

The Application of Desiccant Dehumidification to Coffee Processing

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SUMMARY

Desiccants are hydrophilic substances, which have traditionally been used to remove moisture from the atmosphere, thereby reducing relative humidity. The technology has been widely used in controlling humidity of coffee in storage. On observation of a Bry-Air compact industrial desiccant dehumidifier, the concept of applying the technology to the coffee drying process was derived.

Drying conditions, primarily temperature can have critical impact on the volatile component of coffee and by extension, the quality of the beans. It is generally agreed that the lower the drying temperature the better the quality of the green beans. The dehumidifier operates at an average temperature of 36°C and depending on the size can remove moisture/water at a rate of several tons per hour.

Dried air at a temperature of 36°C, generated by the desiccant dehumidifier was passed through coffee in a metal box, stacked with trays of wet coffee to dry the coffee. Three samples of parchment coffee were dried from approximately 50% moisture to 12% moisture in this manner and the drying time, weight, appearance and cup quality compared with samples of the same batch of coffee that was dried mechanically and by sun. The results showed that:

- Desiccant drying is faster.
- Desiccant dried coffee has more weight than mechanically dried coffee at the same percentage moisture.
- Desiccant dried coffee has better colour and cup quality.

The results of this research are preliminary but very encouraging and could bring great benefits to the cost and quality of coffee processing.