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Fuzzy Inference System for Risk Assessment Evaluation of Wheat Flour Product Manufacturing Systems

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Abstract : The aim of this research is to develop an intelligent system to analyze the risk level of wheat flour product manufacturing system. The model consists of five Fuzzy Inference Systems in two different layers to analyse the risk of a wheat flour product manufacturing system. The first layer of the model consists of four Fuzzy Inference Systems with three criteria. The output of each one of the Physical, Chemical, Biological and Environmental Failures will be the input of the final manufacturing systems. The proposed model based on Mamdani Fuzzy Inference Systems gives a performance ranking of wheat flour products manufacturing systems. The first step is obtaining data to identify the failure modes from expert's opinions. The second step is the fuzzification process to convert crisp input to a fuzzy set., then the IF-then fuzzy rule applied through inference engine, and in the final step, the defuzzification process is applied to convert the fuzzy output into real numbers.

Keywords : failure modes, fuzzy rules, fuzzy inference system, risk assessment
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