

toiletries & cosmetics



Enhancements for make-up

Personal Care products, such as cosmetics, toiletries and fragrances, sit in a somewhat unique position in the process and packaging sector.

At the luxury end of the market the consumer expects to see the product in a fancy container, placed in an even fancier carton, which is then overwrapped with a high gloss film. Not much room for innovation there one suspects.

For daily use products, such as shampoo or soap, utility is paramount and while the quality feel is important, plastics containers, some with dispenser attachments, now seem to rule.

In the middle are a range of products such as lipsticks and deodorants where the means of delivery seems not to have changed but where the complexity and assembly of the pack has increased. A good deal of work has gone into the

components to ensure smoother or cleaner dispensing while at the same time maintaining a luxury feel.

There is also a generation of new products, from organic to quasi pharmaceutical which, particularly in the latter case, have raised the bar on hygiene, pack integrity and pack enhancement.

For the machinery supplier the challenges are many: Handling and filling high value products such as perfumes into complex containers; component handling and assembly; high foaming or viscous products; difficult items such as mascara sticks; dealing with short run demands cost effectively; and a new generation of 'cosmeceutical' products which mix some of the aspects of pharmaceutical processing and packaging with those of the cosmetics and toiletries industry.

UK MARKET FACTS

- The UK Cosmetics Toiletries and Perfumes Association (CTPA), a Colipa member, does not gather its own statistics but co-operates with IRI and TNS Sofres to produce a report of 'GB estimates' based on RSP and units sold.
- For 2007 it showed fragrance sales growing by only 2.5 per cent with the largest rises in fine male fragrances (13.8 per cent) and mass female brands (22.1 per cent) while mass unisex products dropped dramatically (24 per cent).
- Skincare sales rose by 3.9 per cent with premium brands up 12 per cent and male face care preparations up a staggering 90 per cent.
- Hair care product sales grew by 2.3 per cent with the best performances from perm and colorant items (up 5.4 and 9 per cent respectively), while setting lotions and mousses dropped by 3.5 per cent.
- Toiletries advanced 3-9 per cent with liquid soap (10.6 per cent) and mouthwash (17.6 per cent) the best performers, bar soap sales declined by 4.9 per cent.
www.ctpa.org.uk



Emerging markets set upward trend

The global market for cosmetics toiletries and fragrances is approaching €200bn with strong growth in emerging markets such as China, Brazil and India.

According to Colipa, the European Cosmetic Trade Association, Europe remains the largest global market with a retail sales price (RSP) of €62.7bn in 2007, a modest growth rate of 4.1 per cent on 2006.

The organisation, which boasts 25 member national associations, including many of the important manufacturers as well as research establishments, says in its annual report that the 'top five' EU markets account for just over 70 per cent of sales. The largest market is Germany (€12.3bn) followed by France (€10.7bn), UK (€9.8bn), Italy (€8.9 bn) and Spain (€7.8bn).

However it notes that many newer members of the EU recorded double digit growth in 2007. Slovakia led the way with a 19.3 per cent rise, followed by Romania (18.3 per cent), Bulgaria (13.8 per cent) and Hungary (11.1 per cent).

Europe is also the largest exporter of personal care products and fragrances to non- EU countries. Unsurprisingly France fills the top spot in this category with sales of €4bn followed by Germany at €2.16bn and UK €1.13bn.

Market share by product in Europe in 2007 according to figures from Colipa were: skincare 25.7 per cent, toiletries 23.9 per cent, haircare 23.2 per cent, perfumes & fragrances 15.1 per cent, and decorative cosmetics 12.1 per cent.
www.colipa.com

MARKET GROWTH

- Research from Kline & Co indicates that China has leapfrogged France and Germany to become the third largest single market for personal care products at the beginning of 2007. It is behind only the USA and Japan in national market terms. Europe remains the largest market bloc with manufactured sales values twice those of the United States and almost four times that of Japan.
- Skincare products which are the fastest growth sector for the industry saw sales rally in Europe last year. However there are fears that with market penetration at almost 75 per cent (86 per cent in France) there is little room for further expansion, explains Kline & Co.
- Pundits see growth coming through market segmentation such as day/night preparations for the over 50s. In the UK sales of these products topped £1.4bn with hand care, male face care and premium skin care all doing well. The second fastest growing range of goods in the industry is oral hygiene.
- The top 15 manufacturers of personal care products account for 43.5 per cent of total global sales, says Kline & Co. The market leader is Procter & Gamble, with L'Oreal, Unilever, Colgate-Palmolive and Avon making up the top five. With sales of organic products in the UK alone soon set to top £1bn, manufacturers are launching many more environmentally acceptable products.
www.klinegroup.com

cosmetics - filling

Flow meter or piston? It's horses for courses

Flow meter volumetric filling systems may have seized the imagination over the past decade but traditional piston-based systems can often provide higher and more consistent accuracy with lower costs of ownership, particularly over an extended period.

