



TATA COFFEE LIMITED

CONTEMPORIZING YOUR MORNING CUPPA

TATA's latest endeavour aims to achieve the convenience of instant coffee coupled with the rich flavour of brewed coffee.

OVERVIEW

As a country with patrons of coffee in abundance, it would only stand to reason that Tata Coffee set its sights on launching a new product – one unlike any other – Roasted and Ground Freeze Dried Coffee (RFDC). The creation of this revolutionary product incorporated a seamless blending of the traditional (ground coffee) and the modern (instant coffee), coming together to satisfy not just a fraction of coffee lovers, but all of them. This combination was made possible using the innovative Impact Pulveriser through which a fine roasted powder of 75 micron size was produced and thereby enabled the birth of revolutionary RFDC.

ICD-Milestone



INNOVATION

The Big Idea

Tata Coffee's Starbucks brews have been widely appreciated and loved by its customers. This piqued the interest of innovators and led them to create a coffee blend that combined the deep, rich flavours of ground coffee with the convenience of instant coffee - packaged as the next go-to product of choice for coffee drinkers. This not only opened doors for them in the Indian market, but also gave them momentum in international markets like Russia. What sets this product a class apart was its advanced feature that gave it an edge over the commonly used aroma spray method for aroma retention.

Further on, the team at TATA Coffee has also filed for a patent to authorise the process of micro-grinding. This will ensure that the rights to the process of creating the hybrid blend remains solely with TATA Coffee.

The Process

On one hand, where the patent for the combination of the two products is being initiated, actually synthesizing the two products was a very strenuous process. Integrating these two very different types of coffee into one homogenous blend is an arduous process – and one of the key reasons ground coffee makers haven't attempted this before. However, it is Tata Coffee's patented technology of wet grinding the coffee particles that makes Roasted and Ground Freeze Dried Coffee (RFDC) truly unique.

CASE STUDY

YEAR OF IMPLEMENTATION: 2014

INNOVATION IN A NUTSHELL

A hybrid blend that combines the best attributes of freshly ground coffee and instant coffee to produce a blend that caters to all coffee consumers.

CHALLENGES FACED

An improper grinding technique that led to insoluble particles being produced as well as an unpleasant metallic taste being infused into the blend due to roller abrasions.

SOLUTION

Implementing a technique that grinds and combines both types of coffees using the correct beater, resulting in maximum extraction and minimum loss of flavour.



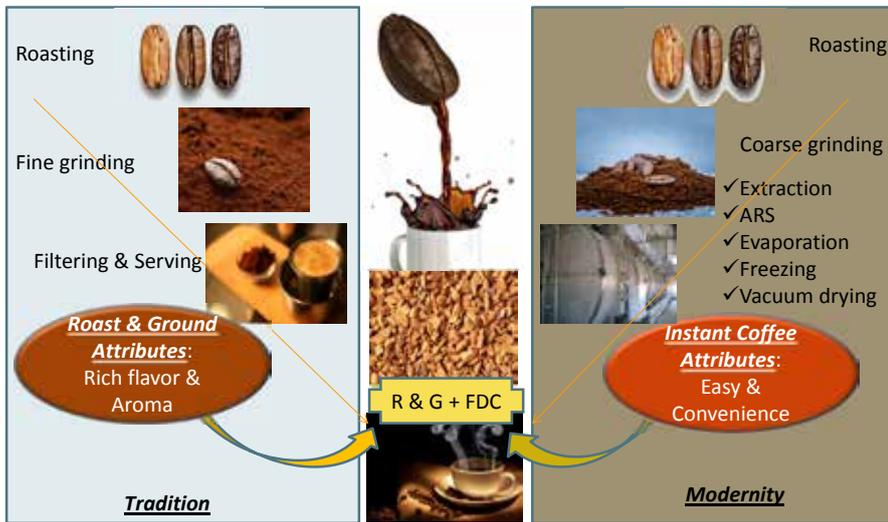


Figure 1: Target creation of Hybrid Product

After extensive deliberation, the innovators at TATA Coffee conceptualised a four-step technique through which they could finally combine instant and ground coffee.

The technique:

1. Preparation of concentrated coffee extract/liquor
2. Preparation of the micro-grind powder using the pulveriser
3. Homogenization of the concentrated extract/liquor and micro-grind powder
4. Freezing and drying of concentrate to freeze dried granules impregnated with R & G powder

That apart, logistical issues like storage and transportation of the coffee beans is a challenging process as well. This gave the innovating team at TATA Coffee enough reason to go ahead and devise a method where they could achieve the best attributes of both types of coffee in one hybrid blend. A unique technique called Hydrolysis was used to extract the coffee liquor and preserve the essence of the beans as well as its aroma. High quality coffee beans used for the RFDC technique ensured that the extraction, which is the most critical of all processes, was undertaken in a manner wherein the desired results are achieved.

Micro-grinding, a process usually associated with the FDC (Food, Drug and Cosmetics) Industries has a bulk density of about 0.22 to 0.26 gm/cc. This is achieved through the process of Milling and Sieving which takes place after the coffee has been freeze dried. This synthesis of both blends take place when the powder has been ground to the consistency resembling talcum powder and ranges anywhere between 0.55 to 0.60 gm/cc. This synthesis ensures that minimum flavour is lost and the best features - namely the solubility of instant coffee and the flavour and aroma of the freshly ground coffee is maintained throughout.

THE CHALLENGE

In the project's initial stages, the use of a roller-grinder to grind the R&G blend resulted in an unpleasant metallic taste being infused into the powder due to abrasions of the rollers. After this hurdle was passed, the rollers were replaced with a Impact Pulveriser process called Beaters that acted as an air swept hammer mill where the damage to the powder and flavour loss was minimal. (For more info on how the Air Swept Pulverizer works, visit <http://www.carterday.com/jacobson/pulverizers/air-swept-pulverizers/>).

The larger ground particles that were produced due to improper grinder selection made the R&G and instant mix insoluble due its coarse particles settling at the bottom. Once this problem was rectified with the correct grinder, a homogenous mixture was finally created.

R&G Coffee Preparation Method:

Cleaning- Roasting- Grinding-
Brewing- Filtering



French Press Brewing Machine Filter Coffee

- Tradition – Home preparation
- Since 15th century
- Roasting & Grinding of green beans
- Freshly brewed
- Rich in flavours & aroma

Instant Coffee Preparation Method:

Cleaning- Roasting- Grinding- Extraction
- Evaporation - Spray & Agglo/Freeze



INSTANT COFFEE is a form of coffee essence

- Modern technology
- SDC started in 1903, FDC started in 1963
- Beverage derived from brewed coffee beans
- Ease, convenience, economy
- Lacks aroma
- SDC - Hot process/FDC - Cryogenic process

A unique technique called Hydrolysis was used to extract the coffee liquor and preserve the essence of the beans as well as its aroma. High quality coffee beans used for the RFDC technique ensured that the extraction - the most critical of all processes.

RESULTS ACHIEVED

- A unique product that caters to the need of ground coffee and instant coffee lovers
- A market which preferred the R&G blend along with newer avenues in the international circuit that were opening up to receive the product

