



CTO at EkoFluid GmbH

Interview with **Peter Grolimus**



“When offering a complete solution for transformer insulating liquids in the European market, the validations and innovations performed with Ekofluid were a key factor.”

Alan Sbravati
Global Technical Application Manager
Cargill BioIndustrial - Dielectric Solutions

Peter Grolmus



Peter works as the Chief Technological Officer at Ekofluid GmbH and his work at Ekofluid is simple. If you do not know how something works, he's the guy to explain it to you – but be ready for a lecture.

We asked Peter Grolmus the CTO at Ekofluid GmbH to tell us more about the innovations in the field of oil treatment and oil regeneration equipment.



Transformer Technology: Oil treatment equipment today looks the very same as it looked many years ago. Can you explain why?

Peter Grolmus: Indeed, you are correct. Most oil treatment equipment on the market is still being built the same way it was built twenty or even forty years ago. Sure, some of the components themselves have changed, but the overall design, and most importantly functionality, remains the same.

TT It seems that there is an evident lack of innovation in the field. Do you know why?

PG We have done several surveys and talked to many of our longer-term customers and what we discovered is that the innovation push will not come from them. They were all happy with their current equipment. They had procedures set up to operate and maintain that equipment, and more importantly, they had people trained to handle the equipment. When we analyzed this, we realized that the drive for innovation will not come from the customers and therefore it had to come from us.

DRIVING INNOVATION IN TRANSFORMER OIL TREATMENT

TT So, you are saying that the innovations that you have introduced in the market in the recent years were not customer driven?

PG Indeed, you are correct. The innovations were pushed by us, the manufacturer. The moment we found out that the push will not come from the customers, we first needed to answer the big question. Is there even a need for innovation in the oil treatment field? Surprisingly, this question was answered quickly. All we had to do was look around at our component suppliers, at the tools we used in production, and see that basically anywhere around us there was innovation. We even had suppliers coming to us saying, "We have these great new exciting products on the market, why are you not using them in your equipment?"

TT That is interesting. What was your reply to that?

PG Well, the initial reply was that our customers do not want them, but then after some consideration, the reply has changed to, "We do not know how they will benefit our customers." And after this realization, everything changed. We stopped looking for ways to innovate our equipment because we wanted to do innovation, but we asked ourselves the most important question - How can we make our equipment better for our customers, through innovation?

TT So, in other words, you have changed your perspective on innovation?

PG Indeed, we did. We defined several areas in which we wanted to improve our equipment and started looking for ways to do it - through innovation. The main areas we defined were Performance (Results), Safety (Handling), Manufacturing (Delivery), and Training (Support). We decided that for this to make sense, we need one major, and several minor improvements in each of these areas, either on the equipment itself, in our manufacturing process, or in customer support. But on one very important condition - Whatever we do, it must benefit the customers, otherwise it does not make sense.

TT Before we dive into the specifics of your innovations, could you tell me more about your process?

PG In fact, the process was straightforward. We knew that our customers would bring us very little in terms of innovation requirements, we addressed this issue as well, so we went to the "next big thing" - our own onsite service teams. It might be a little unknown to many as we are primarily seen as a manufacturer,

but in fact, we operate the largest onsite regeneration, corrosive sulfur removal and oil treatment equipment fleet in Europe. Naturally, all our onsite teams use our own equipment. So, what we did was involved our service team leaders and started asking them how to improve the equipment. And we did get the right answers.

TT You mentioned that you also addressed the issue with customers not really asking for innovations?

PG To be fair it is not all customers and, when we approached them with our new product, the acceptance was much better than we anticipated. Now coming back to your question. We realized that some customers simply want the same equipment they have had for the last 20 years and preferably with as little change as possible. So, what we did is we separated our product lines and we created a new oil purification line we call **ECOIL**.

The ECOIL line closely copies the original equipment that has been on the market for many decades. Internally we call them “old style” units.

TT Could you now describe in more detail those individual innovation areas we talked about earlier?

PG Since I know I need to keep this short, I will concentrate only on one major improvement in each area, but I think I should first introduce the product line. We call this our advanced product line of transformer oil treatment equipment, named **FILOIL**. I think it is best to start with performance as at the end of the day this is the key improvement that our customers are interested in.

We knew we wanted to improve three things: foam handling as we knew this is always an annoyance for all our service teams; speed, and the actual results. Now if you want to improve all



these things, they all converge into one point in the equipment and that is the vacuum chamber. We did a lot of research on the old style “raschig rings” systems as well as the more modern coalescer systems, which resulted in creating our new stadium shaped vacuum chamber. We know the drawbacks of both technologies - the Raschig rings system tends to overtreat oils and since they simulate the distillation tower design, they are very prone to evaporate light fractions of oil. On the other hand, the coalescer systems have tendency to extensively foam with higher water contents. So, what we did, we put both technologies into one vacuum chamber eliminating their weaknesses and improving their strengths. Thanks to the new stadium design vacuum chamber, we also improved on foam control and by active vacuum regulation with the help of computer algorithms and in-house developed sensors, we now have absolute control of our vacuum and foam. At the end of the day, all these improvements allow our

equipment to be faster and more efficient with absolute foam control.