The key advantage of flow-meter systems is speed of cleaning and reduced changeover time. ADG Packaging makes a range of filling equipment suitable for the personal care markets under its Gravfil brand. Sales and marketing director Ian Hillaby points out that there is no single answer to which type of machine to choose and that solutions are heavily dependent on the application.

"In the case of cosmetics or toiletries filled into glass, with no outer packaging, the preference is usually a level filling system rather than a volumetric system so that bottles can sit on shelf with the same level of fill, despite variations in container volume.

"This means a calculated over fill to keep within CE mark regulations," explains Hillaby. However,

piston dosing remains the most accurate when a volumetric system is used. For example when filling opaque containers and when volume is constant, such as with PET bottles.

Generally, explains Hillaby, this is because a piston dosing system uses a piston that is sized to the minimum dose, accepting the fact any backlash in the driving mechanism will affect the overall accuracy.

In contrast, a flow meter employs a given size of bore which relies on a constant pressure and flow. This means that on a range of different volume fills the flowmeter becomes either too slow or less accurate.

So if, for example, speed is increased by raising the feed pressure, the control system will need recalibrating to compensate for increased product carry over following the command to stop filling.

Intrinsic accuracy

Even so, says, Hillaby, there is an intrinsic accuracy within a piston based system. "Take, for example a 1-litre bottle. Using a 1-litre cylinder chamber I would expect a piston filler to achieve accuracy within 0.1 per cent while with a flow meter sized to give the best possible fill at this volume I would expect accuracy not much better than 0.2 per cent."

A further difficulty with maintaining accuracy on flow meters is feed pressure, which needs to be constant for the highest possible precision.

"If you don't control the feed pressure to a flow meter you don't control the flow rate so you don't control the accuracy. A lot of flow meter systems have been supplied for feeding with gravity systems, but the head pressure will vary with the fluid level in the tank, which is replenished at intervals via a level switch."

To overcome this particular problem ADG advocates a dedicated pressure control system, such as that fitted as standard to its Zeta flow meter filling machine.

It is also important, Hillaby points out, that flow meters receive liquids arriving from processing or mixing without air bubbles which will affect density and hence accuracy. Air often enters the product during pumping from main storage vessels or



Getting rid of bubbles - try the Gravfil way

cosmetics - filling



Ian Hillaby,
sales and
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blending plant and may take a considerable time to clear. Piston filling machines are, however, far less affected by cavitation in the liquid handled.

Yet although flow meters may not always give the accuracy of piston machines the difference is not always an issue, particularly with lower value products and short runs where the flow meter's lack of moving parts means cleaning on product changeover is particularly quick and secure.

However, when a profile fill is required - matching the flow rate to reductions in container cross section to minimise foaming and risk of cavitation - the new breed of servo driven piston machines provides an effective and accurate answer that cannot be matched by flow-meter systems.

"If you wish to regulate the flow of a flow meter, then you will need to adjust pressure which will affect accuracy. A piston machine driven by a servo is infinitely variable in output and maintains

its accuracy throughout the fill," explains Hillaby.

Even so, many profile filling systems for reducing foaming require a diving nozzle that rises with the filling process to ensure that product is placed into the container as close to the surface of the liquid as possible, thus reducing the opportunity for aeration.

"Lower pressure will inevitably be necessary, reducing filling rate compared with a non-foaming liquid, and there is also the capital and maintenance cost of the additional nozzle raising and lowering mechanism to consider," he said.

Goodbye to foaming

As a result, Gravfil has developed nozzle designs that allow containers to be top filled with considerably reduced risk of foaming. The Stack Gauze Nozzle system incorporates layers of steel gauze that break down the single product flow into smaller streams, reducing impact with the liquid below with no loss of filling rate.

Overall, says Hillaby, there are advantages in both flow meter and piston-based systems, but it very much depends on the application.

