

Technische Lieferbedingungen	TL A-0023
Kleben und verwandte Prozesse –	
Qualitätsanforderungen an Hersteller und Instandsetzer für wehrtechnische Produkte	Ausgabe: 3
Adhesive bonding and related processes -	Datum: 26. Juni 2023
Quality requirements imposed on manufacturing and repair companies performing work on military products	Seite 1 bis 14

In case of doubt, the German original is binding.

Beschaffungshinweis:

"F" an zugelassene Hersteller gebunden

Procurement Types:

"F" Tied to approved manufacturers

Diese TL verlieren ihre Gültigkeit Ende Mai 2028. This Technical Specification (TL) will become invalid at the end of May 2028.

Aktualitätsprüfung der TL ist vor jeder Ausschreibung erforderlich. Prior to each invitation to tender, please verify that this TL is up to date.

Änderung
gegenüber der
letzten Ausgabe
Change with respect to
the provious issue

Frühere Ausgabe Previous issue(s)	1	2	
Frühere Ausgabemonate Previous date(s) of issue	09.17	05.23	

PRELIMINARY REMARK

This document was prepared by the "Adhesive bonding used for defence technology" working group ('Arbeitskreis "Kleben in der Wehrtechnik"').

Companies manufacturing and repairing defence products must have a company qualification for adhesive bonding technology according to the specified requirements.

NORMATIVE REFERENCES

This TL incorporates, by dated and undated reference, provisions from other documents (standards, TL, etc.). These documents are cited at the appropriate places in the text (normative reference). All documents cited in this TL are listed below. For dated references, subsequent amendments to or revisions of the cited documents apply to this TL only when incorporated in it by amendment or revision. For undated references as well as cited Council Directives and Regulations (EU/EC), the issues/versions of the cited documents valid at the time of contract conclusion apply. For cited national standards, equivalent European/international standards will be accepted. Absolute equivalence is the prerequisite for acceptance.

DIN 2304-1	Adhesive bonding technology - Quality requirements for adhesive bonding processes - Part 1: Adhesive bonding
DIN SPEC 2305-1	process chain Adhesive bonding technology - Process chain adhesive bonding - Part 1:
	Advice for manufacturing
DIN SPEC 2305-2	Adhesive bonding technology - Quality requirements for
	adhesive bonding processes - Part 2: Adhesive bonding of fibre composite materials
DIN/TS 2305-3	Adhesive bonding technology - Quality requirements for
	adhesive bonding processes - Part 3: Requirements for the
	adhesive bonding personnel
DIN 6701-2	Adhesive bonding of railway vehicles and parts - Part 2: Qualification of manufacturer of adhesive bonded materials
Guideline DVS/EWF 3305	European Adhesive Bonder
Guideline DVS 3304	Adhesive Bonding Technologist
Guideline DVS/EWF 3309	European Adhesive Engineer
	European Adhesive Specialist
Guideline DVS 3311	Adhesive bonding supervision - Tasks and responsibilities
General Publication A1- 1525/0-8901	Das Prüf- und Zulassungswesen für Luftfahrzeuge und Luftfahrtgerät – Teil 1

For sources of supply, refer to: TL A-0101

Technische Lieferbedingungen (TL): Bundesamt für Ausrüstung, Informationstechnik und Nutzung der Bundeswehr Postfach 300 165 D-56057 Koblenz

https://www.bundeswehr.de/de/organisation/ausruestung-baainbw/vergabe/technische-lieferbedingungen

Additionally:

Federal Office of the Bundeswehr for Military Aviation

DEFINITIONS, ABBREVIATIONS AND SYMBOLS

The terms specified in the DIN 2304 standard and those specified below shall apply throughout this document.

Adhesive bonding:

In this TL, the term "adhesive bonding" signifies the bonding of adherends to form a bonded composite structure whose function consists in transmitting mechanical loads. It does not matter whether this is the primary or secondary function of the bonded composite structure.

Sealing:

In this TL, the term "sealing" signifies the prevention of undesired transfers of materials or substances to ensure a sealing function. It does not matter whether this is the the primary or secondary function of the bonded composite structure.

Specific process:

"Specific processes" are manufacturing stages, production units or products which cannot be fully verified (tested/inspected) on a non-destructive basis.

