

Presentation. -

Volume 8, Issue 1 – INQUIDE: Chemical Engineering and Development.

Dear Readers and Researchers,

The journal INQUIDE – Chemical Engineering and Development presents Volume 8, Issue 1, an edition that consolidates its positioning as an academic platform for the dissemination of rigorous and relevant research in chemical engineering and applied sciences. This issue brings together contributions that address contemporary challenges related to energy sustainability, the design and evaluation of process equipment, industrial safety, food innovation, and the quantitative analysis of socioeconomic phenomena, reflecting an interdisciplinary approach oriented toward scientific, technological, and productive development.

The first article examines the replacement of internal combustion engines with electric systems in agricultural irrigation operations, addressing the problem of pollutant emissions and dependence on fossil fuels. Through a technical and economic analysis, the study identifies benefits associated with emission reductions, lower operating costs, and reduced noise pollution, while also examining challenges related to electrical infrastructure and energy supply stability in rural areas, providing relevant criteria for the transition toward more sustainable agricultural practices.

The second article develops the thermal–hydraulic design of a plate heat exchanger intended for the cooling of liquid cow's milk. Based on a detailed engineering approach, key operational parameters related to heat transfer, pressure drop, and implementation costs are determined. The main contribution of the study lies in demonstrating the technical and economic feasibility of the proposed equipment, highlighting its applicability in dairy industrial processes that require thermal efficiency and operational reliability.

The third article presents a review of occupational risk assessment in the Ecuadorian dairy industry, based on the analysis of recent publications with a regional focus. The study addresses occupational health and safety through a comprehensive approach that integrates good manufacturing practices, ergonomics, maintenance technologies, and management systems. Its main contribution consists of evidencing significant reductions in workplace accidents and highlighting the need for longitudinal studies and unified measurement frameworks to assess the sustainability of implemented improvements.

The fourth article addresses the thermal–hydraulic design of a shell-and-tube heat exchanger for the cooling of acrylic acid in an industrial context. The work develops a detailed sizing that includes geometric, operational, and economic variables, demonstrating that the proposed design complies with the pressure drop limits established by the process. The contribution of the study focuses on the technical validation of a piece of equipment widely used in the chemical process industry.

The fifth article explores the production of Vienna-type sausage from jumbo squid pulp as an alternative for diversifying fishery products. Through an experimental approach, formulations, processing conditions, and sensory, nutritional, and microbiological attributes are evaluated. The main contribution of the study lies in demonstrating the technological feasibility, safety, and favorable nutritional profile of the product, contributing to the development of innovative value-added foods.

The sixth article presents the time-series modeling of secondary school enrollment in Ecuador using the Box–Jenkins approach, based on an extensive historical dataset. The study addresses the analysis of a key indicator for educational planning, applying stationarity tests, model validation, and medium-term projections. Its contribution consists of demonstrating the usefulness of time-series techniques for the quantitative analysis of educational phenomena and for supporting public policy formulation.

The seventh article analyzes the forecasting of Ecuador's Gross Domestic Product growth using ARIMA models, comparing short-term scenarios. The work addresses macroeconomic volatility through robust statistical techniques, validating the applicability of the Box–Jenkins approach for economic analysis. Its main contribution lies in generating projections consistent with official estimates and in promoting interdisciplinary approaches between economics and engineering.

The eighth article develops the thermal–hydraulic design of a double-pipe heat exchanger for milk cooling, evaluating its operational suitability. Based on the calculation of design parameters, pressure drop, and pumping power, the study demonstrates the limitations of the proposed equipment for the required service. The contribution of the work focuses on the critical analysis of design applicability and on identifying relevant technical constraints for process equipment selection.

The ninth article presents a comparative analysis of the particle size distribution of grains ground in hammer mills, ball mills, and their combination. Through sieve analysis, microscopic characterization, and statistical testing, the

study addresses the influence of equipment type on the quality of the ground product. Its main contribution lies in demonstrating that the combination of milling technologies allows for more uniform particle size distributions, overcoming the limitations of each piece of equipment when used separately.

The Editorial Board invites the academic, professional, and student community to engage in a detailed reading of this issue, whose articles provide scientific evidence, technical analyses, and methodological approaches that enrich knowledge in engineering and applied sciences. The set of published works offers relevant inputs for research, professional practice, and decision-making in productive and public policy contexts.

Likewise, INQUIDE – Chemical Engineering and Development extends a permanent invitation to national and international researchers to submit original manuscripts for future issues. The journal maintains a firm commitment to editorial quality, the rigor of the double-blind peer review process, and the open dissemination of knowledge, emphasizing that no fees are charged for manuscript review or publication, and reaffirming its international projection as an academic space for the dissemination of high-impact research in chemical engineering and development.

Without further ado, we wish you an enjoyable reading experience and sincerely thank you for your continued support of our journal.

Sincerely,

Francisco Javier Duque-Aldaz
Editor-in-Chief
INQUIDE
Chemical Engineering and Development