

TPM



Who Should Attend:

- Plant Manager
- Production Director
- Operation Director
- Production Manager & Supervisor
- Quality Manager & Technical Manager
- Engineering Manager
- Maintenance Engineer & Technician
- Front-line Leader, etc.



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Total Productive Maintenance (TPM)
Best Practice 2009

*Keeping your equipment available, efficient, and producing the highest quality
Shanghai, China
30th & 31st July 2009*

Event Description:

Companies face more challenges today than ever before. Global competition forces them to focus on total customer satisfaction: lowest cost, highest quality, and shortest lead time. As they work to improve their production processes using Lean thinking, they hit barriers associated with equipment: downtime, inefficiencies, and defects. Companies have learned when they don't schedule time for maintenance their equipment will schedule that time for them! To address this need, many companies are turning to Total Productive Maintenance (TPM), which is an approach to equipment management and the systematic execution of maintenance by all employees, companywide. This organizational wide support of TPM enables the company to achieve goals, such as zero breakdowns and zero defects, which in turn increases productivity resulting in higher profitability. TPM is a long-term strategic initiative, not a short-term tactical fix. This event will provide companies direction on how to start, factors to consider, and how to gain company wide support for success.

Training Objectives:

- To establish the understanding and awareness of TPM and refresh the basis of TPM – 5S/VCS
- To learn TPM 8 pillars activities and TPM implementation strategy, roadmap and step-wise approach
- To master the tools for TPM implementation and be capable to lock and eliminate loss through TPM implementation
- To clarify the implementation procedure & method of Autonomous Maintenance and how to improve equipment reliability through integration of Autonomous Maintenance and Planned Maintenance

What You Will Learn:

In this 2 days TPM learning event, participants will receive a comprehensive overview of TPM including the following topics:

- What are TPM/TPM process goals?
- Basic TPM concepts
- TPM: From Maintenance Tool to Management Tool
- Equipment Loss Analysis and OEE
- Planned Maintenance
- Focused Improvement (Kaizen)
- TPM Implementation
- Autonomous Maintenance
- 5S and how it relates to TPM
- TPM Tools
- Preventive/Predictive maintenance
- Six major losses
- Lock-out/Tag-out
- Initial cleaning/inspection
- Minor repairs
- Visual controls and indicators
- Countermeasures
- Operator/maintenance TPM activities
- Critical spare parts list

Workshop Leader:

Professor Xiaotong Zhang

Xiaotong Zhang is experts and senior adviser of Chinese Device Management Association. He is also a distinguished expert of Chinese Association of Equipment Management. He had been engaged in equipment management at Baosteel for nearly 20 years, was guider for equipment inspection maintenance and management in Baosteel. He involved in the publication of many books such as a Comprehensive Standardized Productive Maintenance, Standardized Equipment Inspection System. He had provided training, consulting service and guidance for more than 100 large and medium sized enterprises such as: China Petroleum Chemical Corporation, China National Petroleum Corporation, Aluminum Corp. of China, Ma Steel, Shanghai Ganxiang Automobile Mirror, Panzhihua Iron & Steel Congqin Tobacco, Bosch and Siemens Home Appliances Group, Cherry Automobile, Geberit, Shanghai Delphi Packard Electric System, Baoshuo Group, Shanghai Jiulong Electric Power, Ricoh, Sunrain Solar Energy.

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Martin Linking Business Consulting is a business information company providing senior business executives around the world with tailored professional trainings, practical conferences and business consulting services. Martin Linking Business Consulting is also authorized to source for and negotiate with parties interested in investing in Yandu District, Yancheng City, Jiangsu Province, which is only 3 hours from Shanghai.

Martin Linking Business Consulting produces more than 50 events and works with senior executives from the majority of the world's top 1000 companies to improve their business strategy and match their learning and training needs. And we continue to grow.

Part I: Japan and TPM

1. Post-war Japan's economic reality. Learn the United States' production management system (PM system).
Brief introduction of "Toyota Production System" (TPS System)
2. The development of Japanese equipment management
 - 1) The concept of repair strategy
 - 2) Several methods of repair of specific detailed
 - Breakdown Maintenance
 - Preventative Maintenance
 - Predictive Maintenance
 - Corrective Maintenance
 - Maintenance Prevention
 - Autonomous Maintenance
3. What is "TPM"?
 - 3.1 Explain the five elements of TPM
 - Pursue the limit of productivity
 - Zero breakdowns and failures of the full life cycle of the production
 - Enterprise-wide system
 - Involvement of all people
 - Duplicate group activities to achieve the goal of zero loss
 - 3.2 The distinction between old and new TPM --- shift from equipment for equipment to equipment for the production
 - 3.3 TPM is the wisdom of mankind
 - 3.4 The essence of TPM activities in Japan is to use the enterprise-wide power in order to ensure the performance of the production equipments
4. Seven steps to carry out TPM activities:
 - 4.1 The initial clean-up
 - 4.2 Eliminate pollution sources
 - 4.3 Independent inspection
 - 4.4 The importance of base and throughout standardization of operations
 - 4.5 What is "All the Equipment's Total Check?"
 - 4.6 TPM pursue the full implementation of Autonomous Maintenance
 - 4.7 The status to carry out TPM in Japan

