

Consultancy OVERVIEW

Expert Plastic Welding Consulting Services

About Dr. Miranda Marcus

Dr. Miranda Marcus is an internationally known expert in polymer welding. She has over twenty years of focused polymer welding experience, supplemented by a unique academic background which are unparalleled in the field of polymer welding.

Miranda holds a bachelor's and master's in Welding Engineering from The Ohio State University, focused on polymers, and a PhD in polymer engineering from the University of Akron, focused on welding. OSU has the only accredited bachelor's degree program in welding engineering in America. UA is currently ranked #1 in the world for polymer engineering. Between these, Dr. Marcus has an unparalleled education in polymer welding - as there are no polymer welding specialized degrees in existence.

Bolstering this academic background, Miranda worked for eight years at Dukane Corporation - the second largest manufacturer of polymer welding equipment in the United States as an applications engineer. In this role, she evaluated thousands of assemblies for feasibility and developed successful weld processes for hundreds.

Following that, Dr. Marcus worked as a consultant at EWI in research and development for twelve years where she shepherded projects from design to implementation into high volume production. Additionally, Miranda is well versed in troubleshooting and failure analysis. She has saved companies hundreds of thousands of dollars avoiding welding processes that cannot work, ensuring designs are processable, and maximizing throughput rates.

Consulting Services Offered

Design Review

Ensure that your assembly is designed for the process selected and that there are no potential issues such as de-gating during ultrasonic welding or deformation during vibration welding that will negatively impact the overall performance.

Joint Design Recommendation

Choose a joint design that will maximize strength, minimize or direct flash, and fit within the wall width constraints of the part.

Process and Material Selection Consulting

The process and material you've always used may not be the most appropriate for your next project. Companies using legacy processes for new designs leads to excessive failure rates more often than you might expect. Supported Pugh matrices as needed.

Parameter Selection for Design of Experiments

A DOE is only effective if the appropriate inputs are selected. Avoid running multiple DOE's by selecting the most pertinent parameters and min/max/nominal settings the first time.

Troubleshooting Support

Access twenty years of experience in seeing what doesn't work in polymer welding to speed up the troubleshooting process. From excessive hand lotion contaminating the joint surface to rapid movement during hot plate changeover causing a frozen skin layer, Dr. Marcus has seen it all.

Site Visits

While Miranda is extremely effective working from videos, CAD, and conversation, a site visit can be the most effective tool. When time is critical, a site visit is frequently the best approach.

Training

Dr. Marcus has trained hundreds of engineers, both in person and online, in over a dozen polymer joining techniques. She consistently receives positive feedback on the accessibility and effectiveness of her training approach.