Defence products:

In this $\overline{\text{TL}}$, the term "defence product" signifies products whose assemblies and components are used in routine operations and/or missions.

Company:

Manufacturing/repair company or supplier performing adhesive bonding work on defence products.

Manufacturer:

In this TL A-0023, manufacturers are user companies responsible for manufacturing and/or design and/or process planning.

Repair company:

In this TL A-0023, repair companies are companies responsible for repair with or without design and/or process planning.

Approved authority:

Organization or institution approved by the Bundeswehr Center of Welding and Bonding Technology for awarding company qualifications.

Component class:

Assignment of defence products to classes, depending on the type of load, safety relevance and/or serviceability.

Online database:

The approved authorities will publish the qualifications in the www.tla0023.de online database. If so requested by the company, it may waive publication.

Defence product subject to general requirements:

A defence product, including its assemblies and components, made of standard materials where the bonded composite structure has no protective function and for which no proof of roadworthiness and/or airworthiness is required.

Defence product with a protective function:

A defence product, including its assemblies and components, which performs a protective function against firing, effects caused by mines, fragmentation and blasts.

Airworthy defence product:

A defence product, including its assemblies and components, made of bonded components whose airworthiness has been proven.

WIWeB - Bundeswehr Center of Welding and Bonding Technology:

The Bundeswehr Center of Welding and Bonding Technology is part of the Bundeswehr Research Institute for Materials, Fuels and Lubricants (Wehrwissenschaftliches Institut für Werkund Betriebsstoffe, WIWeB) and acts as central point of contact for all matters related to adhesive bonding and welding in the Bundeswehr.

The company qualifications are issued by the approved authorities designated by the Bundeswehr Center of Welding and Bonding Technology.

TL Technische Lieferbedingungen (Technical Specification)

BK Bauteilklasse (Component class)

BAAINBW Bundesamt für Ausrüstung, Informationstechnik und Nutzung der

Bundeswehr (Federal Office of Bundeswehr Equipment, Information Technology and

In-Service Support)

EAE European Adhesive Engineer
ABT Adhesive Bonding Technologist
EAS European Adhesive Specialist
EAB European Adhesive Bonder

vKAP verantwortliche Klebaufsichtsperson (Responsible adhesive bonding

supervisor)

KAP Klebaufsichtsperson (Adhesive bonding supervisor)

H Klasse der Herstellerqualifikation (Manufacturer qualification class)

I Klasse der Instandsetzungsbetriebe (Repair company qualification class)

LuftABw Luftfahrtamt der Bundeswehr (Federal Office of the Bundeswehr for Military

Aviation)

WIWeB Wehrwissenschaftliches Institut für Werk- und Betriebsstoffe (Bundeswehr

Research Institute for Materials, Fuels and Lubricants)

1 GENERAL

Due to their static and dynamic loads, mission range, specific safety and essential reliability requirements, defence products require a defined qualification standard when being manufactured and repaired.

Within the meaning of this TL, the adhesive bonding process is considered as a specific process in accordance with DIN EN ISO 9001. In this process, the product quality requirements cannot be clearly and fully evidenced by subsequent tests/inspections conducted on a non-destructive basis.

This TL is based on DIN 2304-1 and DIN/TS 2305, specifying DIN 2304-1 and DIN/TS 2305 for defence products. The conformity of products manufactured using adhesives and/or sealants shall be evidenced by the certification of companies based on this TL.

1.1 Scope

This TL covers the bonding and sealing of adherends during manufacture and repair of defence products. It defines the minimum requirements to be met by the quality assurance systems and describes the procedure for obtaining the company qualification to perform work on defence products.

It is binding both for Bundeswehr agencies and for civilian companies which perform adhesive bonding and sealing on defence products.

This TL does not apply to:

- screw locks using adhesives if a screw connection without a further locking device is sufficient in the case of identical design.
- hybrid connections if the expected function is exclusively achieved by another assembling technique such as welding, riveting or screwing.
- the production of vulcanisates.
- the production of plywood.
- the production of preformed parts made of fibre-reinforced plastic.
- the production of laminated safety glass.
- the pure adhesive sealing of electronic parts.

