EDITORIAL

Innovation is central to any R&D activity aimed at improving products and/or processes and making them competitive and more cost-effective. Indeed, several hundred innovative (and not-so-innovative) ideas have already been proposed in the literature, which claim to offer significant advantages over convectional drying techniques. Most of these come from academics, who are not much concerned about cost performance and yet are discouraged by the lack of industry interest in utilizing their novel ideas in practice. Often product quality is not even considered as an important criterion. Clearly, close industry-academia collaboration is needed to define the specifications for new designs and to evaluate the potential for their implementation. Novelty *per se* is not justification for adoption of new technology; the bottomline is.

After examination of several hundred new drying concepts available in the patent and technical literature (mainly in the Proceedings of IDS and several sister conferences as well as Drying Technology) I have attempted to summarize here what I call the inventive principles for dryers. This terminology is taken after that used in the well known Triz method originally developed in Russia. Briefly here is a list of actions that can be taken on the wet feed material, the material within the dryer, the dried product, and/or the drying conditions (e.g. pressure, temperature, air flow rate, humidity, energy input, mode of heat transfer, etc.).

- Wet feed: Dewater, filter, centrifuge, mix with dried product or inerts
- Material in dryer: Disperse, agitate, vibrate, convey
- Drying Conditions: (a) Drying medium (air, flue gas, superheated steam) pulsate, turn on/off; (b) Temperature: steady, cyclic or on/off, below freezing, above critical temperature; (c) Pressure: low, high, cyclic; (d) Humidity: low, high; (e) Heat transfer mode: conduction, convection, radiation, steady, cyclic, on/off; (f) Fields: sonic, ultrasonic, MW/RF, continuous, intermittent
- Dried product: Mill, agglomerate, granulate

It is easy to see that hundreds of variants of dryers will emerge as a result of the application of above Inventive Rules for Drying. I would be pleased to hear from our readers about new drying concepts that are not covered within the framework of the above inventive rules for drying.

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