



## **OWENS CORNING INSULATION BUSINESS MEXICO CITY PLANT**

### **1. Organization Profile:**

The story of Owens Corning (OC) began in the 1930s when a failed experiment with glass building blocks produced a surprising result - it revealed a way to make glass fibers in commercial quantities. That discovery launched more than a new product. It set in motion a remarkable series of events that included the birth of Owens Corning and the spawning of new industries related to the production of fiber glass materials.

From its inception in 1938, Owens Corning has leveraged the power of innovation to achieve its mission of delivering solutions, transforming markets, and enhancing lives. And for nearly 75 years, Owens Corning has led virtually every major technological advance in glass fiber technology.

Through the years, Owens Corning innovations have ranged from military applications during World War II and the Fiberglas™ - reinforced 1954 Chevrolet Corvette to the manufacture of materials for Apollo space suits, insulation of the Trans-Alaska pipeline and the Fiberglas™ roof of the Haj Terminal in Saudi Arabia, to name but a few. This spirit of innovation continues today with revolutionary solutions such as Owens Corning's high-performance EcoTouch™ insulation, introduced in 2011.

Insulation Mexico City Plant began its activities in 1958 under the name of Vitro Fibras SA., as result of an association between the Mexican industrial consortium FIC and Owens Corning Fiberglass Co. who in 2004 becomes the sole owner of the plant.

OC Mexico City it is currently one of the more complex and profitable Operations in OC Insulation division. Its primary activity is to produce fiberglass for thermal and acoustic insulation having the capacity to produce over 20 different product families.

OC Mexico City operates 24/7 with 476 employees. Some achievements of the Plant are:

- Certification as a Green Company (local environmental authority).
- Clean Industry Certification (federal environmental authority).
- ISO 9001:2015
- IATF 16949:2016
- ONNCCE – National product certification for Aislhogar and BAB product families.
- UL – International product certification for RDL, MBI, y RFs product families.
- LAPEM - National product certification for product families in the industrial market.
- Winners of the Owens Corning Foundation Volunteer of the Year (Team Category).

## **2. Milestone on the Journey of Manufacturing Excellence**

Owens Corning has been working with different continuous improvement methodologies which have been used in all its manufacturing centers. This led to a non-detailed manufacturing standards which started to cause forced deterioration at early stages of the equipment's lifetime. Forced deterioration started to become visible to the business when escalations (efficiency drop events) started to happen at all Owens Corning facilities. At this stage, 70% of escalations happening at Owens Corning were related to equipment breakdowns. Uncertainty of when an escalation may occur and its subsequent effect in Safety and Quality conditions, led to the organization to turn to TPM as the way in which Owens Corning need to perform to eliminate forced deterioration and search for the Manufacturing Excellence.

So, Mexico City Plant as one of the strategic Owens Corning facilities by its flexibility started to implement TPM looking to increase the production capacity and improve our processes to meet clients' expectations and be able to expand markets for our products.

With the strategy well aligned through our Policy Deployment process a strategic team was formed and a Master Plan was designed, with an initial 6 pillar approach, which started the implementation path for the TPM program in the Batch House and Binders areas as the pilots in 2017.

Along the journey of understanding, controlling, and improving the process and by following the pillar implementation, the need of rolling out to other areas of the plant, as well as the need of deploying all eight pillars got visible.

Concept of Zero has been started to be introduced into the plant culture. The sporadic losses have been decreasing, but chronic losses have been arising with a complexity not seen before. This has led to move from simple FI tools as 5W+2H, Why-Why and Ishikawa to a more complex set of tools such as QC Story and Infinite Loop. Therefore, new abilities and increased knowledge has been needed for all our employees, leading us to the creation of our TPM Training Center, focused on AM Step 3 and Step 4.

Important capital projects for the business in Mexico Plant, as well as an historical deficiency in projects, has led to establish the need of launching the Early Management pillar, to accomplish a vertical start-up in every project.

Currently, all 8 pillars have being launched and the whole plant is now part of the TPM journey.

## **3. Benefits Achieved**

Along TPM implementation, the main objectives have been restoring and improvement our processes and equipment as well as to develop our people through the mindset changing from this new organizational culture.

AM Pillar has transformed our Batch House in a "Dust Free Batch House" due to source of contamination elimination and our Binder area with the elimination of leaks and spills, allowing our operators to work without Tyvek and mask.