- the application of decorative foils adherent on one side.
- commercial products which can be used for both civilian and military purposes without any major modifications.

1.2 Company qualification

This TL specifies that companies performing adhesive bonding during manufacture or repair of defence products need a qualification certificate as specified in TL A-0023. Such a certificate is required for component classes BK1 through BK3. Component class BK4 has the lowest requirements. No company qualification is required. During contract conclusion, the customer and the contractor must decide on the requirements for these adhesive bondings.

The qualification requirements to be met by the companies are specified in section 2.

The procedure for obtaining such a qualification certificate from the approved authorities is defined in section 3.

2 Requirements to be met by the companies

2.1 <u>Basic requirements</u>

2.1.1 Company qualification

Companies must prove that they are qualified as specified in section 3. If the defence products on which work shall be performed are aeronautical products within the meaning of Type A1 General Publication A1-1525/0-8901, the companies shall additionally obtain a certificate from the Federal Office of the Bundeswehr for Military Aviation proving that they are approved Bundeswehr aeronautical companies.

The approved authorities are responsible for awarding qualifications. The company qualification is divided into various classes, depending on the type of product (see table 1).

A class "H 2" or class "H 3" company qualification for manufacturers includes the class "H 1" company qualification for manufacturers.

A company qualification for manufacturers also includes the corresponding repair company qualification (as per table 1).

A repair company qualification only authorizes the respective company to repair Bundeswehr products in accordance with the instructions/requirements imposed by the manufacturer or by government agencies.

The Bundeswehr Center of Welding and Bonding Technology will keep a list of approved authorities.

 $\underline{\textbf{Table 1:}} \ \textbf{Requirements based on the type of defence product}$

	Company qualification		Additional requirements	Included qualification classes		
Defence products,			_	11		
general	I 1		_	-		
Protective function	Н 2	DIN 2304-1	tbd	H1, I1, I2		
	I 2	DIN 2304-1	CDG	11		
Airworthiness	н 3		General	H1, I1, I3		
ATIWOT CHIMESS	I 3		Publicati on A1-	11		

2.1.2 Quality management

A basic requirement for the application of this TL is that the user must have implemented a certified internal quality management system.

If the manufacturer or repair company does not have a certified quality management system, the system must be verified by the approved authority in that regard.

As regards its adhesive bonding technology business sector, the company must perform and/or provide evidence for the following:

- General management system documentation (e.g. basic regulations, definition of responsibilities)
- Control of documentation and records
- Knowledge management
- Error management
- Internal audits
- Corrective and preventive measures, improvements

2.1.3 <u>Personnel requirements</u>

2.1.3.1 <u>General</u>

Companies must have sufficiently qualified personnel, depending on the component classes for defence products. To this effect, the personnel concerned with adhesive bonding requires different qualifications. See table 2 for the different qualifications.

Table 2: Qualification levels of the personnel concerned with adhesive bonding

Level	Qualification
1	Extensive technical know-how, e.g. - DVS-EWF-EAE as per DVS/EWF Directive 3309 or similar (see also DIN/TS 2305-3) - Adhesive Bonding Technologist IAW DVS 3304 (see table 3 for restrictions)
2	Specific technical know-how, e.g DVS-EWF-EAS as per DVS/EWF Directive 3309 or similar (see also DIN/TS 2305-3)
3	Expertise, e.g DVS-EWF-EAB as per DVS/EWF Directive 3305 or similar (see also DIN/TS 2305-3)

2.1.3.2 <u>Technical personnel</u>

The technical personnel shall prove that it is sufficiently qualified. For component classes BK1 and BK2 this means that the personnel is at least qualified as European Adhesive Bonders (EAB) in accordance with DVS/EWF Directive 3305 or that they possess similar qualifications (see DIN/TS 2305-3). As regards adhesive bonding of class BK 3, the responsible adhesive bonding

As regards adhesive bonding of class BK 3, the responsible adhesive bonding supervisor may - in exceptional cases - accept personnel not being qualified as adhesive bonders (EAB) in accordance with DVS/EWF Directive 3305 under the following conditions:

- Such authorizations are limited to individual adhesive bonding or work.
- Evidence must be provided that the personnel is instructed in the process by an adhesive bonding supervisor.
- The responsible adhesive bonding supervisor must justify and document the reasons for granting the authorization.

