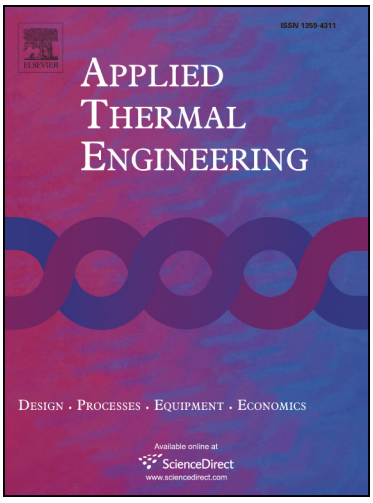

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Quantitative risk assessment of continuous liquid spill fires based on spread and burning behaviours

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Abstract: Spill fires usually occur during the storage and transportation of hazardous materials, posing a threat to the people and environment in their immediate proximity. In this paper, a classical Quantitative Risk Assessment (QRA) method is used to assess the risk of spill fires. In this method, the maximum spread area and the steady burning area are introduced as parameters to clearly assess the range of influence of the spill fire. In the calculations, a modified spread model that takes into consideration the burning rate variation is established to calculate the maximum spread area. Furthermore, the steady burning area is calculated based on volume conservation between the leakage rate and the fuel consumption rate due to burning. Combining these two parameters with leakage frequency, flame model, and vulnerability model,