Decision Theory: Why It Is Important for Improving Chemical Process Safety

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ABSTRACT

Any chemical plant operation is robust only when a strategic balance is struck between optimal plant operations and, maintaining health, safety and environment. The balance emerges from choosing the best option amidst several conflicting parameters of operations vs. safety. Most often the lack of fully understanding operational risks lead to subjective decision making in the hope of improving safety. Hence, strategies for normative decision making are needed for making choices under uncertainty. Decision theory is utilized here for enabling a rational decision maker to choose the most preferred risk. Further, the conflict of production and safety is conceptualized as a game for strategic interdependent decision making.