TPM Effect on Cost (C)			Target	2800	2772	2600	2500	2352	2304
		Conversion Cost	\$/tonne	Actual	2848	2592	2490	2401	2594	2581	-
Yield Loss		%	Target	5,65	5,50	5,25	5,15	4,50	4	3,20	
			Actual	5,65	5,51	5,30	5,14	5,65	4,00	-	
Energy Consumption (Electricity)		kwh/tonne	Target	814	800	850	900	870	825	780	
			Actual	814	864	925	904	844	825	-	
Energy Consumption (Gas)	m3/tonne	Target	75	72	80	76	77	75	69,30		
		Actual	76,30	74	78,10	77,68	73,40	77,30	-		
M	TPM Effect on Moral (M)			Target	279	558	1116	2232	3232	5685	
	Employee Suggestion (Cum)	number	Actual	279	693	1090	1989	3597	5834	8750	
E	TPM Effect on Enviroment (E)			Target	0,16	0,15	0,15	0,15	0,15	0,14	
	Carbon Emission	ton CO2/tonne	Actual	0,15	0,15	0,17	0,15	0,15	0,15	-	
			Target	4,17	4,10	4	4,70	4,50	3,60	3,25	
	Water Consumption	m3/tonne	Actual	4,17	4,26	4,75	5,02	3,80	3,17	-	