



1 Rotor for an electric motor with bonded on magnets (photo courtesy of SEW Eurodrive GmbH & Co. KG).

EWF-EUROPEAN ADHESIVE ENGINEER (EAE)

Fraunhofer Institute for
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and Advanced Materials IFAM
- Adhesive Bonding Technology
and Surfaces -

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This advanced course enables employees to supervise the whole spectrum of bonding work from product development right through to production and also repair activities. Successful completion of the examination qualifies the person to take on the tasks and responsibilities of the supervisor in charge of adhesive bonding work in a company (in accordance with DIN 6701 and guidelines DVS® 3311 and DIN 2304).

COURSE CONTENT

Principles of materials

The fundamental principles for understanding „adhesive bonding technology“ is covered in this topic. This includes knowledge about the structure of polymers and other materials as well as the relationship between this structural information and application-related properties.

Bonding properties of the substrate materials

This part of the course covers the bonding properties of substrates made of e. g. metals, plastics, fiber reinforced plastics, glass, and ceramics.

Adhesives, bonding mechanisms, and application properties

The processing characteristics and curing mechanisms of different types of adhesives and their properties in the solid state are key topics here.



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Chemical aspects are given for information purposes but will not form part of the examination.

Analysis of adhesives and surfaces

This section of the course discusses commonly used techniques for analyzing adhesives in the liquid and cured states as well as for monitoring the curing process. Also covered are methods for characterizing material surfaces.

Adhesion

The main focus and objective is to provide knowledge about the principles of adhesion and to give an insight into the current research that is being carried out in this area.

Surface treatment

The specialized cleaning of different surfaces as well as the effectiveness and areas of application of material-specific pre-treatment techniques are discussed in that part of the training course.

Manufacturing technology

This section deals with the rheological behavior of adhesives as well as application and curing techniques. This includes the construction and performance of the individual

components of manual, semi-automatic or fully automatic equipment.

Joining techniques

Joining techniques discussed are e. g. welding, clinching, and riveting. The aim is to optimize joints by combining these methods with adhesive bonding.

Design

The advanced development of dimensioning and calculation methods for adhesive bonding technology is currently a hot topic of research. The course gives an insight into the fundamental analytical and numerical models, describes their practical relevance, and uses examples to demonstrate the procedure for individual cases.

Quality management, test methods (destructive and non-destructive), ageing

The course covers quality management from a specific technological point of view. The entire process chain, from the conception stage right through to the end of the service life of the product, is considered from a quality assurance perspective regarding the wide range of use.

The focus is also put on non-destructive test methods and the ageing of bonded joints.

Work safety and environmental aspects

The area of responsibility of an EAE also involves participation in decision-making on matters relating to work safety and environmental protection.

Certification and accreditation

| The Department of Adhesive Bonding Technology and Surfaces is accredited according with DIN EN ISO 9001, and the laboratories for material testing, corrosion testing, and paint/lacquer technology are further accredited in accordance with DIN EN ISO/IEC 17025.

| The Center for Adhesive Bonding Technology has an international reputation for its training courses in adhesive bonding technology and is accredited via DVS-PersZert® in accordance with DIN EN ISO/IEC 17024.