Project title: ReNUSLIC - Reusable Nanostructured UltraSlippery Liquid Immobilized Coatings for accelerating Stereolithographic 3D printing

1. **What is the purpose of the project?**

Development of easily accessible and straight-forward silicone surface modifications applicable to commercially available 3D printing vats to reduce printing-induced adhesion in stereolithographic 3D printing. Simultaneously, the surface modification should lead to an increase of vat-lifetime by reducing resin ingress during printing.

2. **What is the current status of the project (as of the 2nd quarter of 2024)?**
   - 3D printer to measure printing-induced adhesion set-up
   - Functionalized 3D printing vats prepared and characterized
   - Adjusted project scope to follow current regulations on perfluorinated substances
   - Demonstration of novel surfaces with low adhesion

3. **What challenge does the project address?**

Printing-induced adhesion that leads to breakage of printed parts and requires time-consuming workarounds can be reduced via stable and long-lasting silicone surface modifications. Lowering resistance to resin flow and reducing interfacial adhesion can lead to printing acceleration.

4. **How does the project tackle the challenge? What is the project's impact, and what will be different after the project?**

The project creates smooth, low adhesion interfaces by altering the interfacial properties of silicone-based 3D printing vats. The vats prepared during this project will contribute to faster printing speeds, as prints can be easily lifted from the surface without impacting the print quality. Reduced resin ingress will increase the lifetime of 3D printing vats, further reducing waste and resources consumed in 3D printing.