Personnel concerned with adhesive bonding hired on a temporary basis is subject to the same qualification requirements as permanent personnel.

2.1.3.3 <u>Bonding supervisors</u>

Suitably qualified supervisory personnel shall be available for each component class (BK). A responsible adhesive bonding supervisor shall be designated. Rules for the replacement of supervisory personnel shall be agreed and coordinated with the approved authority. Table 3 shows how the required qualifications are assigned to the respective component classes.

Table 3: Assignment	οf	the	required	minimum	qualifications	for	the	bonding
supervisors								

	Component classes					
Scope	BK 1	BK 2	вк 3			
		Qualification of responsible adhesive bonding supervisor/representative				
Design	Level 1 / Level 1 (B)	Level 1 / Level 1 (B) In case of compliance demonstration based on calculation, otherwise level	Level 2 / Level 2 (B)			
Process planning	Level 1 / Level 1 (B) Alternative: Level 2 / Le Adhesive Bonding Technologist		Level 2 (B)			
Manufacture Repair	Level 2 / Level 2 (A) Level 2 / Level (B)					
Subcontracting	Level 2 / Level 2 (B)					

- (A) If a permanent availability of the responsible adhesive bonding supervisor is not required, a representative with a lower qualification level and a lesser degree of authority may be designated. This shall be justified in a plausible way.
- (B) If a permanent availability of the responsible adhesive bonding supervisor is not required, a representative without adhesive bonding qualification and a lesser degree of authority may be designated (stopping of the process if the responsible adhesive bonding supervisor is not available). This shall be justified in a plausible way.

2.1.3.4 <u>External bonding supervisors</u>

External bonding supervisors may be accepted by the approved authorities under the following conditions:

- As a minimum, the responsible adhesive bonding supervisor or his/her deputy must be a company member.
- The bonding supervision must be an organizational element of the company. In case of employees, the primary employer's approval must be submitted.
- The scope of work must be defined and documented via performance records.
- A bonding supervisor may be appointed as external bonding supervisor for no more than one further company.
- The external bonding supervisor must be able to reach the company within 24 hours.

2.1.3.5 <u>Test personnel</u>

The user company must have sufficient and qualified personnel for planning and implementation of the supervision, quality inspection, testing and examination of adhesive bonding processes in accordance with the specified requirements. The test results shall always be evaluated under the responsibility of an adhesive bonding supervisor.

Work samples and/or their test results may exclusively be evaluated by adequately qualified personnel with respect to adhesive bonding. The personnel used for the testing of work samples shall be defined and instructed by the responsible adhesive bonding supervisor. The evaluation shall be performed by a European Adhesive Specialist (EAS or similar qualification), an Adhesive Bonding Technologist (or similar qualification) or by an European Adhesive Engineer (EAE or similar qualification).

BK4 is not applicable due to paragraph 1.2.

2.2 <u>Company facilities</u>

The companies shall have suitable rooms and spaces, manufacturing facilities and, if required for working processes, tested/inspected equipment. If non-destructive tests/inspections are required during manufacturing and/or repair, suitable equipment must be available to this effect. External test facilities may be used if respective contractual arrangements are in place.

2.3 <u>Design and manufacturing documents</u>

The design documents (e.g. drawings) must contain the following information:

- the adherends
- their surfaces
- the adhesive bonding products (e.g. primers, activators, cleansers)
- the dimensions with the admissible tolerances
- the definition of the class and a release note for the class
- the surface treatment

Work shall be performed in compliance with the respective work instructions specifying all major process parameters, adhesive bonding products as well as boundary conditions and scope. These instructions shall be signed by the responsible adhesive bonding supervisor of the company in question following performance of suitable tests/inspections; they shall be kept at the respective workplace.

Approved repair instructions issued by the component manufacturer or by official agencies shall be available at those companies carrying out repair work.

2.4 Quality requirements and component classification

The design authority shall, in coordination with the responsible adhesive bonding supervisor, classify the components of defence products, duly considering component function and type of load.

The manufacturer of the defence product in question shall classify the component(s); this classification is part of any repair instruction which might be required. For definition of the different component classes see table 4.