TT That sounds very interesting. Could you also elaborate on the other innovation areas that you mentioned?

PG For us, the next important innovation area is safety. What we did here was also quite interesting. We have been on the market for more than 25 years, so we compiled a historical list of all accidents and near accidents that have happened to our onsite teams. We grouped the list into common categories and then asked our manufacturing and IT how we could prevent these accidents. Without going deeply into the process, at the end of the day we ended up placing a lot of sensors, blocks, alarms and warnings across the equipment to make it as safe as possible. I am proud to say that now it is almost impossible to damage either the equipment (or harm the operator) or the transformer you are working on with any incorrect operation. The equipment will either stop you or it will shut down not allowing for any accidents to happen. What I am especially proud of is that we were also able to transfer, not all, but many of these safety features over to our ECOIL product line.

TT And what about the innovations in your manufacturing process, I am quite interested in that.

PG Our manufacturing process has been heavily affected in the same ways as every other manufacturing company out there. Everything has been digitized and we are working with the latest tools that are available. However, what we did was we used this shift to digital and we completely changed the way how we sell and build our equipment. When we saw what capabilities we have been given by modern software and manufacturing tools, we translated all of this into a huge customer advantage. We allow our customers to completely customize their equipment before they buy it. We have more than 60 customization options the customer can choose from before we even begin the manufacturing process. We found this to be one of the greatest benefits for our customers from our innovation process. I personally love to see how each customer is going through the options and basically configures the system to completely suit their needs and requirements.

TT Now let’s discuss your last innovation area, if I recall correctly, it is training and support?

PG Yes, it is. But here I have a little confession to make. All the innovations we have discussed above would not be possible with-

It might be a little unknown to many, but we operate the largest onsite regeneration, corrosive sulfur removal and oil treatment equipment fleet in Europe.



out software and hardware to run it. I intentionally did not discuss our R&D in software and hardware when in fact all innovations were primarily driven by it. During the process we realized that while they have been crucial for us, they are almost non-existent for the customer. Sure, they see the operating screen and the interface, but this is where it ends for them. It is normal for the customer to not care about how it works if it works. However, there is one point where it suddenly all becomes too important and that is when things stop functioning properly. We discovered that the moment we need to support our customers and troubleshoot their mistakes, software and hardware can do miracles for the customer. To explain this in short, our equipment gathers lots of data during operation, we analyze this data and if the customer runs into a problem, we use this data to help them. All these amazing new tools that we now have (also partly to Covid) have become standard, such as remote support, video live stream support, operational screen mirroring, cloud data analysis, and video manuals and tutorials we can offer to our customers thanks to our robust software and hardware framework that we have developed.

TT Now to change the topic a little bit, do you also manufacture transformer oil regeneration equipment?

PG Indeed, we do as well as corrosive sulfur removal equipment. Our transformer oil regeneration equipment is sold under the brand name **REOIL**. We manufacture equipment with the conventional method as well as with the new reactivation method. But in all honesty, I believe that the regeneration topic is so vast it would be best suited for a standalone interview.

TT Indeed, I agree but before I let you go, I do have one last topic I would like to discuss. What about Ekofluid and synthetic and natural ester fluids?

PG I could give you the official answer that all our equipment is approved (and rated) to work on synthetic and natural esters. However, the answer goes deeper than that.

We have had tremendous growth in the recent years, and we developed some amazing products bringing innovation into a field that has not had any innovations in several decades.



We do have several special relationships with oil manufacturers and a very strong one with a prominent natural ester manufacturer. In fact, some of our products are used directly in production of these fluids and we therefore proud ourselves on having one of the best, if not the best, knowledge and know-how to handle these fluids and how to build equipment that can efficiently handle them.

TT Does this mean that all your equipment is capable of working with these oils?

PG Indeed, it is so. We have drawn our experience from working with oil manufacturers who have been producing ester fluids for some time, but also from our relations with transformer manufacturers who have been using ester fluids for many years now. We have taken this experience and transferred it into our equipment with a single condition in our mind. We do not want to force our customer to make a choice. Regardless of the type of transformer oil he wants to treat, it should always be the same equipment from us. And I believe we have achieved this mission as we do not have a dedicated product line for any specific transformer oil type. Both our product lines, FILOIL and ECOIL, are designed to work virtually with any type of transformer oil.

TT And before we finish our interview, what is next for Ekofluid? Where do you see Ekofluid and your products in the next five to ten years?

PG Ekofluid is an extremely dynamic company. We have had tremendous growth in the recent years, and I believe we have hired the best possible talent there is to hire. They have developed some amazing products and brought innovation into a field that has not had any innovations in several decades. We feel that the products we have created are from a different dimension if you compare them to what is available on the market today. Yet, for us this is just the beginning. Our vision for the next five to ten years is pretty simple. We want our equipment to be not automatic, but autonomous.