CQFD COMPOSITES

The Collaboration

Antonin HORODYNSKI, R&D Technician – CQFD Composites

CQFD Composites, based in Mulhouse, is a company specialized in **recyclable thermoplastic pultrusion** — a continuous manufacturing process used to produce long and highly durable composite profiles, such as rods or industrial structural parts.
Fibers are impregnated with resin and then pulled through a heated die to give them their final shape.

Their mission: design high-performance and recyclable products using **PA6 (polyamide 6)** and other advanced polymers.

Since its creation, CQFD Composites has stood out for its **technological innovation** and its commitment to more sustainable materials.

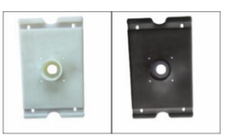
CQFD Composites' Need

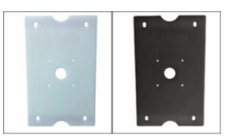
As part of the development of a **first automated pultrusion production line**, CQFD Composites designs and manufactures its own machines.
One of the components of these machines — **a plastic cover for a molten material injection system** — was improperly machined, resulting in the part being produced in **white instead of black**.

Rather than restarting a complete manufacturing process, the team sought an **effective recoloring solution** that would **not affect the mechanical properties** nor the **dimensional tolerances** of the part.

"We were very pleasantly surprised. We didn't know that plastic parts could be dyed in this way."

Antonin HORODYNSKI, R&D Technician – CQFD Composites





The TCN Solution

CQFD Composites turned to TCN, specialist in polymer dyeing, **to recolor the parts in black.**

Our GTC 9093 AM dye proved to be the most suitable solution.

Key advantages of the TCN process:

- **No added thickness**: dimensions remain unchanged — essential for precise assemblies
- **Thermal resistance**: the dyed parts withstand **100°C over long periods** (tested at **120°C for 2 hours** — no degradation observed)
- **No surface preparation required**: the dye penetrates the material — no sanding or painting needed

« No added thickness — absolutely essential for us. A layer of paint would have ruined everything.»

Antonin HORODYNSKI, R&D Technician – CQFD Composites

Benefits

This first collaboration enabled CQFD Composites to:

- **Quickly recover** parts ready for use with no rework,
- **Discover a technology compatible with future PA6 products,**
- **Explore the possibility of integrating dyeing into their production process.**

« Since you successfully dyed PA6, we may be able to color our products directly at the end of the line in the future. »

Antonin HORODYNSKI, R&D Technician – CQFD Composites

The team also highlighted the **simplicity of the process** and **TCN's responsiveness** in both technical support and delivery times.

TCN Support

TCN's expertise was demonstrated through:

- Tailored **technical recommendations** adapted to the material
- Fast and **reliable** communication with a dedicated contact
- **Deep knowledge** of polymer–dye compatibility

« Flexible and highly responsive. It's great to work with experts who understand our needs and adapt quickly. »

Antonin HORODYNSKI, R&D Technician – CQFD Composites

What's Next?

Beyond this first success, CQFD Composites is considering extending dyeing applications to its thermoplastic composites to:

- Offer **distinctive aesthetic** options
- Maintain **complete recyclability** of materials

« On our solar frame structures for example, we already tested PA6 dyeing. We can now clearly see how to go further with TCN. »

Antonin HORODYNSKI, Technicien R&D