Fraunhofer IFAM

Adhesive Bonding Technologist – ABT

Training Center for Adhesive Bonding Technology

The training programme enables participants to manage all technical bonding issues from product development to production and repair. Successful completion of the examination serves as proof of qualification and and qualifies participants to fulfil the tasks and responsibilities of the responsible bonding supervisor in a company (according to DIN 2304, DIN 6701, EN 17460, EN ISO 21368 or TL A-0023) in a company, if necessary with restrictions. The learning objectives relevant to the examination are the same as those of the Adhesive Engineer course - with one exception: the subject area of design and construction is relevant to the examination at adhesive specialist level. Interested parties who also wish to obtain the comprehensive competences of an adhesive bonding supervisor (cf. adhesive bonding engineer) in this subject area can achieve this by taking the corresponding additional examinations.

Course content

Principles of materials
The fundamental principles for understanding „adhesive bonding technology“ iscovered in this topic. This includes knowledgeabout the structure of polymers andother materials as well as the relationshipbetween this structural information andapplication-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. Chemical aspects are given for information purposes but will not form part of the examination.

Certification and accreditation

The Department of Adhesive Bonding Technology and Surfaces is accredited according with DIN EN ISO 9001.

The training courses in adhesivebondingtechnology are further accredited iin accordance with EN ISO 21368 (formerly DIN 2304-1), DIN 2304-02 (shipbuilding), EN 17460 (formerly DIN 6701) and TL A-0023

The Training 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.

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. During the workforce training to become a Adhesive Technologist the topic of design is only relevant on EAS level for the examination.

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.

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

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