Part 2: The start of TPM- the foundation is 5S and Visual Control System

1. 5S activities advancing with the times. What's the meaning of 5S and the implementation procedures
2. On-the-spot interaction: the steps to change the looks on-the-spot
3. The meaning of "Set Management", how to carry out "5S" and the assessment methods
4. Hot question: our company have many equipments, how to solve the "5S" problem? The key of 5S is self-discipline
5. Visual Control Management
6. Case introduction of enterprises to promote 5S

Part 3: To promote TPM - sources of pollution must be excluded

1. The dangers of pollution sources and to find the root; (pollution source refers to pollution, clean-up difficulties, failures, defects, waste, dangerous source and so on)
2. Pollution exclusion and technical research, enterprises implementation case and practice during the break
3. Analytical methods for the source of pollution
 - Failure Mode & Effect Analysis (FMEA) method
 - Fault Tree Analysis (FTA) method
 - Frequently used instruments in enterprise
4. Interaction and practice "Failure Mode and Effect Analysis" (FMEA) method

Part 4: Know-how to promote TPM - must learn KAIZEN (Focused Improvement)

1. What KAIZEN means to the enterprise; KAIZEN and Innovation
2. The content of continuing improvement of Enterprises and the implementation
3. Improved closed-loop flow and methods, planning and reporting
4. On-the-spot improvement tool: PDCA cycle (referring to the planning, implementation, inspection and feedback)
5. Case study: 12 kinds of way to improve and innovate

Part 5: Helper to promote TPM- what must be mastered as good tools

1. Visualization technology, POKA-YOKE etc
2. 5 WHYs, Root Cause Analysis (RCA method)
3. The self-management of employees and one-point lesson(OPL)

Part 6: Equipment Loss Analysis and OEE - to improve OEE

1. The objectives to promote TPM
 - Pursue the maximize of OEE (Overall Equipment Efficiency)
 - What is OEE
 - OEE calculation and the essences of OEE
2. 16 Losses in plant and 6 major losses
3. OEE and 6 major losses of equipment
4. How to identify and eliminate the 6 major losses
5. How to establish OEE system and real cases
6. Introduction of Six sigma, LEAN management
7. Case study: OEE management in enterprises

Part 7: Autonomous Maintenance

1. Autonomous Maintenance and Planned Maintenance of TPM
2. Forced deterioration and Natural deterioration
3. Definition and general concept of Autonomous Maintenance
4. Autonomous Maintenance step 0 -Preparation
5. Autonomous Maintenance step 1 - Initial Cleaning
6. Autonomous Maintenance step 2 - Countermeasure on the source of Forced deterioration
7. Autonomous Maintenance step 3 - Tentative Standards for Autonomous Maintenance
8. The other 4 Steps of Autonomous Maintenance
9. The key implementation points of Autonomous Maintenance

Part 8: Planned Maintenance

1. Core and propelling implementation procedure of Planned Maintenance
2. Equipment classification
3. Different maintenance strategy
4. Support from Planned Maintenance to Autonomous Maintenance
5. 5-step towards Zero breakdown

Part 9: TPM Implementation

1. TPM Implementation Master Plan
2. 21-point check list of TPM Kickoff
3. Selection of TPM model line
4. Normal returns and key success factors for 1st stage (3 Years) TPM implementation

最佳TPM实践2009

培训目标:

- 建立对于TPM的理解和认识及TPM的基础- 5S/VCS
- 学习TPM的8支柱活动及TPM执行策略, 规划和步骤
- 掌握实施TPM的工具, 以及能够通过TPM的实施来锁定和消除损失
- 通过一体化的自主维修和计划保养来弄清楚自主维修和如何提高设备的可靠性的执行程序与方法

在这次两天的TPM培训中, 参加者将得到对TPM的全面理解。包括下列的主题:

- 什么是TPM, TPM过程的目标是什么?
- TPM的基本概念
- TPM: 从维护工具到管理工具
- 设备损耗分析和OEE
- 计划维修
- Kaizen
- TPM实施
- 自主维修
- 5S及其与TPM的关系
- TPM工具
- 预防维修和预见维修
- 6大损耗
- 锁定/标识
- 初始清洁和检查
- 小维修
- 视觉化管理和指标
- 对策
- TPM活动的操作者和维持
- 重要备件列表

关于讲师

- **张孝桐 教授**
- **张孝桐** 中国设备管理网专家、高级顾问, 中国设备管理协会专题交流中心特聘专家。曾在宝钢从事设备管理点检工作近 20 年, 是宝钢设备点检、维修管理的传授人。参与编写出版了《全面规范化生产维护》、《规范化的设备点检体系》等多部著作。先后为中石化、中石油、中铝、马钢、干巷汽车镜集团、攀钢、重庆烟草、无锡博西威家用电器有限公司(西门子家用电器)、奇瑞汽车、瑞士独资上海吉博力信息技术有限公司、上海派克电器有限公司、宝硕集团、久隆电力、理光传真机、太阳雨集团等 100 多家大中型企业提供培训、咨询和指导。

