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ENVIRONMENTAL FMEA AND ITS APPLICATIONS A COMPREHENSIVE LITERATURE REVIEW

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Abstract

Given the current rapid growth of the world economy, the resulting environmental damage in the form of global warming and climate change as well as air and water quality, the tendency to increase environmental threats caused by population growth, agriculture and heavy pollution industries, it seems that the Environmental Failure Modes and Effects Analysis (EFMEA) method will be increasingly important. For this to happen, it is necessary to raise awareness and popularize its use. The aim of the study was to recognize the directions and trends in the development of papers and research worldwide on the application of the Environmental FMEA method. The study was based on the reporting system of systematic reviews and meta-analysis (PRISMA). The literature review revealed that EFMEA is used in various industries. The number of publications on EFMEA is growing, but the low number overall proves that there is still little experience in this field. Due to the lack of studies from Central Europe, there is a need to base recommendations on the experience of other foreign centres, mainly from Iran. Studies from this country were the most prevalent among those selected for this review. The majority of papers relate to the environmental risk assessment in the energy and petrochemical industries. There are isolated cases of using the EFMEA method in the chemical or food industry. The vast majority of the studies undertaken are very extensive, paying attention to a wide spectrum of threats contributing to the occurrence of a given environmental risk. It was observed that EFMEA is integrated with other methods, which gives a synergy effect, contributing to the acquisition of better and more comprehensive knowledge about a given problem.

Key words: Environmental Failure Mode and Effect Analysis, literature review, risk assessment

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