"It's horses for courses. If container sizes are quite close to each other and speed of cleaning is an important issue, then flow meters may well be the answer. But for versatility and optimum accuracy over a broad range of fills, the piston-based machine still represents the safest and lowest cost route."

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VERDICT OUT ON BEAUTY PRODUCTS



- The British spend more per head on health and beauty products than any other European country according to a report on *European Health & Beauty Retailers 2008* by Verdict Research.
- The average British consumer spends €375 each year, compared with €327 in France and €289 in Germany. Overall UK consumers spend 43 per cent above the European average.
- The fastest growing market in Europe is Romania which achieved 80 per cent between 2002 and 2007, with sales last year reaching €1.3 billion.
- While UK residents spend more the country boasts only one of the top six retailers inside the EU with Alliance Boots in second place. Otherwise the list is dominated by German retailers with the exception of Hong Kong's A H Watson which has captured more than 5 per cent of the European retail market for cosmetics and toiletries. The reason UK retailers do not feature higher up the list is because many are pharmacy based, which is not the case in other EU countries.
www.verdict.co.uk



Eight head Gravfil Zeta flowmeter filler

toiletries & cosmetics - product round-up

Mastering mixing

Master Plant, a new mixing concept suited to cosmetic and toiletry products, from IKA®, represented in the UK by Bramigk, guarantees highest product quality and shortened production times, claims the company.

Features include a double jacketed vessel with a conical bottom for optimum emptying. It is suitable for operation under pressure/vacuum and has a spiral agitator, the RFG-W, with reversible rotational direction. The shaft and spiral are made of stainless steel tube for heating or cooling of the product (time saving can be up to 30 per cent).

Alternatively, a counter rotating blade agitator, the RFGC-A/A, designed for use with high viscous materials can be fitted. The direction of rotation of both the inner and outer agitator is reversible. The inner agitator is made of tube profiles for heating or cooling of the product and the outer agitator is equipped with wipers to avoid any build up of material on the inside wall of the mixing vessel.

Master Plant also incorporates a stirring, pumping and dispersing machine, DBI 2000, for gentle mixing and high frequency dispersing. Additionally it works as a pump for CIP. A two-way circulation emptying line enables circulation of very small quantities of product in a shortened pipeline.

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Mascara and lip gloss all one for Optima

The filling and closing machinery Linofill and Linocap manufactured by Kugler, part of the Optima group, has been combined to create a turnkey installation for mascara and lip gloss products in varying shapes and sizes.

The modular machines are servo driven and incorporate sensors or camera vision systems. An insertion module arranges the empty mascara sticks which are brought into the machine in bulk, sorted by elevators and inserted in the correct position into pucks.

The Linofill filler consists of six piston pumps, and the parameters of different formats are saved in the PLC. The complete filling unit can be changed to accommodate a second filling unit within 10 minutes. Both filling units are fixed on a transport vehicle for ease of movement. For hygiene reasons conveyor belts are not used in the filling zone.

The Linocap closing module has three stations. At the first station Reducers (the ring at the top of the mascara container) are brought into the machine in bulk. They are then sorted by a vibration sorter prior to presentation at the insertion unit.

Insertion and pre-screwing of the brushes takes place at the second station. The



brushes are elevated to the sorter, which handles all formats without size parts and at the third station the brushes are screwed in using a defined torque. The sticks are then unloaded and sent for labelling.

The maximum output of the machines is 120 pieces/minute with a filling accuracy of 0.5 per cent and a format range of 2 - 25ml. Mascara containers with two chambers can also be filled. The whole line is compliant to cGMP standards.

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toiletries & cosmetics - product round-up



Open and shut case

A packing line for make-up compacts at Lumene, one of Europe's leading cosmetics manufacturers, installed by International Packaging Systems (IPS) is handling a wide variety of packaging formats at speeds of up to 33 compacts/minute.

Consisting of five stations the line takes closed, empty compacts and feeds them into a Schubert TLM-F44 machine where they are opened, scanned and placed on a central conveyor belt by a TLM-F4 robot.

At subsequent stations, the pressed powder trays are inserted into the cases along with make-up applicators which are supplied from a storage hopper and multi-track vibratory conveyor. The compacts are

then checked by an optical quality control scanner before they are closed and transported to the labelling station where a pre-printed and counter-checked label is applied.

IPS, Schubert's specialist automated packaging subsidiary, says the system's user friendly software and quick change tooling means switching between different packaging configurations can be completed in a matter of minutes. The streamlined structure of the system has been specially designed to ensure easy access and simple operation.

