Interview – Patrick Trippel, President, the electronics group of Henkel

Electronics materials manufacturers need to stay close to their customers, both technically and geographically. Global SMT & Packaging Editor Trevor Galbraith spoke to Henkel electronics group President Pat Trippel about the constant challenges facing materials suppliers in a fast-paced manufacturing world.

Q1: What are the advantages of working with manufacturers to get specified into the design early in the development cycle of the product?

A1: In my view, there are only advantages and no disadvantages to engaging with customers at the very early stages of product development. By understanding the package and materials requirements early on, we are able to develop materials that address customers end-product performance issues before they invest in large-scale production. This has been part of Henkel's strategic partnership plan for years - by providing materials and package modeling up-front to ensure compatibility, performance and reliability, customers can reduce risk and avoid the expense of trial and error exercises.

In order to compete on a global level, we believe that you have to be involved with the customer at all levels in all locations - from the ground-up design work that is most often occurring in the US and Europe to the NPI happening in the Americas to the high-volume manufacturing being carried out in the Asia-Pacific region.

Q2: Electronics manufacturing has, to some degree, always been about CTE mismatches and the problems that ensue. Are your newly promoted 'materials sets' a real-world solution, or are they simply a marketing ploy?

A2: I'd call something with no real customer benefit a marketing ploy, but that's not the case with Henkel's total material solutions methodology. Providing customers with tested, compatible and reliable complete material solutions saves them time, engineering investment expense and, in the end, delivers a more robust product. If you consider that each material - in package and then package to board - has to be compatible with one another and with the process (i.e. lead-free), the potential materials variations on those combinations are immense. For specific package types, Henkel can deliver a set of materials that has already been through rigorous testing and has been proven to work. You can do the math - faster time to market plus reduced prototype costs plus long-term reliability means more competitive, more profitable Henkel customers. Whatever you want to call it, our customers are seeing real-world benefit from the single-supplier material set model.

Q3: Are customers forced to accept predetermined materials sets, or can they add a component from a different vendor if it meets their requirements closer for a particular solder, underfill or encapsulant?

A3: Absolutely not. Would we like to provide all the required materials? Of course and in many cases we are. But, we are also realists. Henkel has the ability to model, test and validate any material set including materials from other vendors. So, if a customer is adamant about using a particular solder paste or underfill, we'll test that material against other Henkel materials in the total package.

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Clearly, there is an advantage to using Henkel materials for the entire device, as our material sets are designed from the ground-up for compatibility and long-term reliability, but we do understand the realities of the electronics business and can provide next-generation analysis of competitive materials as well.

Q4: How important is it to be located geographically close to your customer?

A4: For Henkel, it's not negotiable. When I started at Henkel, we made the commitment to provide global support at a local level, and we have lived up to that promise. Manufacturing has been established in key geographic centers including China, Europe, the Americas and soon in India. Localized manufacturing enables faster product delivery and reduced manufacturing and import/export expense. In addition to local product availability,

we've also made sure that essential applications and technical support is easily accessible for our customers - wherever they may be. As far as we're concerned, to be a global partner with our customers, we have to be where they are and understand their unique manufacturing needs as well as their cultural influences.

Q5: Does this mean that you have to take a gamble alongside your major customers when they move into new territories?

A5: Sometimes, sure. Businesses don't prosper by playing it safe and not taking risks, but I believe that we are partnering with customers whose long-term goals and strategies align with ours. These are gambles we're willing to take - so far, we've come out on the winning end.

Q6: Some analysts have reported a flattening of the market in China. What is your view on this?

A6: I certainly haven't seen a flattening of our business in China, but quite the opposite - we have enjoyed double digit growth in the Asia-Pacific powerhouse and don't see that slowing anytime soon. That said, in Henkel's case, sheer market growth has been augmented by tremendous gains in market share and our investment in the region definitely shows our confidence in continued profitability in China.

Q7: Do you think India will overcome the political, bureaucratic and infrastructure challenges it faces to become a major new market of consumers?

A7: That's what we're betting on. Earlier this year we announced a strategic growth plan for India, expanding Henkel's presence there with the addition of staff followed by an investment in India-based manufacturing in the near future.

India's issues aren't unlike those of any other emerging market. You only have to look at the headlines everyday to realize that most major electronics firms share our view that India is key to long-term, sustainable global expansion as they - and we - continue to commit significant resources to the region.

Q8: Do you think the uptake of lead-free manufacturing will increase when China RoHS come into force, or do you think lead-free could fizzle and die?

A8: I definitely am of the opinion that lead-free manufacturing will increase with China's RoHS legislation enforcement. By our estimation, well over 50% of the manufacturing taking place in China today is already Pb-free and the multinational manufacturing presence there will only serve to broaden that compliance level. Let's face it, the lead-free initiative has been and will continue to be a big revenue stream for China. We believe that China's RoHS policy will play a major role in its manufacturing governance for the foreseeable future.

Q9: What new developments do you foresee in the next 1-3 years in electronics interconnect materials and how do you want to improve and develop your material sets?

A9: The consequences of miniaturization in tandem with higher temperature manufacturing are clearly driving Henkel's top materials development initiatives. Formulating finer-particle Pb-free solder materials, unique die attach and mold compound products that address emerging packaging challenges, innovative underfill systems for low-K and lead-free flip chip packages and more cost-effective thermal management materials are all current Henkel development priorities. With more of the functionality moving from the board to the package, we are confident that our strategy of package and materials modeling, intense up-front analysis and the delivery of compatible and reliable complete material solutions will serve to reduce the cost and enhance the reliability of next-generation devices.

Q10: Do you see a future where nanomaterials and/or conductive adhesives will replace traditional solder as an in interconnect material?

A10: I guess that all depends on your definition of nanomaterials. In my view, we're already producing nanomaterials for incredibly small wafer-level and flip-chip applications. As far as conductive adhesives replacing solder, well.... I think the jury is still way out on that one. It's an area we're keeping our eye on, but the reliability and price/performance ratio will have to be comparable or better to solder and that's a big question mark right now.