

*Translation of the German edition from December 2008***Contents:**

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1 Scope of application

This quality assurance concept applies to above-ground tanks, apparatus and piping made of thermoplastics with and without internal pressure loading and/or dangers to people and the environment. It can also be correspondingly applied to comparable thermoplastic components and structures. In principle, it must be clarified in advance whether any and, if necessary, which legal regulations (e.g. Pressure Device Directive, Water Resources Act, Operational Safety Ordinance etc.), standards or delivery agreements apply to the component. Additional quality assurance measures may be demanded in these. Furthermore, the contracting parties may agree upon deviations from this quality assurance concept. The expedient test procedure(s) must be chosen according to the execution, operating stresses and application concerned.

In principle, the contracting parties must stipulate the type and scope of the quality-assuring measures as well as their timing.

The quality assurance concept may be applied not only by the in-house production control / quality assurance of the contractor but also by external testers and inspectors (e.g. of the customer or of any third parties commissioned by him).

2 Documentation

The tests and inspections must be documented in a suitable form (see Annexes 1 and 2). A separate certificate according to DIN EN 10204 may be elaborated in addition.

3 Assessment

On the basis of Annexes 1 and 2, it must be established whether the requirements are fulfilled. If any requirements are not fulfilled, repairs are permissible if they are carried out properly and do not have any negative effects on the quality of the component. The

customer must be informed of any repairs which may influence the utilisation properties. The scope of the testing and inspection may be extended if necessary.

If any requirements are not fulfilled and a repair is impossible, the contractor can, after consultation with the customer, provide separate proof of the usability of the component. The contracting parties must conclude a written agreement about the type, scope and evaluation of this proof.

4 Explanations

In Annexes 1 and 2, the individual test procedures are indicated in the form of a structured check list. The annexes are to be understood as a guide. The contracting parties may agree upon deviations from it.

5 Standards, technical codes, guidelines and technical bulletins which are also applicable

DVS 2201	Testing of semi-finished products made of thermoplastics; fundamentals and remarks
DVS 2202-1	Defects in welded joints between thermoplastics; characteristics, description and assessment
DVS 2203	Testing of welded joints between panels and pipes made of thermoplastics
DVS 2205	Calculation of tanks and apparatus made of thermoplastics
DVS 2206	Testing of components and structures made of thermoplastics
DVS 2207	Welding of thermoplastics
DVS 2208-1	Welding of thermoplastics; machines and devices for the heat-tool butt welding of pipes, piping parts and panels
DVS 2210	Industrial piping made of thermoplastics
DVS 2212	Qualification testing of plastics welders
DVS 2213	Specialist for plastics welding; qualification test
DVS 2221	Qualification testing of plastics adhesive bonders
DIN EN 10204	Metallic products; types of test certificates
DIN 1696	Pipes and fittings made of thermoplastics with a profiled wall and a smooth inside pipe surface
DIN EN 12573-1	Welded stationary non-pressurised tanks made of thermoplastics - General fundamental principles

This publication has been drawn up by a group of experienced specialists working in an honorary capacity and its consideration as an important source of information is recommended. The user should always check to what extent the contents are applicable to his particular case and whether the version on hand is still valid. No liability can be accepted by the 'Deutscher Verband für Schweißen und verwandte Verfahren e.V.', and those participating in the drawing up of the document.

DVS, Technical Committee Working Group "Joining of Plastics"

Annex 1:**Check list for the testing and inspection of tanks/apparatus made of thermoplastics**

Manufacturer:		Manufacturing no.:				
Consecutive no.	Test or inspection	Standards, technical codes, technical bulletins and similar documents	Scope of testing or inspection ¹⁾	Requirement fulfilled		Signature of tester or inspector
				Yes	No ²⁾	
Tests and inspections before the manufacture:						
1	Qualifications of the manufacturer e. g. procedure qualification test, specialist company according to Section 19 I of the Water Resources Act (WHG), QM system, external monitoring, fabrication facilities and testing facilities	e. g. WHG DIN EN ISO 9001 DGR DVS 2208-1 Miscellaneous ²⁾				
2	Proof of the qualifications of the welding and adhesive bonding personnel e. g. scope of application / period of validity	DVS 2212 DVS 2213 DVS 2221				
3	Suitability of the materials e. g. installation type / thermal and mechanical load-bearing capacities / chemical resistance / joining technique	DVS 2201 Media lists DIN EN 10204				
4	Dimensioning e. g. pressure / temperature / installation / medium / utilisation duration / safety margins / stress type / special requirements	DVS 2205				
Tests and inspections during and/or after the manufacture:						
5	Processing	DVS 2207				
6	Shape / dimensions / limiting dimensions	DVS 2206 ³⁾ DIN 16961				
7	Wall thicknesses	DVS 2206 ³⁾				
8	Out-of-roundness (limiting dimensions)	DVS 2206 ³⁾				
9	Surfaces (inside and outside)	DVS 2206 ³⁾				
10	Welded / adhesive-bonded joints (visual / dimensional)	DVS 2202-1 DVS 2205 DVS 2206 ³⁾				
11	Work specimens (visual / dimensional / destructive)	DVS 2202-1 DVS 2203 DVS 2205 DVS 2206 ³⁾				
12	Leak test / pressure test	DVS 2206 ³⁾				
13	Storage	Information from the manufacturer				
14	Transport	Information from the manufacturer				
15	Installation	EN 2533-1				
16	Documentation from the manufacturer	DIN EN 10204				

1) e. g. on random samples, 10 %, 100 % etc.

2) Remarks and explanations required

3) Under preparation