

Piramal Encourages Embracing Green Chemistry



is widely accepted that more than 100 kg of waste can be produced during the manufacture of one kg of API or advanced intermediate.

Piramal has launched a series of green chemistry initiatives and is asking its partners to evaluate the greenness of the chemical pathways (routes) they are using in any project.

There are two potential areas for implementing greener routes (processes) in drug development: a) when the drug demonstrates efficacy, during Phase II, as the clinical risk is reduced enough to consider putting R&D resources into developing a more efficient and greener route; and b) Life Cycle Management (LCM), post-commercialisation, where the onset of generic manufacture requires more efficient processes to remain competitive.

New chemistries for improved and greener routes are urgently needed if the industry is to see the bigger picture of GCbD followed by optimization of these routes using QbD. A number of tools are available: from changing the initial routes, using biocatalysis, flow systems and chemo catalysis, and by implementing a key R&D function called "route scouting." A number of CMOs—Piramal included—are developing new chemistries that enable greener routes using GCbD principles, but there needs to be a collective desire in pharma to improve its overall greenness and efficiency.

Piramal Enterprises' Pharma Solutions division believes it is imperative to improve the mechanism by which drugs are discovered, developed, and manufactured through advances in Process Analytical Technology (PAT), and is calling for a commitment to continuous improvement by implementing green chemistry earlier in the drug development cycle.

Too often life sciences companies examine the efficiency of the chemical processes used much too late in the drug development process, if at all. It

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