Transferring R&D results into optimal process design – the good and the bad

Leon Lorenzen

(Mintrex Pty Ltd, Level 3, 516 Hay Street, Subiaco, WA 6008 and Lorenzen Consultants Pty Ltd, 16 Charles Street, Karrinyup, WA 6018; leon.lorenzen@mintrex.com.au)

Abstract

A lot of emphasis is either placed on the design and execution of an effective research and development programme (including a good metallurgical test work programme) or on the detailed design of a process circuit using the results from a test work program. Usually these are not done by the same company and individuals and disconnect between the two are very often the case and thus the best design outcome is not always achieved.

The purpose of this paper is to explain the importance of good collaboration between the research and development team and the design team to ensure an optimal design, both in regards to process functionality as well as cost. There are various pitfalls along the way and this paper will try and show that a systematic and optimised approach can reduce the risks of over/under design, cost escalations as well as incorrect equipment and layout, thus not an optimal design.

The author will use various examples to explain the various decisions that can be made in a design process and to show the reader that making different design decisions from the same test work results can have major different cost and process outcomes on the plant proposed. Effective interpretation of test work and research results understanding the gaps, good collaboration (one team between client, researcher and designer), zero base design, optimal flowsheet and effective use of appropriate equipment are some of the factors that can be used to mitigate the issues to deliver an optimal final product.