Table 4: Definition of component classes

Component	Description
вк 1	This class is applied when manufacturing and repairing defence products, and individual components thereof, with high safety relevance and/or high serviceability.
BK 2	This class is applied when manufacturing and repairing defence products, and individual components thereof, with medium safety relevance and/or medium serviceability.
вк 3	This class is applied when manufacturing and repairing defence products, and individual components thereof, with minor safety relevance and/or minor serviceability.
вк 4	This class is applied when manufacturing and repairing defence products without any safety and serviceability requirements. During contract conclusion, customer and contractor must decide on the acceptance of these adhesive bondings.

2.5 <u>Tasks and responsibilities</u>

Table 5 shall be used as a guide for defining the quality-related tasks and functions to be performed by the bonding supervisors. It may be supplemented as regards specific applications.

It is not necessary to apply all the points listed to all user companies or quality system requirements. The reasons for this shall be documented. The responsibilities defined in table 5 may be linked to a number of specific tasks, such as:

- precise information or preparation,
- coordination,
- surveillance/monitoring,
- review or release.

If adhesive bonding supervision is carried out by more than one person, the tasks and responsibilities to be performed by each person shall be defined and documented.

The user shall designate at least one responsible adhesive bonding supervisor as specified in section 3.

Table 5: Guide for defining the quality-related tasks

•	
No.	Tasks to be performed by the responsible adhesive bonding supervisor
1	Contract review - Qualification of the user company as regards adhesives and assigned tasks
2	Design review - Compliance with the respective adhesive bonding standards, guidelines/directives and instruction sheets - Load analysis - Structuring of adhesive-bonded connections, in conjunction with related design requirements - Adhesive accessibility - Load capacity analysis of the adhesive-bonded connection - Design of the bonded joint
3	Review of bonded composite structure compliance demonstration
4	Selection and testing of materials/adhesives
4.1	Adherends - Bonding suitability of the adherends - Selection of surface pre-treatment - Any additional requirements as regards the delivery conditions applicable to the adherends - Marking, storage and handling of adherends - Traceability
4.2	Adhesives - Adhesive qualification - Delivery conditions - Any additional requirements as regards the delivery conditions applicable to the adhesives, including the type of adhesive certificate
5	Examination whether sub-contracting is possible - Suitability of a subcontractor as regards qualification proofs, technical equipment, personnel and production capacity
6	Production planning and associated reviews - Drawings and parts list, specifications for the materials, auxiliary materials and work equipment used - Work instructions and repair instructions, review of suitability and validation by drawing work samples - Adhesive-bonding and adhesive-fixing devices - Qualification of the adhesive bonding personnel and validity of the associated qualification certificates - Component adhesive bonding and assembly processes (adhesive bonding process flowchart)

7	Auditing of facilities - Suitability of adhesive-bonding devices - Suitability of manufacturing conditions - Provision, marking and handling of auxiliary materials and facilities
8	Definition of adhesive-bonding operations - Preparatory activities prior to adhesive bonding
9	Process qualification - Machine capability review - Process capability review
10	Testing/inspection of adhesive joints - Visual inspection - Destructive and non-destructive tests/inspections
11	Assessment of adhesive-bonded seams and sealing seams
12	Documentation - Preparation and storing of the reports required, including reports prepared by subcontractors

2.6 <u>Compliance demonstration</u>

Compliance demonstration: a procedure applied with a view to proving design conformity with the associated requirements. For "BK1" and "BK2" safety class adhesive bonding operations, at least one of the following compliance demonstration methods shall be applied. This review shall be conducted by way of a documented proof.

The objective of compliance demonstration is to prove that the component meets the design requirements in all life cycles throughout the intended in-service period. There are four compliance demonstration methods:

- Calculating the adhesive-bonded connection (e.g. loads and strains) for each adhesive-bonded connection and comparison with load capacity,
- 2) Examining components or parts thereof under realistic conditions to determine the strength of parts of the assembly,
- 3) Established design due to documented experience,
- 4) Combining methods 1 to 3.

Compliance demonstration is not limited to proof of strength during operation; for example, it also includes observations on adhesion, fastness to media, production loads, ageing etc.

