



Optimization of the function maintenance

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Abstract

This approach allows, by using the decision-making aid tools to detect the most critical components in equipment, to determine the set of priorities of the maintenance actions to carry out and to direct the procedure of exploitation towards the links more penalizing in equipment, to even define the recommendations and the necessary interventions. Thus, the pathological behavior of the material can be appreciated and its availability may therefore be increased. Accordingly and in the light of these points, the Pareto methods, failure mode and effects analysis (FMEA) and the Ishikawa diagram occupy a significant place in the optimization of the function maintenance. These methods are therefore a good tool to locate and act on the most critical failures, to even conclude a program of maintenance (Benidir *et al.*, 2006).

This approach enables us to classify the causes according to effects' which they generate and to deduce the priorities from actions to be carried out, namely:

- to target and determine the machines, even the elements which penalize more the ability of the equipment and their frequencies.
- to define the corrective maintenance actions to undertake in the order of urgencies and importance.
- to optimize the human and technique means.
- to automate the principal operations of inventory control.
- to direct the improvements choice.

In this context of optimization of the function maintenance and by using the methods mentioned above, a troubleshooting service chart for the critical machines can be determined.

Key words: *Maintenance, Ishikawa diagram, Optimization, Availability, FMEA, Critical machines, Pareto diagram*

1. Introduction

The companies which survive and thrive are those which knew each time to evaluate and reposition their maintenance to adapt permanently to the new conditions

imposed by the competition of the market (Benidir *et al.*, 2006). Currently the companies are increasingly sensitive to the importance and the interest of the control of the costs induced by the accidental failures of the production systems. In order to maintain this opportunity and to set up a powerful maintenance management system, the