

# **Dan's Six Pack Interview with Umicore Electroplating's Nikolaus Schubkegel**

**Dan:** Nikolaus, thanks for having this talk with me today. Can you tell me something about your company?

**Nikolaus:** Umicore is a Belgian public company with 10,000 employees and revenue of €2.9 bn.

The group consists of 3 major business units: Catalysis, Energy & Surface Technologies and Recycling. The Taiyo business is handled by the Electroplating department of the Energy & Surface Technologies unit.

**In one sentence, Umicore is a specialist for precious and rare metals.**

**Dan:** I know that you are retiring early next year. I'd love to hear something about your career. When did you begin and how long have you been in our business?

**Nikolaus:** I made the first PCB in 1985 with a patterned screen and thermal curable etching resist. As an etching agent we used hydrochloric acid and hydrogen peroxide. At that time, we had our own immersion tin and immersion silver. It was primitive, but it worked. We made the first circuit with plated through holes in 1987.

I had the first contact with chemical plating and electroplating in 1978, right after graduation. At that time for buttons, buckles and handles. Whether you metalize buttons or holes it does not make much difference.

**Dan:** What would you say are the biggest changes in the technology from when you started to today?

**Nikolaus:** At that time LPISM was just starting, while curtain coating was a curiosity in the PCB industry. Thermal curable solder mask with patterned screen was standard. Final finish was HASL.

Today, we have direct imaging, laser drilling, mechanical drilling 80µm, solder mask inkjet, inkjet printing of legend ink, and 3D printing of multilayers. We have gold wire bonding and ENEPAG as final finish. Back then this all was science fiction.

**Dan:** I know that you have worked with Taiyo for a number of years now, what do you think has made their products successful?

**Nikolaus:** The ability to offer customized products for every customer or application. Taiyo as a Japanese company is able to respond to every market demand. The Technology is driven from Asia and the demand is created in Asia.

**Dan:** Can you talk a little bit about the future of our industry? Where for example do you see the technology going?

**Nikolaus: The market in Europe is consolidating, it will not shrink significantly any more, and relocation to Asia has stopped. The packing density is increasing, more passive and active components are integrated. For prototyping, multilayers were produced by 3D printing with nanoparticles. Solder mask is applied by inkjetting. Inner layers are made by inkjetting with nanoparticles. Production of flexible circuits and rigid flex will increase. Frequencies are increasing.**

**Dan: Okay one final question. What do you plan to do with yourself after you retire?**

**Nikolaus: With the words of Doris Day: the future is not ours to see. I have a lot of plans. Surely, I will spend more time with my grandchildren. I will play chess; I want to improve my skills. I will take a lot of pictures. I will miss Taiyo, I will miss Umicore, and I will miss the technical service for Taiyo products. I will miss traveling with the Taiyo guys, as well.**

**Dan: Nikolaus, thank you once again for taking the time to talk with me today. I wish you the best of luck as you end one chapter of your life and enter a new one.**

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