

Evaluation of textile materials with regard to their resistance against the impact of technical UV radiation focusing on welding protective clothing

Problem / Motivation

- Worldwide increase in the technical use of ultraviolet radiation in industrial environments, for instance for UV disinfection or UV-induced polymerisation of adhesives and binders as well as process-related high UV exposure in welding
- Health risks (for instance skin cancer) due to exposure to technical UV radiation and material degradation of workers' personal protective equipment (PPE)
- Negative effects of material degradation on the protective functions of PPE, such as heat protection or mechanical strength, represent an existing safety risk and potential danger for the wearer

Solution

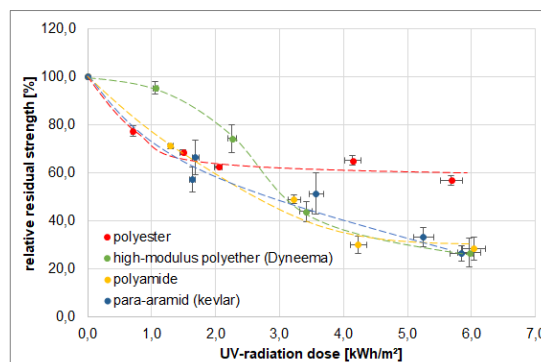
- Multi-stage evaluation of the degradation behaviour of textile PPE against the effects of technical UV radiation using a UV stress test rig developed in-house
- Analysis of the degradation of basic textile materials, such as fibres, as well as the impact of textile technology design parameters
- Determination of the effect of combined factors (climatic, mechanical, radiation-physical) on material damage and residual protective functionality of PPE
- Concept development for designing more resistant PPE

Project Launch

11/2024

Project Partner

capacities still available for fabric manufacturers, garment makers and textile service companies



Loss of strength of synthetic fabrics due to exposure to technical UV radiation

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