2.7 <u>Technical equipment/Infrastructure</u>

The following installations must be available, if required:

- Defined workplaces for adhesive bonding operations (see work instructions, repair instructions)
- Materials for surface preparation such as disposable cloths, cleaning agents, deburring equipment,
- Dosing aids, e. g. scales,
- Surface pre-treatment systems, e.g. grinding machines, blasting plant,
- Surface post-treatment systems: e. g. primer applicator,
- Furnishing of adhesives: e. g. suitable storage facilities; furnishing of adherends, e. g. positioning and bonding devices, control agents,
- Furnishing of adherends, e. g. positioning and bonding devices, control agents,
- Application equipment,
- Fixing aids, e. g. presses, toggle spanner, suction grips, riveting system, clinching system
- Curing devices: e. g. furnace equipped with an air circulation system
- Equipment and auxiliaries for cleaning of workplaces
- Equipment, installations and auxiliaries for disposal purposes

- Equipment used for temperature and moisture measurements during on-going manufacturing
- Test equipment, e. g. test gauges (measurement of layer thickness), testing machines (mechanical). If no suitable equipment is available, contractual arrangements shall be made with an external testing laboratory.

External testing laboratories performing tests/inspections for the purpose of compliance demonstration, validation of the design and process capability or for continuous process control must provide an adequate qualification certificate.

If no adequate official qualification certificate is available (e.g. accreditation in accordance with DIN EN ISO IEC 17025), the user company shall verify the following criteria when awarding contracts to a company or laboratory for the purpose of compliance demonstration, validation of the design and process capability or for continuous process control with respect to adhesive bondings of component classes BK1 and BK2:

- Personnel (organizational structure, responsibilities of the test personnel/laboratory, qualification certificate for operators of testing machines and adhesive bonding technology (e.g. if samples are produced at own responsibility))
- Testing machines (monitoring, suitability)
- Processes (processing of orders, tests in accordance with internal and external directives, preparation of reports, traceability of data)
- On-site conditions (rooms and spaces, cleanliness, climatic conditions, access restrictions)
- Handling of furnished products
- These requirements are also applicable if the tests for the purpose of compliance demonstration, validation of the design and process capability or for continuous process control are performed internally by the manufacturer.

The production equipment used for adhesive bonding shall comply with the types of application intended.

2.8 <u>Documents to be kept for compliance demonstration</u>

2.8.1 Planning records on adhesive bonding

Each user undertakes to keep ready and document planning records on adhesive bonding; this includes compliance demonstration records.

2.8.2 <u>Manufacturing documents on adhesive bonding</u>

Each user undertakes to keep ready and document manufacturing documents on adhesive bonding.

Work instructions as to the proper making of adhesive-bonded connections and repair instructions for adhesive-bonded products shall be available.

2.9 <u>Sub-contracting</u>

Subcontracts will be awarded only to those companies approved in accordance with this TL and which have the qualifications required. The company shall inform the customer in advance and obtain his approval. In that case, the customer is the prime contractor of the Bundeswehr.

If a company intends to subcontract any work (e. g. design, process planning, manufacturing, repair), it shall make available to the subcontractor all regulations and requirements in question.

The subcontractor shall prepare reports and documents on its activities as instructed by the manufacturer.

3 HOW TO QUALIFY FOR ADHESIVE BONDING OF DEFENCE PRODUCTS

3.1 <u>Compliance demonstration process flow</u>

3.1.1 Application procedure

Applications for first-time or recurring granting of company qualifications and for classification changes shall be submitted to an approved authority. Any company qualifications already existing (e.g. certificates for the adhesive bonding of railway vehicles) may be acknowledged in whole or in part. An application (for company qualification) is considered as an order after confirmation by the approved authority.

3.1.2 <u>Company qualification</u>

Generally, production sites always require a site-specific company qualification. If the different departments are distributed to several sites, the certificate is granted to the site responsible for approval and/or design.

If other sites supply design services but do not approve them, these sites do not require a certification. If services are approved at various sites, all sites concerned have to be certified.