In EHS, we continue working strongly to avoid incidents. Preventive approaches have been taken, areas risk level reduction, implementation of engineering solutions and unsafe behavior campaigns. For Environment, actions to reduce water, energy consumption and waste to reduce Landfill impact.

Regarding Quality, more than a 58% of complaints have been reduced.

In Productivity and Service level, the number of non-planned stops is decreasing, tons produced per day have increased 10%.

In Cost reduction, through the development of loss trees and applying FI tools, savings over \$750 KUSD and waste has been reduced by 50%.

In People Development, we are continuing developing our employees in new tools and forming our Leadership team to increase knowledge. Currently we have internal trainers for different methodologies and technical skills.

#### **4. Key of Our Manufacturing Excellence**

We want to continue to implement TPM as the way we run our operations in our plant because we are sure that through TPM we can achieve and maintain 0 accidents, 0 defects and 0 losses, improve our operations and develop our People to become true our vision of being a capable and engaged team that ensures the sustainable success future of the business, becoming a World Class Plant.

All efforts since our TPM implementation have brought us positive results in Safety, Quality, Productivity, Costs and Environment. Results that have been achieved through our People, who has shown their strong ownership and that are fully engage in our transformation process working to be better and continue our journey.

We have seen how not only our losses are being address and successfully reduce and our KPIs improve, but also, how a proactive environment where possible issues, is being create.

We are proud for all that we have achieved and willing to challenge ourselves to go to the Excellence Award Certification and crown this 1<sup>st</sup> part of our journey to recognize the effort and dedication that each employee has put into making this possible.

It could also be motivating for the Insulation division that the Mexico Plant could be the 1<sup>st</sup> Plant in the Americas to achieve the JIPM Excellence Award.

## 5. Achievement Record

Company & plant name		Owens Corning: Insulation Mexico City Plant			
Category	Index	Unit	Kick off/ TPM Started	Actual Status	Target
Enter the year →			2017	2023	2023
S	Number of work-related accidents requiring days off work	Cases/ year	1	3	0
S	Number of work-related accidents not requiring days off work	Cases/ year	17	7	2
S	Safety Index (Time Incident Rate)	Accidents per 1 000 000 operator hours	2.6	1.7	1
P	OEE (or Overall Plant Efficiency)	%	NA	NA	NA
P	Conversion Efficiency	%	92.39	95.52	95.50
P	Operation Efficiency	%	94.64	97.56	97.38
P	Number of tags raised	#	348	4,258	4,200
P	Number of breakdowns	Breakdowns/ year	177	146	120
P	MTBF	Hour	101	133.9	140
P	MTTR	Hour	1	0.53	0.45
Q	Number of customer complaints	Number/year	31	13	13

Q	In-line defect rate (scrap)	%	9	4.28	4.7
C	Cost index	Cost/Unit Cost/Kilogram	1.5	2.64	2.66
D	Production Lead time	Hour	26.3	24.1	24
D	Delivery performance (Schedule attainment)	%	96.8	97.1	97.5
M	Number of Employee Suggestions (Quick Kainzen - Mexico)	Number/year	0	698	693
M	Number of OPL (One Point Lessons - Mexico)	Number/year	16	3,708	4,968

1. Do you have a program where all employees can participate in TPM?

We began the deployment of TPM in 2017 with 2 pilot areas and in subsequent years we expanded to 18 areas, covering 100% of the production areas. With this expansion, the need to strengthen our pillars that had begun with members defined by their functional area, to committees that integrate members from other areas such as costs, purchasing and development, became apparent. Thus involving practically all members of a TPM team, whether in a pillar or as a member of an AM team or our different improvement and loss elimination cases. Additionally, as part of the onboarding of any area, a part of TPM is integrated.

On the warehouse side, which recently became the responsibility of the Plant leader, in the last Q of 2023 they began the deployment of TPM

2. Do you have a program allowing employees to be recognized their achievements?

Currently we recognize through events such as special meals with the leadership team, *tacos*, special uniforms, some souvenirs such as suitcases.

3. Are top management involved in the audit/verification of completion of TPM pillar steps?

Yes, the steering committee has step change audits to different areas/pillars. Actually our steering committee are Sponsors of our AM areas and for our improvement cases.

4. Are all pillar activity boards displayed and reviewed by top management?

Yes, in the entrance of the plant we have the pillar boards and are weekly reviewed by the steering committee. Additionally our 18 areas have in place their AM pillar boards.