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PET BOTTLES TO DIFFERENTIATE EDIBLE OIL FOR LARGEST INDIAN PRODUCER



India's largest producer of mustard oil is to differentiate its products from others in the market following the installation of the first ever Sidel complete PET bottling line for edible oil in the South East Asia Pacific region. The Sidel line, including a Combi system, is producing bottles for B L Agro Oils, a company which has recognised the advantages that PET brings as a packaging material in terms of brand differentiation, customer experience, performance and sustainability.

Government supports domestic production

India is one of the world's leading users of edible oil, with a per capita consumption of around 14.4kg per year in 2013-2014. During the same period, domestic producers generated 7.6 million tonnes of edible oils from primary and secondary sources. One of those producers is B L Agro Oils, a company based in Bareilly in the northern Indian state of Uttar Pradesh, and which produces 50-60% of India's total production of mustard oil. It has a total production capacity of 250,000 tonnes per year across the company's two main sites: one in Parsakhera with three production lines and one in Jauharpur with a single line.

Around 80-85% of the companies involved in producing edible oils in India are packaging their products in pouches. As the fastest growing edible oil producer in the country and as part of its commitment to continue to grow the business and help increase domestic volumes, B L Agro Oils decided to extend the bottling of its oils in PET. Recognising the opportunities that bottling in PET provides to differentiate the company's products, as well as improving its production volumes and offering flexibility in its packaging processes, B L Agro Oils approached Sidel, the leading global provider of PET solutions for liquid packaging. Ashish Khandelwal, Executive Director at B L Agro, said – "We knew of Sidel's excellent reputation in liquid packaging and it was a natural choice for us to speak to them when we decided to develop our capabilities in bottling our edible oil in PET."

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Growth of PET as a safe packaging material for oil

PET has been the packaging material of choice for bottling water and carbonated soft drinks for many years and, more recently, has seen increased adoption as a packaging solution for liquid dairy products, beer and other food products such as ketchup. Its benefits are also recognised by producers of edible oils with its capacity to ensure the all-important product integrity, maintain great taste, offer a premium look and feel, create a more convenient experience for the consumer and provide significant cost and environmental benefits in the production and supply process. PET offers the safety, convenience, re-sealability and recyclability for which consumers are looking, while it is shatterproof, unlike glass, which is often used for packaging edible oils today. For all these reasons, the transition from glass and other materials to PET looks set to continue as producers and consumers recognise the advantages it offers.

As with any product which is for human consumption, safety is vitally important. Mr Khandelwal continues – “Food safety is non-negotiable and the most important consideration in what we do as a business. From sourcing raw materials through to quality control, refining, blending and packaging – the safety of what we produce is always a focus.” When packaging is in direct contact with its contents it needs to meet the very highest standards of product quality and safety. The choice of material is equally important and usually determined by the required shelf life and consumer expectations of the finished product. PET has been successfully in use for over 40 years in packaging food and beverage products and has been fully approved for food and drug use by all official food safety organisations, including the US Food and Drug Administration (FDA) and European Food Safety Authority (EFSA). This is because it is a biologically inert plastic, with well-defined constituent materials and no additives required for enhanced performance.

As part of the packaging development process, Sidel’s in-house scientists analysed how the oils performed when packaged in PET, simulating the environmental conditions to which the product would be subjected throughout the supply chain in the company’s dedicated laboratories. This liquid-package interaction analysis focused on the effects of light, oxygen and temperature on the B L Agro Oils. Factors such as viscosity, density and surface tension were all considered, as well as the effect that the filling temperature has in terms of variation of the volume of the edible oils. Mr Khandelwal comments – “Testing how our oils performed in PET and in different environmental conditions allowed us to arrive at the optimum packaging solution for our products. PET allows us to maintain the taste of our oils – especially important to our Bail Kolhu Kacchhi Ghani mustard oil which has a particularly distinctive taste – as well as their nutritional properties through the vitamins and minerals they contain.”

Complete line provides integrated packaging solution

Convinced by the potential that PET offered for its business, B L Agro Oils turned to Sidel to evaluate the most suitable packaging solution to bottle its edible oil. Mr Khandelwal said – “Sidel is a company with extensive experience in providing solutions for a whole range of different liquid products – including edible oils. We wanted to draw on that expertise and experience. We realised that a complete line featuring the Sidel Combi would be the best option, combining blow moulding,

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filling and capping in a single integrated system. It was explained to us that Combi systems cut operating costs by up to 12% and offer efficiency levels that are up to 4% higher than standalone machines.”

One of the benefits of the Combi approach is that by eliminating conveying, empty bottle handling, accumulation and storage, it allowed the B L Agro Oils line layout to be optimised with a smaller footprint – an important consideration when engineering the complete line and final layout. The new line has been installed in a purpose-built facility on land purchased close to B L Agro Oils’ existing production in Parsakhera, one of two refinery units operated by B L Agro Oils in Bareilly. The company was therefore able to ensure the new building was constructed to meet the exact requirements of the line, working closely with Sidel to achieve this.