3.1.3 <u>Audit</u>

Qualification is preceded by an audit. During this audit, the company applying shall prove

- that it permanently employs a sufficient number of qualified bonding supervisors and
- of qualified personnel concerned with adhesive bonding,
- that it possesses the necessary technical equipment and infrastructure as defined in DIN 2304-1 and
- that it is able to document the adhesive bonding processes by means of bonding-specific planning and manufacturing documents.

3.1.4 Technical discussion to be held with the adhesive bonding supervisor

During the audit, the technical expertise of the bonding supervisors shall be verified by the approved authority.

3.1.5 Sample adhesive bondings / Auditing of adhesive bondings

In case of first-time or recurring granting of qualifications, a minimum of one adhesive bonding of the highest component class applied for must be produced or repaired during the audit.

The adhesive bonding shall be typical for the adhesive bondings usually produced or repaired. If there are various typical adhesive bondings (e.g. elastic one-component sealing adhesives and adhesive bondings with high-modulus two-component adhesives), it shall be coordinated with the certification authority or the auditor in due time before the audit which adhesive bonding is audited. In any case, a full process documentation must be available for each adhesive system.

If no adhesive bonding of the highest class is produced at the time of the audit, a sample adhesive bonding based on a typical adhesive bonding of the highest class possible in terms of type and scope of documentation shall be prepared. This shall be coordinated with the approved authority or the auditor in due time prior to the audit.

3.1.6 <u>Final talks</u>

The approved authority is obliged to provide and document a professional assessment, the results of which will be communicated during final talks with the adhesive bonding supervisor.

3.2 <u>Issuance of the company qualification</u>

3.2.1 General

After successful completion of the audit and/or recognition of the existing company qualification, the approved authority certifies, by issuing a company qualification certificate in accordance with this TL, that the company in question meets the qualification criteria for adhesive bonding in accordance with the requirements laid down in section 2.

3.2.2 <u>Validity period</u>

The company qualification stating that the company is qualified to bond products is granted for a limited period of time, subject to revocation.

The maximum period of validity is three years. In justified cases the approved authority may make the validity of a company qualification contingent on the fulfilment of further requirements (e.g. additional bonding supervisors, testing/inspection and use of additional adhesives, additional tests/inspections to be conducted under quality assurance, regular review of work processes, production surveillance by the approved authority).

As a rule, it is not permitted to extend the validity of the company qualification.

In exceptional cases, if it is not possible to agree on a new audit date, the qualification may be extended by the approved authority without an audit for a maximum of three months.

The company is to be notified accordingly in writing. The new expiry date of the qualification shall be indicated in the online database.

3.2.3 Monitoring of compliance with the requirements

In the period of validity of the qualification, the approved authority may, in coordination with WIWeB, monitor compliance with the requirements specified in section 2 according to the granted scope of use.

3.2.4 Extension of validity of or amendment to the company qualification

The company shall, if required, request a competent approved authority to extend the validity of its qualification at least three months prior to expiration of validity. Such an extension may, after completion of the audit, be granted by the approved authority without any detailed technical discussions if the following criteria required for qualification still apply:

 a) the adhesive bonding supervisors are still performing their functions without changes

and

b) no major complaints were made during the validity of the qualification concerned.

If one of the above conditions is not met, an updated company description shall be submitted for an audit.

3.2.5 The company's obligation to inform

The certified company is obliged to inform the approved authority of all changes relating to the approval scope of the company (qualification) certificate. The approved authority shall be informed of any intended changes in/amendments to the areas listed below; it will then review the changed situation:

- component class
- scope
- legal form and organisational structure of adhesive bonding supervision
- (all adhesive bonding supervisors, not only the responsible adhesive bonding supervisor)
- contact address and location
- major management system/process changes

change to the rooms and spaces
 used for classified adhesive bonding.

3.2.6 Revocation of the company's bonding qualification

The authority approved by the Bundeswehr Center of Welding and Bonding Technology is entitled to revoke the company's bonding qualification if:

- a) there are justified doubts as to compliance of adhesive bonding with the said rules
- b) there are justified doubts as to proper supervision in accordance with the said rules
- c) a qualified adhesive bonding supervisor is no longer available
- d) other conditions in accordance with the said rules are no longer met.

The approved authority shall inform the company in writing that its qualification has been revoked. The company shall confirm such revocation.