



#GPD2017

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ON GLASS.

GLASS PERFORMANCE DAYS 2017
JUNE 28 - 30, 2017. TAMPERE, FINLAND



WORKSHOP

TESTING, RHEOLOGICAL MODELLING AND DESIGN OF INTERLAYER MATERIALS IN LAMINATED SAFETY GLASS

SUMMARY

Interlayer materials in laminated safety glass applications are polymer-based and thus typically show distinct viscoelastic behaviour. Recent investigations of different companies together with the Technical University Darmstadt in cooperation with the University of German Armed Forces Munich delivered a method of considering the temperature and time dependence of the interlayer in the design process of laminated safety glass.

Due to the complexity of the whole subject, this workshop will be split into four parts. An introductory session picks up the basic concepts in the theory of linear viscoelasticity as well as the designing with polymeric interlayers used in laminated safety glass. The second part of this workshop will go into the details of the testing and data postprocessing in order to obtain a validated and verified material model for interlayer materials. The third session will be concerned with the application of the different shear coupling approaches to examples out of engineering practice. A final session will give a prospective outlook on recent trends in this field of research as well as the future incorporation of the presented methods in design codes and standards.

KEY POINTS

- Laminated safety glass: definition, applications, design according to standards
- Polymeric interlayers: time and temperature dependency, thermorheology
- Design with consideration of the shear coupling
- Mastercurve creation
- Determination of the Prony-Series
- Shift of Mastercurve for different temperatures
- Determining Shear modulus for specific load situation
- Examples
- Future research

TIMETABLE

09.00	Introduction
09.05	Part I: Basic Theory
09.30	Part II: Material Modeling
11.00	Brea
11.30	Part III: Examples
13.00	Break
13.15	Part IV: Future Research

Duration: 4 hours.



ORGANISERS

Miriam Schuster, University of German Armed Forces Munich

Miriam Schuster, born in 1990 in Luxembourg, studied Civil Engineering from 2009 to 2014 at University of Luxembourg and TU Darmstadt. She focused and specialized on structural engineering. After working in the Luxembourgish engineering office Schroeder&Associés she returned to TU Darmstadt in February 2016 as a researcher in the Institute of Structural Mechanics and Design under the supervision of Prof. Dr.-Ing. Jens Schneider. Her topic area is the mechanical behaviour of intact and broken laminated safety glass with a main focus on the polymeric interlayer modelling.



Michael Kraus, University of German Armed Forces Munich

Michael Anton Kraus was born in 1989 in Oberviechtach, East Bavaria, and studied Civil Engineering from 2008 to 2013 at the Technical University Munich with a specialisation in structural engineering. From 2012 to 2014 he was selected for the Honours program of the Bavarian Graduate School of Computational Engineering (BGCE), which is part of the Elitenetzwerk Bayern. Since 2015 Michael Kraus works at the Institute and Laboratory for Structural Engineering at the University of German Self Defence Forces in Munich under the supervision of Univ.-Prof. Dr.-Ing. Geralt Siebert. Special aspects of his research lie in the fields of the application of uncertainty and sensitivity analysis, material modelling and system identification to practical engineering problems in the field of structural glass engineering.