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Speedy feeder for components

RNA has introduced the ZE3000 high-speed feeder capable of handling a wide range of components, from valves and spray caps, to electrical connectors. Single or multiple lanes are possible with quick and easy change over between components, says the company.

The tracks are machined and designed specifically to suit a particular component, such as those often found in the cosmetics and toiletries sector. Interchangeable tooling sections allow the feeding of a range of components with minimum down time between product changeover.

The ZE is supplied with a bulk hopper that can be orientated through 180° to suit differing plant layouts. The unit can handle, for example, a 23mm diameter x 18mm tall aerosol actuator cap at 2,000+ parts/minute. Fitted with a bulk hopper



with a very low loading height of 600mm, components are loaded by an operator and elevated to the top of a linear track.

The linear track is designed on CAD and laser cut to orientate the caps as they are transported along eight lanes, then merged to single lane via a centrifugal disc. The use of eight tracks allows the speed of individual lanes to be reduced, virtually eliminating the risk of damage to product, says RNA.

The ZE3000 features fast and simple changeover, no use of pneumatic air for orientation and open style tooling for easy access. The linear feeder arrangement allows high feed speeds to be achieved using a single unit rather than multiple bowl feeders and with the combined bulk hopper the system has a relatively small footprint.

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Doyen patch up wrinkles

Demographic influences of ageing populations with more youthful beauty ideals have created a growing demand for 'cosmeceutical' products.

A recent trend is for transdermal patches which are a convenient delivery means for active ingredients with anti-wrinkle, anti-cellulite, detox or slimming capabilities.

To cater for the growth in demand for patches for such applications, Doyen

Medipharm has used its experience supplying systems to the pharmaceutical industry and improved its existing technology to achieve higher production speeds and efficiencies.

Features of Doyen's new generation of transdermal patch manufacturing systems, TMS, include multi-lane operation at speeds of up to 250 products/minute/lane, and in-line packaging by an HMI controlled platen sealing unit.

The patches are assembled by the TMS and transferred to the platen sealer where it is packed into the primary single dose pouch to complete the barrier. Any faulty patches or pouches outside of the acceptable tolerances are rejected at the integrated reject station.

The system offers the option to integrate product and packaging web printers, vision inspection systems and end-of-line stacking, collating and cartoning modules.

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special feature

toiletries & cosmetics - product round-up

Premier gets to the bottom of cosmetics...

Premier Labellers has supplied three specially designed base labelling units to Lush Cosmetics for installation in its plants in Toronto, Vancouver and Poole, Dorset, where they are applying labels to the company's range of gift packs.

The retractable labelling head is designed for ease of operation and access to the integrated ICE coder, claims the company. A specially designed split conveyor enables accurate application to the base of the



product. The ICE Zodiac Plus thermal transfer printer produces variable data on-line, such as bar codes, batch codes, text and graphics, at up to 300 dpi resolution.

The unit has network and USB connectivity as standard. The Zodiac also features a patented 'solid state' ribbon drive system which eliminates wear parts

found normally in thermal transfer printers, says Premier. The base labeller can be integrated into existing lines.

... and creates a surge

A major contributor to the growth of Premier Labelling's contract labelling division during the past 12 months is its partnership with Scotland's Organic Surge, which produces a range of hand, face and body products.

The range is packaged in 75ml, 150ml, 200ml and 250ml flexible plastic tubes. Non-printed tubes and high quality pre-printed labels are supplied directly to Premier from the respective manufacturers and stored at its Harwich warehouse. Due to an increase

in demand from Organic Surge, Premier Labeller's machine division developed the P500 Tube Labelling System which operates at speeds of 50/minute, providing a faster and more efficient operation.

This means that when Organic Surge requires a typical batch of 50,000 labelled tubes, the job can be turned round in about 16 hours.

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Mengibar opts for Holmach

Antonio Mengibar, of Barcelona, has appointed Holmach as its agent in the UK and Ireland.

Mengibar manufactures a range of on-line and rotary fillers and cappers used extensively in the personal care sector.

A particular speciality is trigger and pump cappers which are available in both automatic and semi-automatic versions. The combined filler and capper units are particularly suited to foaming products, says the company. A recently patented system uses 'Reynolds' technology for filling high foaming products without having to lower the nozzle into the bottle. This eliminates



Mengibar flowmeter filler for foaming products

dripping and reduces mechanical complexity, says Mengibar.

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