第一部分：日本国与 TPM 的开展

1. 战后日本的经济实况；学习美国生产管理模式；（PM 系统）
“丰田生产方式”简介；（TPS 系统）
2. 日本国设备管理的历程
 - 1) 维修策略的概念
 - 2) 几种维修方式的简介
 - ①事后维修（BM） ②预防维修（PM） ③生产维修（PM）
 - ④改良维修（CM） ⑤维修预防（MP） ⑥自主维修（AM）
3. 什么是“TPM”？
 - 1) TPM 的五大要素
 - ①追求生产效率极限 ②生产全生命周期零故障
 - ③企业全系统 ④全员参加 ⑤重复小组活动达到零损失的目标
 - 2) 新老 TPM 的区别——从设备到设备转向设备为生产
 - 3) TPM 是全人类智慧的结晶
 - 4) 日本开展 TPM 活动的实质是动员全企业的力量为确保产品生产的设备而努力
4. 开展 TPM 活动的七步骤：
 - 1) 初期清扫
 - 2) 消除污染源
 - 3) 自主点检
 - 4) 基准和全程）标准化作业的重要性
 - 5) 什么是“全部设备的总点检”
 - 6) TPM 追求“彻底实施自主管理”
 - 7) 日本国开展 TPM 活动的动态

第二部分：推进 TPM 的起始，必须铺好的基石是五个 S 和视觉化管理系统

1. 与时俱进的 5S 活动、5S 的含义及实施流程
2. 现场互动：改变现场面貌的步骤
3. “定置管理”的含义、“5S”的开展及评审方法
4. 网站热点：我们企业的生产设备非常多，如何解决“5S”问题？5S 关键是自律
5. 视觉化管理系统
6. 企业推进 5S 的案例介绍

第三部分：推进 TPM 的前提，必须排除的拦路虎是污染源

1. 污染源的危害性及其源头道寻找；（污染源泛指污染、清扫困难、故障、缺陷、浪费和危险源等不良源头）
2. 污染源的排除和技术攻关，企业实施案例与课间练习
3. 污染源的分析方法
 - 故障模式与影响分析(FMEA)的方法
 - 故障树(FTA)的分析方法
 - 企业运行过程中常用的工具
4. 课间互动与练习

“故障模式与影响分析”（FMEA）方法

第四部分：推进TPM的诀窍，必须学会的杀手锏是要改善（KAIZEN）

1. 改善对企业的意义、改善与创新
2. 企业现场持续改善的内容及执行
3. 改善的闭环流程与方法、计划与报告
4. 现场改善的工具 PDCA 循环（指计划、实施、检查和反馈）
5. 案例：改善与创新的 12 种思考方法

第五部分：推进 TPM 的帮手，必须掌握的开门锁是好工具

1. 可视化技术、POKA-YOKE（防差错系统）等
2. 五个为什么、根本原因分析（RCA 方法）
3. 企业员工的自主管理和单点课 OPL

第六部分：设备损耗分析和OEE-推进TPM的目标，必须攀登的新高峰是OEE

1. 推进 TPM 的目标
 - 追求 OEE（设备综合效率）最大化
 - 什么是 OEE
 - OEE 的计算和实质
2. 工厂的 16 个损耗和 6 个主要的损耗
3. OEE 和设备的 6 大损耗
4. 如何确定和消除 6 大损耗
5. 如何建立 OEE 系统和实例
6. 六西格马、精益（LEAN）管理简介
7. 案例：企业的 OEE 管理

第七部分：自主维修

1. 自主维修和 TPM 的计划维修
2. 自主维修和意外损耗
3. 自主维修的定义和一般概念
4. 自主维修的步骤 0 - 准备
5. 自主维修的步骤 1 - 初始清洁
6. 自主维修的步骤 2 - 估计意外损耗的根源
7. 自主维修的步骤 3 - 自主维修的试行标准
8. 自主维修的其他四个步骤
9. 自主维修的主要实施点

第八部分：计划维修

1. 计划维修的核心和实施推进步骤
2. 设备的分类
3. 不同的维修阶段
4. 从计划维修到自主维修的支持
5. 走向零故障的 5 个步骤

第九部分 TPM的实现

1. TPM 实现的主计划
2. TPM 开始的 21 个检查点
3. TPM 模范生产的选择
4. TPM 实现的第一阶段（3 年）的一般回报和主要的成功因素

参加对象

厂长，生产总监，运营总监，生产经理，生产主管，品管经理，技术经理，工程经理，设备经理，设备维修工程师，技术员，一线操作人员等。

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Total Productive Maintenance (TPM) Best Practice 2009

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Contact: Whitney Shen

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