The Sidel line operates at 400 bottles per minute or 24,000 bottles per hour, meaning a production speed up to 120% higher than B L Agro Oils’ existing lines. It features a Combi, labeller, bottle & pack conveyor, case erector, case sealer, case packer and palletiser. Within a month of the installation being completed, a line efficiency of 90% was achieved. The line is currently running 200ml, 500ml and 1 litre formats for various products within the B L Agro Oils range, including its flagship brand, the Bail Kolhu Kacchhi Ghani mustard oil. This unique tasting and pungent oil is particularly popular among the large customer base of B L Agro Oils in Northern India.

New bottle designs with grip for larger formats

In addition to the smaller bottle formats already produced on its existing lines, B L Agro Oils also wants to move to PET bottles for its 2 litre and 5 litre formats and is currently working closely with Sidel to develop completely new bottle designs. These will be produced on a dedicated Sidel line and will be the premium product formats in the B L Agro Oils range.

Creating effective packaging is about achieving a balance between consumer appeal and functional performance. As one of the main drivers in using PET is to differentiate its products in what is a very competitive market, B L Agro Oils is looking for creative and attractive packaging design in interesting shapes and format sizes that fits its customers’ lifestyles. As a packaging material PET offers great freedom of shape and can help create a standout brand. It can be moulded into a range of formats, including extended family formats, as demonstrated by the new larger 2 litre and 5 litre options being developed by B L Agro Oils. The functional performance of the packaging also has to be addressed, particularly in larger formats to ensure they are easy to handle. To achieve this, the design flexibility that PET offers is being used to create bottles with a blown grip which provides the ease of handling.

Packaging performance is also ensured through greater accuracy in the distribution of the PET material during production of the bottles, with the elimination of inconsistencies resulting in improved quality. This is particularly important in the case of edible oils’ packaging since the bottle shapes are often more complex and asymmetrical than those produced for the beverage market. As a transparent material, PET also allows the oils to be seen, another contributor to consumer

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appeal, with the labelling which B L Agro Oils is developing with Sidel also focusing on attracting consumers and building brand identity.

Sustainable production through PET savings of up to 20%

Another very important feature of PET packaging is the potential it offers for lightweighting. This is one of the prime reasons why producers of edible oils have been moving away from traditional packaging materials such as glass. By incorporating a Combi, the new complete line is not bound by the limitations imposed by air conveyors because of the neck-handling and positive transfer of bottles between blow moulding and filling, expanding the possibilities for bottle shapes and lightweighting. This has enabled B L Agro Oils to achieve significant weight savings on all of the bottle formats produced so far. The 200ml bottles have been reduced by almost 17% (from 12g to 10g); the 500ml bottles by more than 20% (from 18g to 14g); and the 1 litre bottles by 14% (from 28g to 24g). Through analysing how the PET packaging performs with the oils, an optimum solution is under development for the new 2 litre and 5 litre bottle formats which will also be lightweight without compromising on product quality and while still maintaining a great consumer experience.

Another benefit in choosing PET bottles is the contribution it makes to a more sustainable production process for B L Agro Oils. The company has a strong CSR (Corporate Social Responsibility) policy and “Ensuring environmental sustainability through ecological conservation and regeneration of natural resources” is a stated commitment in this policy. Mr Khandelwal said – “We are always looking to find ways in which we can improve the sustainability of our processes and using PET as a packaging material is a major contributor to this. As a material which is 100% recyclable, PET has an important role to play in achieving a sustainable approach to our business.” Pradeep Hada, Regional Commercial Manager for Sidel, who worked very closely with B L Agro Oils, said – “With fewer machines, the Combi allowed B L Agro Oils to achieve very fast format changeovers and lower energy consumption, as well as providing savings in labour, raw materials and spare parts. It also provided the opportunity to lightweight the PET bottles.”



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About Sidel

Our purpose is to help brands protect the product inside, preserve the planet outside and touch the lives of millions of people every day.

We do so by offering complete and modular PET packaging solutions, including people, services and equipment.

Sidel has over 165 years of industrial experience. With 30,000 machines installed in more than 190 nations, we have been helping producers fill beverage bottles for over 80 years, blow them for more than 50 and label them for more than 35. We have 40 years of aseptic packaging expertise, and were one of the first companies to introduce PET bottles to the beverage industry over 30 years ago.

Part of the Tetra Laval group and headquartered in Switzerland, Sidel has over 50 office locations, 13 production sites and 7 training centres worldwide. Each of our more than 3,400 employees, spread over five continents, is committed to creating the optimum liquid-packaging solution.

We call it **A Better Match** - for our world, our customers and ourselves.

Find out more at www.sidel.com and connect with us



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