

# MINIMUM REQUIREMENTS FOR THE EDUCATION, TRAINING, EXAMINATION, AND QUALIFICATION OF PERSONNEL

## EUROPEAN ADHESIVE BONDER (EAB)

**This is a reduced version; it is not the full Guideline**

**For more information regarding the EWF Qualification System,  
the EWF-IAB/IIW Combined Secretariat or the National ANB  
should be contacted  
(see in the EWF and/or IIW sites the ANB contacts)**

## GUIDELINE OF THE EUROPEAN FEDERATION FOR WELDING, CUTTING AND JOINING - EWF

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C/o: ISQ  
Av. Prof. Dr. Cavaco Silva, 33  
Taguspark – Apartado 012  
P-2780-994 Oeiras  
PORTUGAL

Tel: +351 21 4211351  
Fax: +351 21 4228122  
E-Mail: [ewf@isq.pt](mailto:ewf@isq.pt)

# **Minimum Requirements for the Education, Examination and Qualification of European Adhesive Bonder**

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## **Section I: Minimum Requirements for the Education of European Adhesive Bonder**

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The use of this guideline is restricted to organisations approved by the Authorised National Body (ANB). The section II of this guideline covers the examination and qualification of European Adhesive Bonders.

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### **Introduction**

This guideline for the European Education and training of Adhesive Bonders has been prepared, evaluated and formulated by Members of the Committee for Education and Training of the EWF. It is designed to provide the basic core education in adhesive technology required for a number of adhesive personnel being active in job functions such as foreman, instruction, technical sales etc. It is possible that additional training and/or experience may be required by the adhesive personnel beyond the basic core education to lead to qualification in the applicable job functions.

A European Adhesive Bonder has industrial experience and can carry out bonding without supervision. He is able to read and understand working instructions and is well informed about production methods concerning bonded products.

The guideline covers the minimum requirements for education and training, agreed upon by all national welding and joining societies within the EWF, in terms of themes, keywords and times devoted to them. It will be revised periodically by the Committee to take into account any changes which may affect the "state of the art". Students having successfully completed this course of education will be expected being capable of applying adhesive technology as covered by this guideline. The subsequent Part II of this document covers the examination and qualification.

The contents are given in the following structure.

| Theoretical Education                                     | Teaching hours |
|-----------------------------------------------------------|----------------|
| 1. Fundamentals of Adhesion and Adhesives                 | 1              |
| 2. Surface Preparation Before Adhesive Bonding            | 4              |
| 3. The Main Families of Adhesives and Sealants            | 3              |
| 4. Design and Construction of Adhesive Joints             | 1              |
| 5. Quality Control of Bonded Structures                   | 3              |
| 6. Durability of Adhesively Bonded Joints                 | 1              |
| 7. Benefits and Limitation of Adhesive Bonding Technology | 2              |
| 8. Health and Safety                                      | 1              |
| 9. Practical                                              | 18             |
| 10. Examination                                           | 6              |
| Total                                                     | 40             |

A teaching hour will contain at least 50 minutes of direct teaching time. It is not obligatory to follow exactly the order of topics given in this guidance and choice in the arrangements of the syllabus is permitted.

It is to be noted that the overall structure of the syllabus for all levels (EAE, EAS and EAB) is similar, but some items are not considered appropriate in the Education of EAB. The depth to which each topic is dealt with is indicated by the number of hours allocated to it in the guideline. This will be reflected in the scope and depth of the examination.

## **Adhesive Bonder Course**

### **Theoretical and Practical Education,** (Only the main Syllabus Themes)

#### **THEORETICAL EDUCATION – Duration - 16 hours**

- 1. Fundamentals of adhesive and adhesives**
- 2. Surface preparation before adhesive bonding**
- 3. The main families of adhesives and sealants**
- 4. Design and construction of adhesive joints**
- 5. Quality control of bonded structures**
- 6. Durability of adhesively bonded joints**
- 7. Benefits and limitation of adhesive bonding technology**
- 8. Health and safety**

#### **PRACTICAL TRAINING – Duration - 18 Hours**

##### **Day 1: Surface Pretreatment of Substrates**

Table 1 summarises the basic requirements.

##### **Day 2: Use of Different Adhesives**

Table 2 summarises the basic requirements.

##### **Day 3: Quality Control of Joints/Testing**

Table 3 summarises the basic requirements.

**Table 1.** Surface Pretreatment of Substrates

| Test Pieces for the Practical Exercises |                                |                  |                                                                                                                                                      |
|-----------------------------------------|--------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of Joint                           | Surface Preparation            | Adhesives        | Remarks                                                                                                                                              |
| Lap joint                               | Degrease, grit blast, degrease | 2 Part Cold Cure | A representative cross section of joint types, surface preparation in conjunction with an appropriate adhesive shall be used to assess the candidate |
|                                         | Anodise                        |                  |                                                                                                                                                      |
|                                         | Primers                        |                  |                                                                                                                                                      |
|                                         | Chemical Treatments            |                  |                                                                                                                                                      |
| Double Strap Joint                      |                                |                  |                                                                                                                                                      |
| Angle Lap Joint                         |                                |                  |                                                                                                                                                      |
| Examination                             |                                |                  |                                                                                                                                                      |

**Table 2.** The Use of Different Adhesive Systems

| Test Pieces for the Practical Exercises |                                |                                                                                    |                                                                                                                                          |
|-----------------------------------------|--------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Type of Joint                           | Surface Preparation            | Adhesives                                                                          | Remarks                                                                                                                                  |
| Lap joint                               | Degrease, grit blast, degrease | Epoxy<br>Acrylic<br>Anaerobic<br>Cyanoacrylate<br>Polyurethane<br>2 Part Cold Cure | A representative cross section of joint types, adhesive systems (including dispensing techniques) shall be used to assess the candidate. |
| Peel Specimen                           |                                |                                                                                    |                                                                                                                                          |
| Pin and Collar                          |                                |                                                                                    |                                                                                                                                          |
| Examination                             |                                |                                                                                    |                                                                                                                                          |

**Table 3.** Quality Control of Joints/Testing

| Test Pieces for Practical Exercises |         |
|-------------------------------------|---------|
| Test                                | Remarks |
| Adherend Prior to Bonding           |         |
| Adhesive (Reception & Storage)      |         |
| Cured adhesive                      |         |
| NDT                                 |         |
| Examination                         |         |

## **Appendix 0**

### **Access to the Education:**

For entry to the European Adhesive Bonder Course normal physical and mental capability is assumed with a minimum age of 16. Basic skills in material processing are required otherwise a basic training is recommended. Course attendees and teachers shall have a good command of a common language, so that they can successfully participate in instruction and take part in theoretical tests.